

**LIBRARIES AND THE CIRCULATION OF POWER: A HISTORICAL CASE STUDY  
OF PITTSBURGH, 1924–2016**

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# **LIBRARIES AND THE CIRCULATION OF POWER: A HISTORICAL CASE**

## **STUDY OF PITTSBURGH, 1924–2016**

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University of Pittsburgh, 2017

This project explores how political power shaped the development of a regional public library infrastructure in greater Pittsburgh, United States. The project is interdisciplinary in that it addresses research problems from two fields. In library studies, research related to the public sphere and public libraries uses an exhausted paradigm, one that is anachronistic and anatomic. A new public sphere paradigm is needed for research about public libraries. Also in library studies, historical accounts of libraries in greater Pittsburgh have overlooked the history of the regional public library system. A history of the system has yet to be written. In political science, Habermas's *Machtkreislauf*, or circulation of power model faces several objections and it has not received sufficient empirical testing. The model could be refined by applying it to an actual case. To address these problems, this project dovetails them by asking the following research question: How does the *Machtkreislauf* model apply to the regional public library system in Pittsburgh? To answer this question, this project uses historical case study, a research strategy that was newly developed for this project. This study proceeds in several stages: source collection and analysis, data collection and analysis, and data interpretation. Source collection combines archival research, interviewing, and fieldwork to gather source materials, periodize the case, and limit the boundaries of the case. Data collection uses qualitative content analysis to construct a coding instrument, validate it, and apply it to the source materials. Data interpretation uses qualitative comparative analysis to identify and describe the causal conditions



that explain the case's outcomes. This project contributes new findings to multiple areas. To the area of research methodology, it proposes a novel research design, historical case study. To political science, it revises the Machtkreislauf model using new concepts, including circuits, tessellations, broadcast/narrowcast, and formal decision. To library studies, it offers a historical account of the regional public library system in Pittsburgh using the concept of decision cycles. Also to library studies, it proposes a new theory where configurations of civil activity, responsiveness, legitimacy, and resistance explain how the public sphere affects public library development.

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## **DEDICATION**

To my wife, Rachel, our daughter, Eliza, and our boys, Benjamin and Henry.

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All flaws and mistakes in this work are entirely my own.

## **PREFACE**

This dissertation project is a historical case study of a public library system. It explores the notion of power, and to do so it uses concepts and methods drawn from history, political science, sociology, and philosophy. Given this project's scope and topic, it may seem problematic to locate it in the information sciences. It might be asked, why libraries? Why history? Why power? And why not do something more technical, something practical?

Reflection on the history of the School of Information Sciences at the University of Pittsburgh reveals why information science is an appropriate field to locate this project. The beginning of the school traces to 1901 when the Carnegie Library of Pittsburgh established the Carnegie Library School to train children's librarians. Then, from 1930 to 1962, the school was part of Carnegie Institute of Technology, or Carnegie "Tech." Carnegie Library and Carnegie Tech sponsored the library school until June 1963 when the University of Pittsburgh inherited it. At the University of Pittsburgh, it was first called the Graduate Library School.

At Pitt, the Graduate Library School was first housed in the Cathedral of Learning, the building that now houses the School of Arts and Sciences. The first class of the doctoral program in library science was admitted in September, 1963 ([Aspray, 1999, p. 6](#); [Munn, 1970, pp. 101-102](#)). The master's program in library science began the next year in 1964. That same year, the school renamed to the Graduate School of Library and Information Sciences. In the mid-1960's, the school began to move to its current building on Bellefield ([Bleier, 2001, p. 58](#)).

In 1969, the school organized into a Department of Library Science and a Department of Information and Communication Science ([Bleier, 2001, p. 58](#)). The Department of Information and Communication Science was led by Allen Kent, chair, and Anthony Debons, vice chair ([Levine, 2013, November 7](#); [School of Information Sciences at the University of Pittsburgh, 2014, May 2](#)).

In 1969, Kent and Debons accepted students into a new doctoral program, the Interdisciplinary Doctoral Program in Information Science. This program was the beginning of what is now the information science program. The program was advertised as liberally-focused with an emphasis on theory:

The students come from very different backgrounds—some from engineering, others from the social sciences, still others from the humanities. The program accepts students with undergraduate majors in almost any discipline, but when they complete their studies in information science they will have well-rounded backgrounds in the behavioral, systems, computing, engineering, and basic sciences. It is one of the few information science programs in the country with an interdisciplinary emphasis. Most other academic programs in information science have stressed the technological aspect of the process. ([Pennsylvania Library Association, 1970, p. 322](#))

The first doctoral program in information sciences, while it was billed as a science, also welcomed approaches from the arts and humanities. Debons, the curriculum designer, emphasized scholarship tied to communication, social life, and theory development ([Aspray, 1999, p. 11](#)). Faculty and students today may be surprised to learn that at one time the information science program emphasized interdisciplinary study and critical reflection as much as it did system design.

Changes at the information school continued from 1970 to the present day. In 1973, the Department of Information and Communication Science renamed to the Interdisciplinary Department of Information Science. In 1979, with the addition of a bachelor's program, the school renamed to the School of Library and Information Science ([Bleier, 2001, p. 90](#)). In 1996, the school changed to the School of Information Sciences. Two departments formed at that time: the Department of Library and Information Science and the Department of Information Science and Telecommunications ([Bleier, 2001, p. 120](#)). By 2003, the School of Information Sciences became an iSchool ([Larsen, 2010](#)). It has been said that work in an iSchool setting must, by definition, explore the relationship between information, technology, and people ([Larsen, 2010, p. 3021](#)). Faculty and students in the school today may conflate technologies with products, but libraries were once considered a form of technology composed of artifacts, people, and the practices surrounding them ([Mumford, 1934](#)).

The above historical sketch of the School of Information Sciences shows how this dissertation project embodies many defining features of information science. This dissertation:

- explores the nature of libraries and library systems;
- examines the relationship between people, information, and technology;
- understands libraries as a particular form of information technology;
- addresses a set of interdisciplinary problems;
- uses an interdisciplinary approach drawn from sociology, history, and network theory;
- maintains a close association between information and communication;
- focuses on the human aspects of information systems; and
- understands theoretical development as the purpose of scholarship.

Given these shared characteristics between the field and this project, it is clear that information science is a perfect setting for this dissertation project.

In 2016, the School of Information Sciences at the University of Pittsburgh changed its structure once again. Two new departments were formed, the Department of Information Culture and Data Stewardship and the Department of Informatics and Networked Systems. In 2017, Computer Science is scheduled to join the school as a third department, and at that time the school will rename to the School of Computing and Information. Despite the change in name and structure, it can only be hoped that the school will continue to encourage interdisciplinary reflection.

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Pittsburgh, United States

Spring 2017

## 1.0 INTRODUCTION

### 1.1 RESEARCH PROBLEMS

This dissertation project addresses three research problems from two research fields. Firstly, in library studies, public libraries have been associated with the public sphere for several decades, but the dominant paradigm in this area has come into question ([Widdersheim, 2016](#); [Widdersheim & Koizumi, 2016b](#)). Alternative frameworks have been proposed but not yet applied. One proposed framework is the Machtkreislauf, or circulation of power, model put forth by [Peters \(1993, 2008\)](#) and [Habermas \(1996\)](#). Secondly, in the political sciences, the Machtkreislauf model has been discussed but not sufficiently tested ([Baxter, 2011](#); [Flynn, 2004](#); [Forbath, 1998](#)). Several objections have been raised against the model, and the model could be further enhanced using data from another actual case. Thirdly, in library studies related to the history of Pittsburgh, United States, public libraries as a regional infrastructure have been overlooked ([Lubove, 1995](#); [Tarr, 1989](#)). Previous studies show that civil society, state, and private groups legitimated and governed libraries throughout the 20th and into the 21st centuries ([Widdersheim & Koizumi, 2015a, 2016a, 2017](#)). A public sphere perspective of this library system is therefore appropriate and could lead to a fuller understanding of library development at a regional scale. [Table 1.1](#) below summarizes these research problems (RPs) from the library studies and political science fields.



**Table 1.1. Research problems by field.**

	Field	Problem description
RP1	Library Studies	In the area of the public sphere and libraries, the Machtkreislauf model has been proposed as an alternative paradigm but it has not yet been tested in the area of library studies.
RP2	Political Science	The Machtkreislauf model has been discussed and criticized conceptually but empirical support is insufficient. The model requires testing and revision.
RP3	Library Studies	Regional public library infrastructure has been overlooked in historical accounts of Pittsburgh, USA. A public sphere perspective could lead to insights in this area.

## **1.2 RESEARCH PURPOSES**

The overall purpose of this dissertation project is to develop a fuller historical understanding of the public sphere and public library development. The study will apply a new public sphere paradigm to the study of libraries, refine an existing political science model, and develop a fuller historical understanding of public libraries in Pittsburgh. These research purposes are summarized in [Table 1.2](#) below.

**Table 1.2. Research purposes by field.**

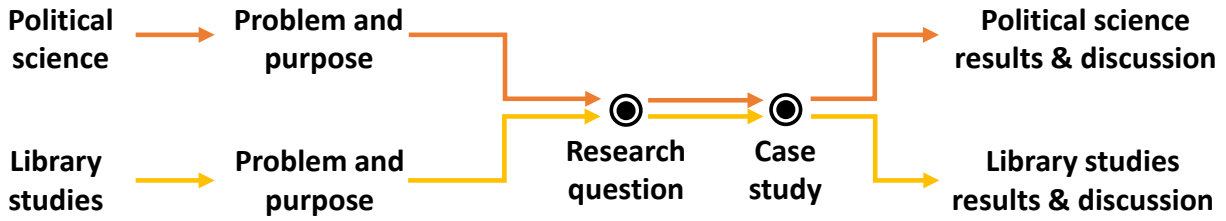
	Field	Description of purpose
Purpose 1	Library Studies	Apply the Machtkreislauf model to a study of public libraries.
Purpose 2	Political Science	Refine the Machtkreislauf model using empirical data.
Purpose 3	Library Studies	Develop a historical account of public library infrastructure.

In order to accomplish these goals, this project adopts a historical case study approach, a research design that was newly developed for this study. This project uses a mixture of archival documents, interviews, and field observations as source materials. After the collection of source materials, the materials are then coded and analyzed in a systematic way using qualitative content analysis. To do this, a coding instrument is constructed, validated, and applied to the source materials. The case for this study is defined as *discourse related to a regional public library system in Pittsburgh*. The case is bounded temporally from 1924 to 2016. Spatially, the case is bounded by Allegheny County, Pennsylvania. Within the time span of the case, 9 distinctive periods of public sphere discourse are identified, described, and compared. These periods form embedded units of analysis. Qualitative content analysis is used to generate data about the case, and this data forms the basis of comparison of the periods. Qualitative comparative analysis is the specific method used for comparison. The purpose of the comparative analysis is to develop a general theory of the public sphere and public libraries. This study is significant because it presents a new research strategy, historical case study; it makes substantive modifications to the Machtkreislauf model and develops new concepts for it;

it offers the first historical account of a regional library system in Pittsburgh; and it proposes a new explanatory theory of the public sphere and public libraries.

### 1.3 RESEARCH QUESTIONS

The central, overarching research question (RQ) for this project is: How does the Machtkreislauf model apply to the regional public library system in Pittsburgh? This research question is broad, open-ended, and exploratory. It ties together the research problems from two fields: library studies and political science (see [Figure 1.1](#)). This umbrella research question also incorporates several sub-questions (SQs), each corresponding to one specific field. [Table 1.3](#) shows these sub-questions and how they align with each field. [Table 1.3](#) also shows what types of knowledges the questions solicit and what type of intellectual products they expect. SQ1 and SQ2 are *what* questions that call for descriptions in the form of narratives, graphical illustrations, concepts, or models. SQ3 is a *why* question that calls for an explanation and prediction in the form of a causal theory ([Blaikie, 2010, 2014](#)). SQ2 asks *how* the system evolved as it did; SQ3 asks *why* the system evolved that way. The approach adopted in this study is to compare the periods of the case descriptively in order to address SQ2, then use these descriptions to develop an explanation in order to address SQ3.



**Figure 1.1. Alignment of research problems, purposes, question, and results by field.**

**Table 1.3. Alignment of research questions with fields, knowledges, and products.**

	Field	Question statement	Type of knowledge solicited	Expected intellectual product
RQ	Both fields	How does the Machtkreislauf model apply to the regional public library system in Pittsburgh?	Description and explanation	Model, theory, narrative, graphical illustration
SQ1	Political science	What does a tested and refined Machtkreislauf model look like?	Description	Concepts, model
SQ2	Library studies	What does the evolution of the library system in Pittsburgh look like?	Description	Narrative, graphical illustration
SQ3	Library studies	How does the public sphere affect public library development?	Explanation, prediction	Causal theory

## **2.0 LITERATURE REVIEW**

### **2.1 THE PUBLIC SPHERE AND PUBLIC LIBRARIES**

This section surveys how the public sphere concept has been associated with public libraries in the library studies field. The survey shows that the topic of the public sphere and public libraries is an important and longstanding one of international concern. The review then identifies two underlying problems in the literature: anachronism and anatopism. These problems are explained. It is then shown that these problems are symptomatic of a larger latent problem, namely that the research related to the public sphere and public libraries uses an exhausted public sphere paradigm. It is suggested that the problems can be avoided by adopting a new research paradigm for the study of the public sphere and libraries. A recommendation—Habermas's *Machtkreislauf* model—is made toward this end.

### 2.1.1 Overview

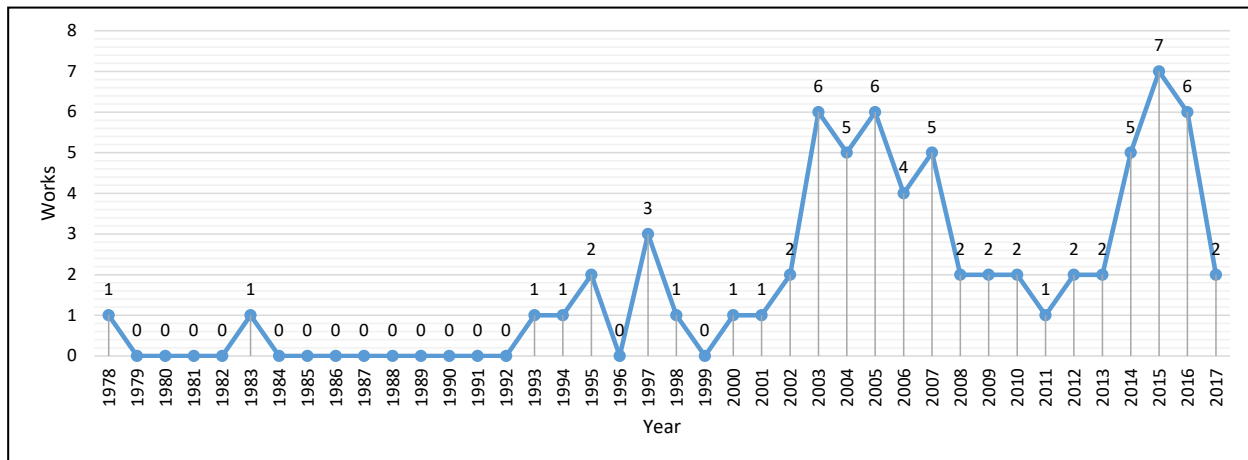
The term *public sphere* is the English-language translation for the German word *Öffentlichkeit*, meaning *openness* or literally *openliness*<sup>1</sup>. The public sphere refers both to a public of people and to the communication they share. Associations between public libraries and the public sphere began in 1962 following the publication of *The Structural Transformation of the Public Sphere* by Jürgen Habermas in German ([Habermas, 1962](#)). Discussion about what the public sphere is and how it relates to libraries continued in Germany, then broadened across Europe, North America, and South America as *Structural Transformation* was translated into different languages and the public sphere concept became more widely known.

At present, 71 works associate the public sphere and public libraries (see [Appendix A](#)). The works were retrieved using searches for terms such as “public sphere” and “public libraries” in databases such as *Library Literature and Information Science*, *Library and Information Science Abstracts*, *Library, Information Science, and Technology Abstracts*, and *Proquest Dissertations and Theses*; grey literature searches in popular Web search engines using both English and non-English terms such as “Öffentlichkeit” and “esfera pública;” searches in proceedings of relevant conferences, such as *Conceptions of Library and Information Science*, *Association for Information Science and Technology*, and *iConference*; citation chaining; and word of mouth.

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<sup>1</sup> Parts of this literature review section were previously published as conference papers, [Widdersheim \(2016\)](#) and [Widdersheim and Koizumi \(2016b\)](#), at the Conceptions of Library and Information Science Conference (CoLIS 9) in Uppsala, Sweden, June 27–29.

[Figure 2.1](#) shows the linear trend in publications by year. The trend suggests a continuity of interest in the topic.



**Figure 2.1. Works that associate the public sphere and public libraries by year.**

The authors of the works in [Table 6.1](#) represent 11 countries, according to authors' national affiliations at the times of their writings. A total of 59 unique individuals account for the authorship pool. There were 120 total instances of authorship. [Figure 2.2](#) shows the instances of authorship by country. In the case of Brazil, for example, there were 4 instances of authorship by 4 individuals. Each individual was an author 1 time. In the case of the UK, 5 individuals together served as authors 12 times, each one contributing 2 or 3 times. The volume of authorship and its global distribution as shown in [Figure 2.2](#) suggests that the public sphere and public libraries is a topic of broad, international interest that concerns a significant number of researchers in the library studies field.



Figure 2.2. Distribution and volume of authorship by country.

### 2.1.2 Theme 1: Media infrastructure

Within the above literature, there are two salient themes. The first explores how public libraries form a material basis for public sphere communication and a place for publics to congregate, both physically and virtually. In this theme of the literature, public libraries represent the media infrastructure of the public sphere. They have replaced the coffee houses, salons, and table societies of Enlightenment-era Europe. Public libraries are the “windows” of an information society ([Ventura, 2002](#)), its public sphere “platforms.” As media infrastructures, public libraries act as media suppliers, virtual and physical meeting places, and protected spaces for communicative exchange. Existing literature about the public sphere and public libraries



emphasizes various facets of this infrastructure. One prominent facet is the public library's role as a physical meeting place. Several studies survey how public libraries act as meeting places ([Aabø & Audunson, 2012](#); [Aabø, Audunson, & Vårheim, 2010](#); [Audunson, Vårheim, Aabø, & Holm, 2007](#)). In these studies, the asserted benefits of public sphere communication in public libraries are positive by-products of the communicative process itself, such as the creation of civic culture ([Kranich, 2004, 2013](#); [McCook, 2003, 2004](#)) and social capital ([Audunson et al., 2007](#)).

Existing literature also emphasizes the openness and diversity of media resources of public libraries. [Webster \(1995\)](#) and [Buschman \(2003\)](#) foreground public libraries' collections that contain diverse viewpoints and are in principle open to anyone. At the same time, it is said that public libraries are not neutral in the kinds of communication they support ([Andersen, 2005](#); [Andersen & Skouvig, 2006](#)). There is a strong current in the literature that expresses scepticism about whether the types of culture and messages that are transmitted through libraries are genuinely undistorted, whether they are not commercialized or hegemonic. Following the observations of [Webster \(1995\)](#), both [Leckie and Hopkins \(2002\)](#) and [Buschman \(2003\)](#) express ambivalence about whether public libraries are too privatized and business-oriented to facilitate public sphere communication. Similar sentiments are expressed by [Vestheim \(1997a\)](#) and [Taipale \(2006, 2009\)](#).

Some studies describe public libraries as part of a larger media infrastructure for the formation of public opinion ([Frota, 2014](#); [Schuhböck, 1983](#)). [Widdersheim and Koizumi \(2015a, 2015b\)](#) find that public libraries were used as a public sphere by civic groups, readings clubs, and communities. In their historical surveys of public library developments, [Richards, Wiegand, and](#)

[Dalbello \(2015, p. 70\)](#) and [Black and Hoare \(2006, p. 7\)](#) remark that public libraries form part of the public sphere infrastructure of modern societies.

There are several confusions in this category that are worth noting. First, in some studies, the noun public sphere (*der Öffentlichkeit*) in the public opinion and public communication sense is sometimes confused with the adjective public (*öffentlich*) in the sense of government ownership. For example, [Webster \(1995, p. 176\)](#) states that public libraries are public sphere institutions because they are “publicly funded” and “staffed by professional librarians”. Similarly, [Leckie and Hopkins \(2002, p. 357\)](#) claim that “the library is becoming increasingly co-opted by multiple private interests,” implying that public communication necessitates public funding. These descriptions are mistaken because a public sphere does not require tax-based, government management. Early public sphere meetings occurred in private clubs and salons in private homes. Not privatization and commercialization per se, but certain types of privatization and commercialization potentially distort the public sphere. A second confusion is between public communication and information transfer. [Jaeger et al. \(2014\)](#) state that “libraries, schools, and other public sphere organizations...exist specifically to ensure that information continues to move between the small worlds.” Public sphere communication requires information exchange, it is true; but this condition alone is insufficient for a public sphere in a normative sense to materialize. The “information equals democracy” assumption has been previously interrogated ([Lievrouw, 1994](#)). Reducing the public sphere to information transfer leaves no room for distinctions of information quality and use. Finally, [M. J. Williamson \(1998, 2000\)](#) makes a third mistake by associating the public sphere with service provision. Services provided by public libraries, such as those for job seekers, are not necessarily related to public sphere

communication at all—they are just services that don’t require an orientation to common concern and argumentative exchange.

### **2.1.3 Theme 2: The metasphere**

The second salient theme of existing literature observes how public libraries are themselves objects of public sphere communication. This literature discusses how public libraries have been or currently are legitimated by various groups in the public sphere. In some cases, public libraries were created due to popular pressure from civil society groups ([Schuhböck, 1994, p. 218](#); [Widdersheim, 2015b](#)). Once institutionalized, public libraries themselves mobilize support on their behalf ([Machado, Elias Junior, & Achilles, 2014](#); [Widdersheim & Koizumi, 2015b](#)). Recent studies use interviews or discourse analysis to study how various stakeholders, such as politicians, civil society groups, and librarians legitimate public libraries in the public sphere ([Evjen, 2015](#); [Ingraham, 2015](#); [Newman, 2007](#)). Insofar as public libraries constitute public sphere infrastructure, discourse about that infrastructure is said to be a “metasphere” of the library ([Ingraham, 2015, p. 156](#)). [Emerek and Ørum \(1997\)](#) and [Vestheim \(1997a\)](#) establish that this metasphere affected the historical development of public libraries in Denmark and Norway.

### **2.1.4 Problem 1: Anachronism**

Besides the two salient themes described above, two problems in the literature are also noticeable. These problems exist because the literature has focused on how public libraries and the public sphere are similar, but it has neglected to account for how public libraries and the public sphere are different.

The first significant difference between public libraries and the public sphere is that the liberal model of the public sphere is a historically-bounded concept. As it was described in *Structural Transformation*, the public sphere emerged in eighteenth-century France, England, and Germany following a general shift from feudalism to mercantile capitalism and a gradual growth of state bureaucracy. As a social-historical category, the public sphere represented an unfulfilled promise, an ideology that failed to materialize authentically even in its heyday in the mid-nineteenth century. By the mid-nineteenth century, due to economic and technological changes, the public sphere in the liberal sense began to collapse into a mediatised, power-ridden (*vermachteten*) public sphere, one that was “refeudalized” by state and corporate interests to form a staged and acclamatory public ([Eley, 1992](#); [Habermas, 1989, p. 195](#)). Habermas is unequivocal regarding the temporal location of the liberal public sphere model described in the first half of *Structural Transformation*:

Although the liberal model of the public sphere is still instructive today with respect to the normative claim that information be accessible to the public, it cannot be applied to the actual conditions of an industrially advanced mass democracy organized in the form of the social welfare state. ([Habermas, 1974, p. 54](#))

It is clear from this passage and from *Structural Transformation* that the public sphere only describes cultural dynamics that peaked around the mid-nineteenth century but did not last beyond the late nineteenth century ([Habermas, 1989](#)). [Figure 2.3](#) below shows a simplified historical transformation of the public sphere.

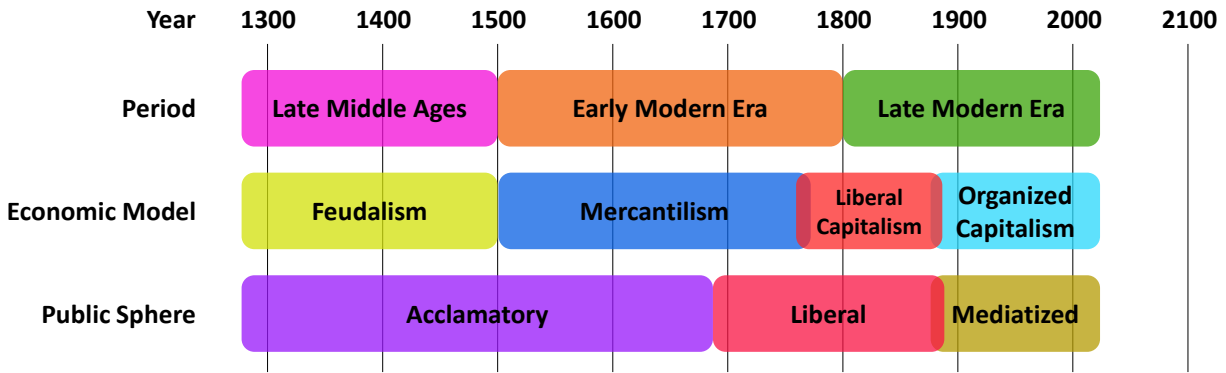


Figure 2.3. Simplified history of the European public sphere ([Widdersheim, 2016](#)).

The year 1850 is an important date for the purpose of this discussion because public libraries did not develop significantly in any nation before that date. Public libraries in this case refer to state-sponsored libraries, not libraries that are privately owned but open for public use, such as the *Gebrauchsöffentlichkeit* mentioned by [Schuhböck \(1994, p. 217\)](#) and [Vestheim \(1997b, p. 121\)](#). [Table 2.1](#) below shows significant formative developments in public libraries internationally. The content in [Table 2.1](#) is drawn from [Richards et al. \(2015\)](#).

Table 2.1. Formative developments in public libraries ([Richards et al., 2015](#)).

Nation	Significant early events in public library development
United Kingdom of Britain and Northern Ireland	Public Libraries Act of 1850 The Library Association founded in London (1877)
Denmark	State Libraries Agency (1882) Professional association established (1915) Public Libraries Act (1920)
Norway	Opening of Deichmanske Bibliotek (1898) Professional association established (1915)

Sweden	Establishment of state funding (1905)
Russia	Founding of public library by Liubov Borisovna Khavkina (1886)
Poland	Founding of public library in Warsaw by Zaluski brothers (1747); removed by Russia in 1795 Warsaw Philanthropic Society opens free readings rooms (1861)
Bulgaria	Law requiring all communities to form reading societies (1927)
Germany	Karl Benjamin established Sunday school with library open to public (1828); accepted as town library in 1833 Friedrich von Raumer established four public libraries in 1850 Book hall movement ( <i>Bücherhallenbewegung</i> ) started by Eduard Reyer and Constantin Nörrenberg (1895)
Czechoslovakia	Matica Slovenská founded in 1863 Martin (now the Slovak National Library in Slovakia)
Belgium	Willemsfond establishes public library opens in Ghent (1856) and small libraries across Flanders Davidsfonds establishes small libraries across Flanders (1875) Ligue de l'enseignement establishes small libraries with primary schools in Brussels (1864)
Netherlands	Libraries established at Utrecht (1892) and Dordrecht (1898) Central Association for Public Reading Rooms and Libraries established (1908)
France	Establishment of hundreds of small libraries run by volunteers (1860-1900) Eugène Morel publishes <i>Bibliothèque</i> (1908-1909) and begins training courses for librarians (1910-1913)
Italy	Antonio Bruni opens the first popular library in Prato (1861) Municipal libraries established in Milan (1867) and Turin (1869)
Spain	Small public libraries open (1869)
Portugal	Decree opens small public libraries (1870)
United States	Massachusetts passed legislation to fund a public library in Boston (1848); Boston Public Library opened in 1854 American Library Association formed (1876) New York Public Library established (1895)
Canada	Ontario (1882), Manitoba (1899), Saskatchewan (1906), Alberta (1907), New Brunswick (1929), Nova Scotia (1937), and Quebec (1959) adopt public library legislation

Supposing that [Table 2.1](#) above is correct, and that few significant public library developments occurred in any country before the mid-nineteenth century; and supposing also that *Structural Transformation* is correct that the liberal public sphere—as a structural category tied to economic and cultural conditions—began to disintegrate around the mid-1800s, then the following question must be addressed: how can the public sphere describe public libraries when the public sphere began to collapse just as public libraries began to develop? Existing literature that associates the public sphere with public libraries must confront allegations of anachronism—the application of the public sphere concept to a period where it does not belong ([Figure 2.4](#)). Literature that associates the public sphere with public libraries appropriates the public sphere concept, but only incompletely: it fails to account for its temporal boundedness. The same literature that borrows the public sphere concept to describe public libraries in the late nineteenth, twentieth, and twenty-first centuries also implicitly repudiates the claim that the public sphere is a temporally-bounded concept. How is it that contemporary public libraries can be classed as public spheres in a way that is non-illusory and non-ideological? It remains to be explained how public libraries can be associated with the public sphere in a non-anachronistic way.

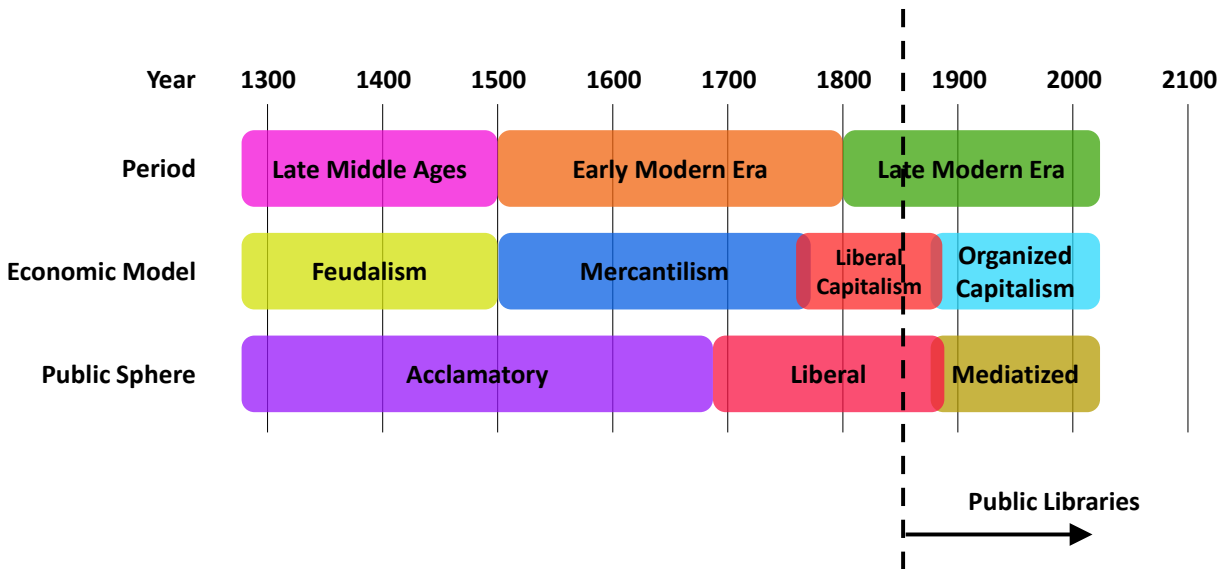


Figure 2.4. Minimal overlap of liberal public sphere and public libraries ([Widdersheim, 2016](#)).

### 2.1.5 Problem 2: Anapopism

A second significant difference between the public sphere and public libraries, besides temporal location, is geographical location. Geography in this sense does not mean physical geography, it means categorical geography. Traditionally defined, the public sphere inhabits a space in civil society that mediates between civil society and the state. In this position, it affects both ([Eley, 1992](#); [Habermas, 1989](#)). The public sphere affects civil society through political-cultural critiques of everyday practices ([J. L. Cohen & Arato, 1995](#)), and it affects the state by influencing laws and legislation ([Habermas, 1996](#)). This in-between position of the public sphere, as a specifically non-state entity, is explained in *Structural Transformation* ([Habermas, 1989, p. 30](#)). This conceptual geography is visualized in [Figure 2.5](#).



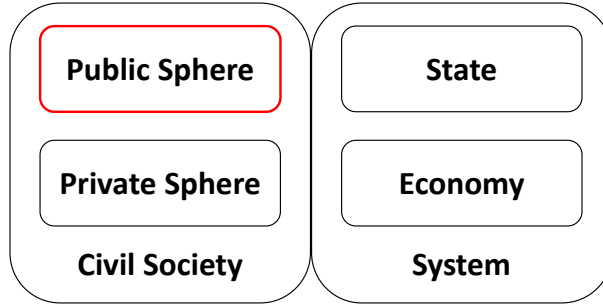


Figure 2.5. Traditional location of the liberal public sphere ([Widdersheim, 2016](#)).

This conceptual geography differs significantly from the empirical reality of public libraries because public libraries are state authorities—they are state-owned, state-managed, and state-funded. It is true that public libraries vary in their specific relationships with the state ([Joeckel, 1935](#); [Usherwood, 1993](#)): some are trusts, some are non-profit organizations, and others are municipal departments. Whatever the specific relationship to local governments, however, public libraries are by definition state-sponsored agencies. Many are funded by wealth transfer from the economy to the state, which is enforced through tax legislation. Because public libraries are state authorities, literature that associates the public sphere with public libraries must confront the objection of anatopism—the application of the public sphere concept to a categorical location where it does not belong. Associations between the public sphere and public libraries inadvertently shift the categorical location of the public sphere from civil society to the state. This anatopic shift is visualized in [Figure 2.6](#). Existing literature has not explained how the public sphere concept can describe state authorities like public libraries without succumbing to objections of conceptual anatopism.

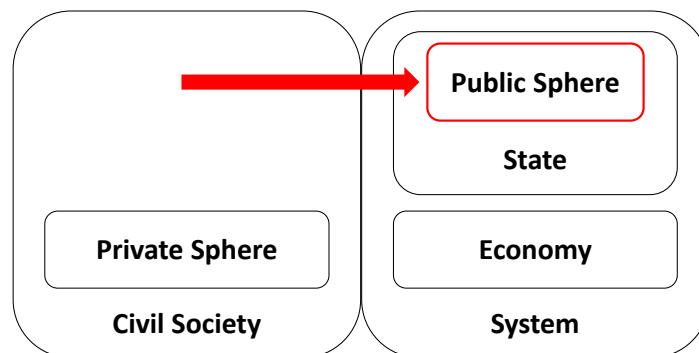


Figure 2.6. Anatomic shift of the public sphere in library literature ([Widdersheim, 2016](#)).

### 2.1.6 Proposed solution: Multiple paradigms

Problems of anachronism and anatopism are obscured in existing literature that associates the public sphere with public libraries. In light of these problems, it may be tempting to conclude that any association between the public sphere and public libraries is misguided. This conclusion, however, is not the only possibility. There is at least one way to accommodate the longstanding, widespread intuition that the public sphere and public libraries are related. To do so would require stepping out of the public sphere paradigm of *Structural Transformation* and into a new framework<sup>2</sup>.

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<sup>2</sup> Revision of the substantive paradigm is another possible approach, one that is not adopted in this study.

See [Widdersheim \(2016\)](#) on how the substantive paradigm might be revised in light of public library history.

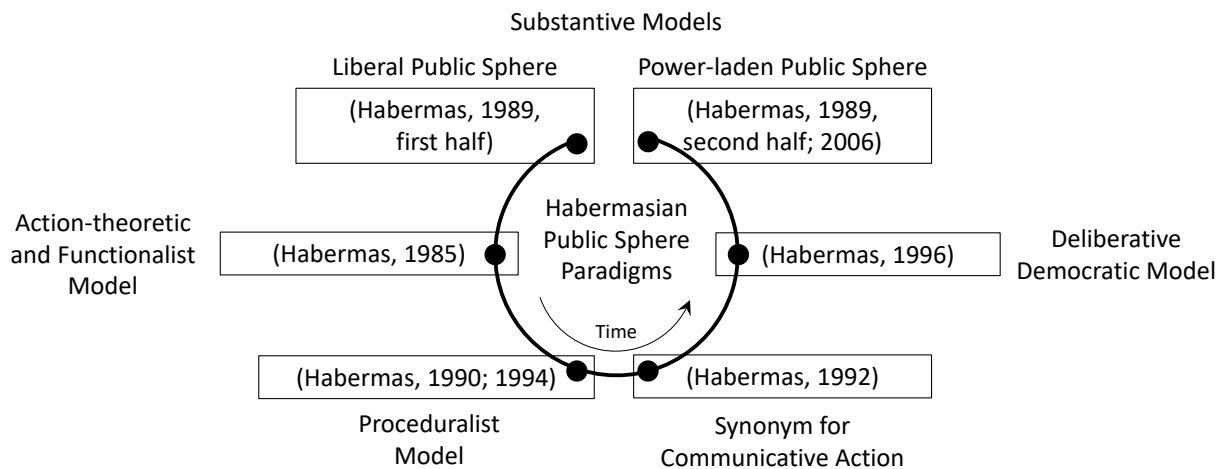
This accommodation strategy recognizes multiple public sphere paradigms, especially those that are flexible in terms of their temporal and conceptual location. Existing literature largely appropriates the conception of the public sphere from *Structural Transformation* ([Habermas, 1989](#)). This work actually contains two conceptions of the public sphere: the liberal model that existed from the late eighteenth century to the late nineteenth century, on the one hand, and the power-ridden (*vermachteten*) model that began to form in the mid-nineteenth century and continues today ([Habermas, 2006](#)). These conceptions are sociological categories: they describe cultural and technological conditions. Because they make claims about the actual content of the public sphere, they are “substantive” models of the public sphere ([Fraser, 1990, note 34](#)). Debates about the “existence” of the public sphere implicitly work within the substantive paradigm ([Leckie & Buschman, 2007, p. 13](#)). It might be said that *Structural Transformation* also contains a normative or transhistorical model of the public sphere as well ([Kramer, 1992](#)), but this model actually developed in later works ([Habermas, 1984, 1985](#)).

Substantive models only represent one possible paradigm. Since *Structural Transformation*, the public sphere has been used by Habermas in a discourse-theoretic and proceduralist way ([Habermas, 1990, 1994](#)), a functionalist or action-theoretic way ([Habermas, 1985](#)), as a synonym for communicative action ([Habermas, 1992](#)), and in a normative political theory related to law and deliberative democracy ([Habermas, 1996](#)). Paradigms of the public sphere have therefore evolved and changed over time ([Baxter, 2011](#); [P. Johnson, 2006](#)). One interpretation of these various public sphere paradigms is visualized in [Figure 2.7](#) below<sup>3</sup>. If

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<sup>3</sup> Works cited in [Figure 2.7](#) use dates from English-language translations and therefore appear out of order. The sequencing in the figure follows the original publication dates in German in order to accurately reflect

*Structural Transformation* represents the first set of public sphere models, then over time several paradigms have emerged, coming “full circle” with a return to the substantive paradigm ([Habermas, 2006](#)).



**Figure 2.7. Habermasian public sphere paradigms ([Widdersheim, 2016](#)).**

Literature that associates the public sphere with public libraries could better distinguish between different public sphere paradigms and apply those that are not tethered to temporal and conceptual locations. Existing literature mentions these alternative models: for example, the deliberative democracy model ([Kranich, 2013](#); [Vestheim, 1997b](#)) and the action-theoretic model

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Habermas’s intellectual development. *Structural Transformation* was originally published in 1962, *TCA* in 1981, *Moral Consciousness* in 1983, *Justification and Application* in 1990-1991, “Further Reflections” in 1990, and *BFN* in 1992.

([Vestheim, 1997b](#)). These models have not yet been associated with public libraries in detail. That existing literature assumes a single, monolithic public sphere concept is belied by statements such as “the library also appears to be a part of the public sphere in the Habermasian sense” ([Aabø et al., 2010, p. 25](#)). As [Figure 2.7](#) shows, however, there is no single Habermasian sense. Alternative paradigms present attractive future research directions because, unlike the substantive models, normative, proceduralist, and ideal-typical models do not describe the culture of a particular place and time, but instead explain hypothetical rules and normative possibilities. Habermas’s Machtkreislauf model has been proposed as a potential framework for future work on the public sphere and public libraries ([Widdersheim & Koizumi, 2016b](#)).

### **2.1.7 Selecting a new paradigm for library studies**

Within political science literature, there are four main conceptions of the public sphere that correspond to four traditions of democratic theory. These conceptions are representative liberal, participatory liberal, discursive, and constructionist ([Ferree, Gamson, Gerhards, & Rucht, 2002](#)). In the library studies field, literature about the public sphere and public libraries tends to work within the discursive tradition. The discursive tradition emphasizes the popular inclusion of equal citizens in a non-coercive process of opinion formation. This process happens through continued dialogue about issues of mutual concern.

Of the four conceptions, the discursive conception is an appropriate one to use to understand the public sphere and public libraries. This is due to the discursive tradition’s emphasis on inclusivity, its emphasis on reasoned debate, and because the tradition offers a useful general model that can serve as a starting point for understanding the public sphere and

public libraries. This general model is the circulation of power model. This model can be used to study change processes over time, which is the purpose of this study.

In the discursive tradition, which is sometimes referred to as deliberative democracy, the central figure is [Habermas \(1996\)](#). Other proponents of a discursive conception of the public sphere include [J. Cohen \(1991\)](#) and [Gutmann and Thompson \(1996\)](#). The circulation of power model is a prevailing description of discursive politics. While other authors such as [J. Cohen \(1991\)](#) and [Gutmann and Thompson \(1996\)](#) highlight the microsociological aspects of discursive democracy, such as the criteria and normative standards for defining quality discourse, the circulation of power model is the only model of discursive democracy that describes macrosociological, or structural, patterns and processes. The circulation of power model is therefore an appropriate one to adopt in library studies to better understand the public sphere.

The circulation of power model of the public sphere sidesteps the problems of anachronism and anachronism. In addition, as a framework, the model solves several other research challenges. First, the model is poised to extend a network-actor perspective of the public sphere that was proposed in earlier studies but remains underdeveloped ([Widdersheim & Koizumi, 2015b, 2016c, 2017](#)). Second, the model can be used to track changes in public sphere activity over time, a goal that was proposed for future work but not yet accomplished ([Widdersheim & Koizumi, 2017](#)). And third, application of the model to an empirical case could yield quantitative data about the public sphere, another proposed goal ([Widdersheim & Koizumi, 2015a, 2016a](#)). For these reasons, the circulation of power model is an attractive framework for the study of libraries.

### **2.1.8 Summary: The public sphere and public libraries**

The above section reviewed the literature related to the public sphere and public libraries. It was shown that the topic of the public sphere and public libraries is one of continued international importance. There are two themes in the existing literature. The first theme emphasizes how public libraries form a material basis—a media infrastructure—for public sphere discourse. The second theme emphasizes how public libraries are themselves objects of and actors in public sphere arenas related to library governance and legitimation. Despite the knowledge contributions that existing literature offers, however, two problems have yet to be addressed: anachronism and anatopism. The problem of anachronism means that the public sphere concept seems to have been applied to a time period for which it was not intended. The problem of anatopism means that public libraries are incongruent with the public sphere concept because public libraries are by definition government entities whereas the public sphere exists somewhere between civil society and the state. To address these problems without entirely abandoning the literature related to the public sphere and public libraries, several alternative public sphere paradigms were identified. The Machtkreislauf model in particular was seen as an attractive new potential research framework for library studies. This model is the focus of the next section.

## **2.2 THE CIRCULATION OF POWER MODEL**

The following section surveys various meanings of the public sphere with a particular emphasis on Habermas's Machtkreislauf model. The key components of the model are identified and described. Following this, several criticisms of the model are presented. These criticisms are

important to point out in advance because if the field of library studies is to adopt the Machtrkreislauf model as a research paradigm for the study of the public sphere and public libraries, then the criticisms must be addressed. This is because any study that incorporates the model as a framework also inherits its shortcomings. The criticisms of the model include a lack of clarity regarding where the core, inner periphery, and outer periphery begin and end, an ambiguity within the concept of communicative power between formal and informal types of communicative power, and the omission of social and economic forms of power within the model.

### **2.2.1 The public sphere defined**

The public sphere refers to transparent, undistorted communication that is open to anyone, oriented to common interests, and focused on argumentative give-and-take. A public sphere also refers to people who form this discourse. Research about public libraries and the public sphere has clarified how a public sphere requires a media infrastructure to facilitate physical and virtual communication.

Public spheres occur in face-to-face or mediated contexts, and they represent communicative interactions at various societal scales. While public sphere themes can be literary or cultural in nature, this study focuses on the political public sphere. In its most basic and generalized sense, the political public sphere expresses a reciprocal speaker-audience relationship (see [Figure 2.8](#)). On the one side of this interaction are networks of private people who form a public. As a public, these people deliberate to reach an understanding about a given situation. On the other side of the interaction are governing bodies, people such as legislators or engineers whose decisions affect the social lives of the public in question. Because they remain



under scrutiny by a critical public, the decision-makers must justify their actions in a way that is more than just a display, a way that uses reasons and justification to account for their decisions. Publics in turn petition decision-makers for resolutions that reflect their concerns. The public can at any point question the truth, sincerity, or normative rightness of the actions of the decision-making body and demand further warrants or grounds from them. While it may be the case that publics or decision-makers can resort to strategic action, the public sphere relationship emphasizes a bond of reciprocal communicative power, not coercive power. Decision-making bodies wield authority because their decisions are valid; the public legitimates the decisions because they pass the tri-fold test of truth, sincerity, and rightness. The public sphere is a normative concept that emphasizes a deliberative process ([Habermas, 1992, p. 452](#)).

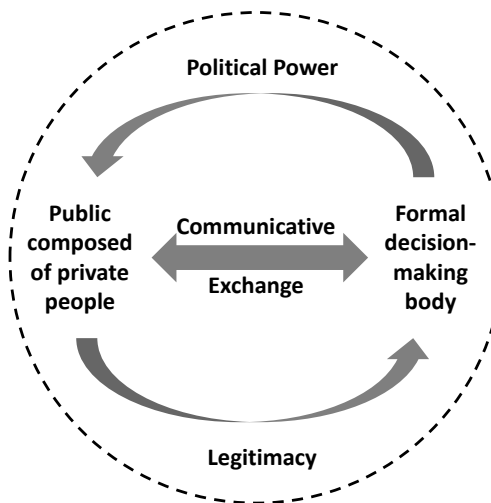


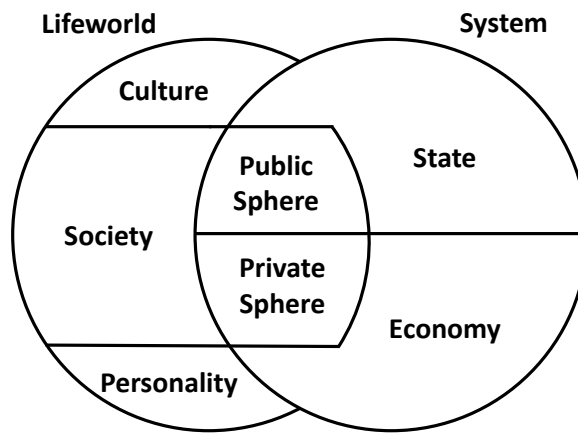
Figure 2.8. General features of the political public sphere ([Widdersheim & Koizumi, 2016b](#)).

The public sphere concept is most commonly associated with German philosopher Jürgen Habermas, whose work on the subject animated English-language research in a number of fields beginning in the late 1980s and early 1990s ([Habermas, 1984, 1985, 1989](#)), and whose more recent work has continued to resonate with media and political science scholars ([Habermas, 1996, 2006](#)). A central feature of the public sphere concept is its ambivalent nature—the question of whether the public sphere is “there” in an authentic sense or not, whether it has been overrun by power and money, and whether it might be reconstituted from a deteriorated state ([Habermas, 1989](#)). Though originally conceived as an intermediary between civil society groups and state bodies, globalizing economic tendencies and the formation of the European Union have resulted in a transnationalization of the public sphere concept ([Habermas, 1998](#)). The public sphere continues to be revisited and revised in secondary literature (e.g., [Crossley & Roberts, 2004](#)), a sign of its continued relevance.

### **2.2.2 Formative conceptions of the public sphere**

The concept of the public sphere has been developed extensively by Habermas since his first deployment of the term in 1962. The basic criteria of public sphere discourse—inclusiveness of participants, unrestricted exchange reasons for and against validity claims, orientation toward mutual understanding and consensus—have not changed since that time, but they represent only one dimension of the concept. The public sphere concept from [Habermas \(1962\)](#) is a sociological category that characterizes large-scale cultural and political shifts in Europe from the Late Middle Ages to the Early Modern Era, and then from the Early Modern Era to the Late Modern Era. This is but one conception. Another conception that is also sociological is tied to social action. It is an “action-theoretic” notion of the public sphere developed in the *Theory of*

*Communicative Action* (TCA). Habermas takes a communicative approach to explaining action, one with a strong systems theory flavor. In the theory of society developed in [Habermas \(1984, 1985\)](#), the public sphere is presented as an area of overlap between system and lifeworld (see [Figure 2.9](#)). In this model, the public sphere is situated in the societal component of the lifeworld along with the private sphere. The two other components of the lifeworld are culture and personality. In this application of the public sphere concept, the public sphere forms an area of interchange with the administrative system, or state, a subsystem on the system side of Habermas's action model. In the public sphere arena in this model, private actors fill the roles of citizens and clients.



**Figure 2.9.** The public sphere in TCA ([Habermas, 1984, 1985](#); [Widdersheim & Koizumi, 2016b](#)).

As clients, private actors input taxes (money) and receive organizational accomplishments (power), and as citizens, they input mass loyalty (power) and receive political decisions (power) as outputs ([Habermas, 1985, p. 320](#)). In the end, the model is supposed to

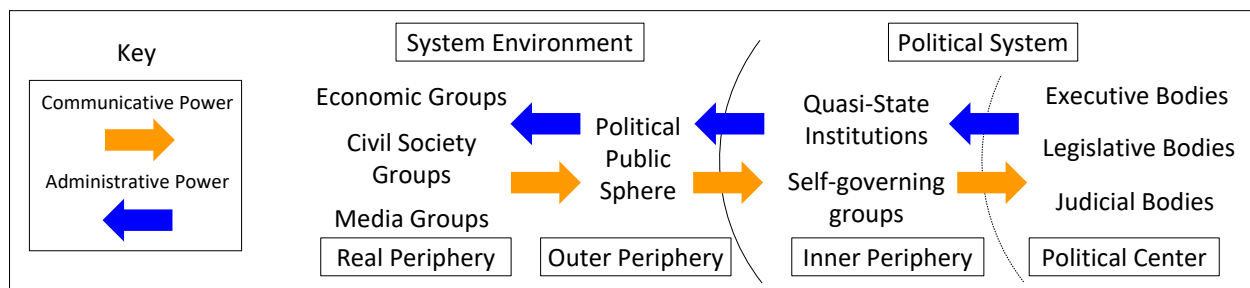
demonstrate how the state and economic systems have come to dominate people's actions and have led to pathological consequences for culture, institutional orders, and identity formation. The public sphere is one channel through which this colonization occurs.

### **2.2.3 The Machtkreislauf model**

As [Baxter \(2011\)](#) points out, the action-theoretic model from [Habermas \(1984, 1985\)](#) suffers from numerous problems, and perhaps partly due to these problems, the model has been revised in Habermas's more recent theories of society and politics. In [Habermas \(1996, 2006\)](#), the lifeworld/system and public/private distinctions are still present, but they form continua rather than sharp contrasts. [Baxter \(2011\)](#) also points out that in more recent models, the "private sphere" from [Habermas \(1984, 1985\)](#) has been replaced by "civil society" ([Habermas, 1996, 2006](#)) and "media system" has been added as a system ([Habermas, 2006](#)).

Habermas's recent societal theories situate the public sphere concept in a Machtkreislauf, or "circulation of power" model ([Baxter, 2011](#)). In this model from [Habermas \(1996\)](#), the public sphere is an intermediary network located between civil society groups, economic groups, and media groups, on the one hand, and the decision-making bodies of the political system, on the other (see [Figure 2.10](#)). Using the public sphere, the various groups on the political system's periphery influence political decisions by transmitting "communicative power" to the political system's core. Their communicative power affects the "administrative power" wielded by decision-making bodies at the center. As [Baxter \(2011\)](#) notes, [Habermas \(1996\)](#) equivocates on this point, but the public sphere appears to be situated outside the political system to form the system's environment. Various groups and associations that inform public sphere communication are also located beyond the political system on its outer periphery. The function

of the public sphere is to receive and package various messages from the outer periphery and relay them to decision-making bodies. When functioning without distortion from money and power, the public sphere ensures that collective values and interests are translated into legislative, judicial, and executive decisions. As [Habermas \(2006\)](#) notes, however, the perennial danger is that public sphere discourses are influenced by economic, media, and social power in a way that marginalizes certain perspectives and privileges others. The challenge is to check these powers in a way that protects rights to free speech.



**Figure 2.10. Habermas's circulation of power model** ([Habermas, 1996](#); [Widdersheim & Koizumi, 2016b](#)).

Habermas's circulation of power model has also been called the “two-track” ([P. Johnson, 2006](#)) or “sluice-gate” ([Downey, Stephens, & Flaherty, 2012](#)) model. The model can be re-imagined using the metaphor of a canal network organized as a single set of concentric rings. Political issues in the form of barges are pulled uphill on the canals by communicative power, moving from the outer rings to the inner rings. A combination of communicative power and administrative power is required to “raise” issues through the series of channels and locks until the issues are unpacked at the core, the central ring. Resulting goods and services from the core

are then released outward and downward by administrative power. These deliverables are unloaded at their destinations throughout the network, from innermost to outermost rings.

This model of the capitalist mass-democratic social-welfare state incorporates ideas from several figures. With [Arendt \(1969\)](#), the model defines power as a positive communicative force, one opposed to the instrumentalities of violence ([Habermas, 1996, p. 148](#)). Power is “the human ability not just to act but to act in concert. Power is never the property of an individual; it belongs to a group and remains in existence only so long as the group keeps together” ([Arendt, 1969, p. 44](#)). From [Etzioni \(1968, p. 31\)](#), the model borrows the idea of a society with upward and downward flows of communication: “We refer to combined sources of social regulation and change, the downward and the upward flows, as social *guidance*, while we reserve the term social control for downward flows and consensus-formation for upward ones.” Following [Fraser \(1990, p. 75\)](#), the model distinguishes between “strong” or formal publics, on the one hand, and “weak” or informal publics, on the other, where strong publics wield decision- and law-making capacity while weak publics are opinion-forming publics only. From [Luhmann \(1981, 1987\)](#), the model borrows the idea of a political system comprised of two communication cycles, or Kommunikationskreislauf (see [Figure 2.11](#)). The official cycle runs in one direction, from parliament, to the administration, to the public: “The parliament makes the laws and provides the means to get things done. The executive carries out the programs decided politically, while the public obeys the decisions and elects the parliament” ([Luhmann, 1990, p. 49](#)). In the unofficial cycle, power runs the opposite way:

The administration drafted the bills for politics and dominated parliamentary committees and similar institutions. Politics, with the help of its party organizations, suggested to the public what it should vote for and why. And the public exercised its influence on the

administration through various channels, like interest groups and emotional appeals.  
([Luhmann, 1990, p. 49](#))

As [Figure 2.11](#) shows, the parliament, administration, and public share different relationships in each of the cycles ([Luhmann, 1990, pp. 49-64](#)). Finally, using ideas developed with his late student, Bernhard [Peters \(1993\)](#), the model by [Habermas \(1996\)](#) adopts a concentric, core-periphery design. Core-periphery models have been used to describe political and economic relationships between cities and hinterlands and between countries ([Calhoun, 2002, p. 95](#)).

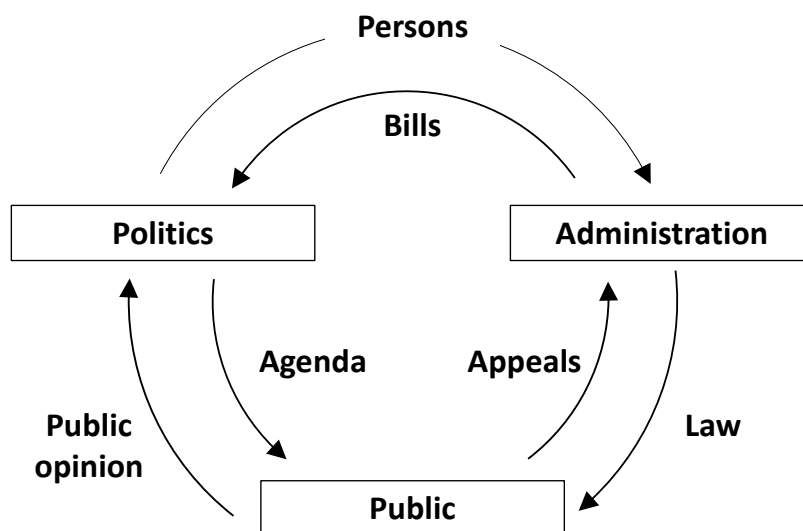


Figure 2.11. Luhmann's circulation of power model ([Luhmann, 1981, 1987, 1990](#))

#### 2.2.4 Criticisms of the circulation of power model

In the political sciences, Habermas's model has been criticized in a number of ways. [Baxter \(2011, pp. 177-191\)](#) points out that distinctions between center and periphery, system and environment are unclear because the terms are ill-defined. [Flynn \(2004\)](#) identifies an ambiguity in Habermas's use of communicative power: Habermas does not clearly distinguish between informal and formal types of communicative power. [Forbath \(1998\)](#) argues that Habermas's model ignores economic power and therefore cannot fully account for political decisions. A later reformulation by [Habermas \(2006\)](#) incorporates social and economic power into a public sphere model, but the objections by [Flynn \(2004\)](#) and [Baxter \(2011\)](#) have yet to be addressed.

#### 2.2.5 Empirical studies using the circulation of power model

Habermas's Machtkreislauf model could be studied and revised using an empirical case. Only a single case study was retrieved using searches such as "circulation of power," "sluice-gate," and "two-track" in political science and communication databases as well as Web searches. [Downey et al. \(2012\)](#) studied the case of mass media communication about a national DNA database in the UK as a way to understand how peripheral and core communication relate. The study identified peripheral actors and core actors in the case, and it proposed *narratives*, *tipping points* and *recruitment* as concepts to describe how core decision-makers and peripheral actors relate. The study examined a national-scale issue and used newspaper articles and interviews as data sources. The methodology and findings of this study are helpful to consider, but there is still a need for a fuller application of the circulation of power model to an empirical case. It would be helpful if a future case were atypical for the model because such a study would test the model's



generalizability. Perhaps instead of a national issue or case such as the DNA database in the UK, the issue could be of local significance and use local sources in a non-European nation. Future studies should also address the various criticisms of the model and propose conceptual developments. Existing criticisms of the model were not addressed in the UK case study.

### **2.2.6 Summary: The Machtkreislauf model**

The above section reviewed literature related to Habermas's Machtkreislauf model, the model proposed to serve as a research framework in future studies of public libraries and the public sphere. The model uses a center-periphery design where core actors are the decision makers, intermediary actors supply services to the public and relay public opinions to the core, and periphery actors generate public opinion through public sphere discourse. Communicative power flows inward from the periphery to the core, and administrative power flows outward from the core to periphery. There are several outstanding criticisms of the model that were identified. These criticisms must be addressed if the model is to serve effectively as a viable research framework for the study of the public sphere and public libraries. The criticisms are: the differences between inner and outer periphery are not clear, the model does not fully account for social and economic power, and communicative power requires further elaboration regarding formal and informal types. Only a single case study from the UK was found to have used the model as a research framework. This application of the model did not address its existing criticisms. The model has yet to be applied to a complex non-national and non-European case such as a public library system in the US. The case of the greater Pittsburgh regional public library system could serve as a valuable case to enhance the Machtkreislauf model and use it for

the study of the public sphere and public libraries. The case of the Pittsburgh regional public library system is discussed in the next section.

## **2.3 REGIONAL LIBRARY INFRASTRUCTURE IN PITTSBURGH**

The following section sketches a preliminary outline of the case of a regional library system in greater Pittsburgh, United States. The case of the regional public library system in Pittsburgh is one that has not received significant attention in library history or in local historical accounts of Pittsburgh infrastructure. The case seems well-suited as a testbed for the Machtkreislauf model and for the study of the public sphere and public libraries, but because there is not yet a historical account of the case, some spadework is first needed to identify source materials for analysis and to limn the spatial and temporal boundaries of the case.

### **2.3.1 Pittsburgh history and infrastructure**

In historical accounts of Pittsburgh as a city and Pittsburgh as a region, public libraries have not been considered in a regional way and they have not been viewed as a class of large-scale infrastructure ([Lubove, 1995](#)). This is true even in focused historical accounts where the connections between infrastructure and city-building have been explored. Public libraries as a form of regional infrastructure have not been included together with accounts of water, sewerage, transportation, and communication infrastructures ([Tarr, 1989](#)). It is true that public libraries developed individually and locally according to the circumstances in their communities,

but a regional perspective of public libraries in Pittsburgh was proposed as early as 1924, and libraries since then have developed in a way akin to other regional health and human services.

### **2.3.2 Pittsburgh history and Carnegie libraries**

Accounts of libraries in the Pittsburgh region are dominated by Andrew Carnegie's philanthropic legacy. A steel industry magnate during the Gilded Age, Carnegie famously donated much of his fortune to the construction of library buildings worldwide. Several of the earliest Carnegie libraries in the US are located in Pittsburgh, including the Carnegie Free library of Braddock (1889), Carnegie Free Library of Allegheny (1890), and Carnegie Library of Pittsburgh (1895). These libraries still carry his name. Perhaps due to the prevalence of Carnegie-named libraries in the area, "Pittsburgh libraries" are sometimes seen as "Carnegie libraries." In fact, not all libraries in the Pittsburgh region were donated by Carnegie, and not all libraries with "Carnegie" in their name are part of the Carnegie Library of Pittsburgh, the system of libraries located within the city proper. A traditional emphasis on Carnegie as a biographical figure and his legacy of library buildings may explain in part why a regional perspective of public libraries has yet to take hold in historical accounts of Pittsburgh.

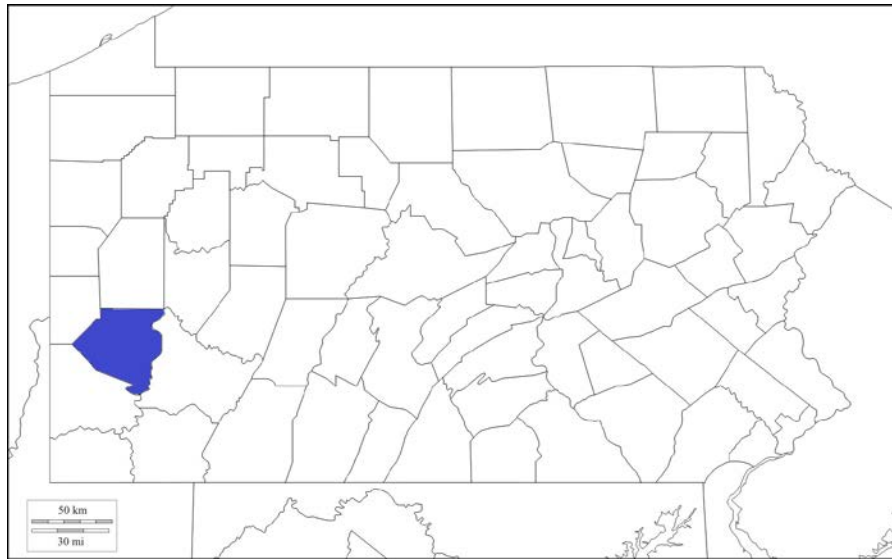
### **2.3.3 The current state of libraries in Pittsburgh**

Significant regional library developments have occurred in Pittsburgh that are at a regional scale and are not directly associated with Andrew Carnegie's philanthropy. In 1924, the public library committee of the Civic Club of Allegheny County proposed an extension of the Carnegie Library of Pittsburgh's services into county schools ([Civic Club of Allegheny County, 1924-1925](#)).

These proposals are the first accounts of a system concept that evolved through the 20th century and into the present day. Today, a consortium of 46 libraries exists in the Pittsburgh region (see [Appendix B](#)). This consortium is called the Allegheny County Library Association. This system represents a form of inter-municipal cooperation in a region regarded as one of the most politically-fragmented areas in the US ([Sleeper, Willis, Rattien, & Lanczos, 2004](#)). A history of how this system developed has yet to be constructed.



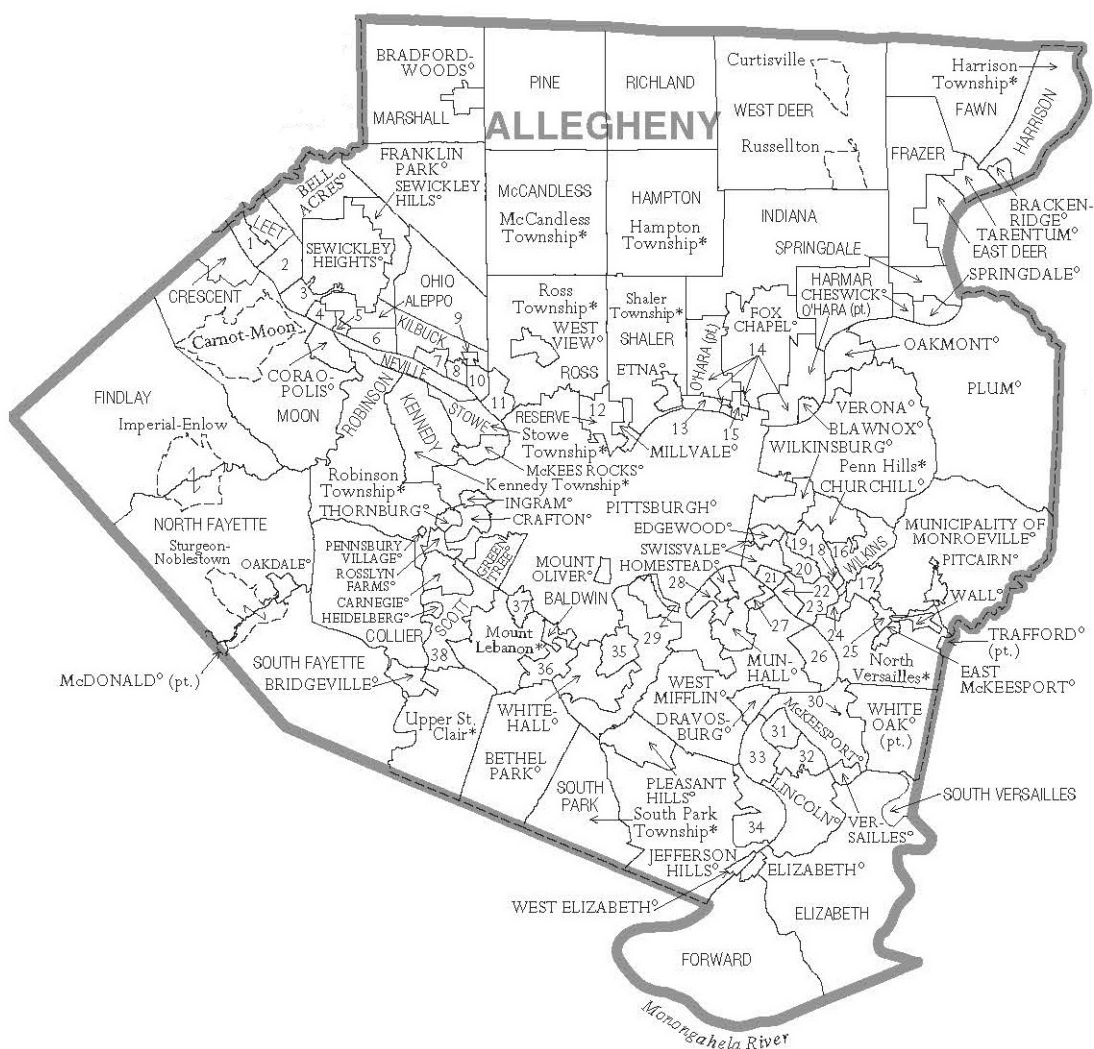
**Figure 2.12. Political map of North America with Pennsylvania highlighted.**



**Figure 2.13. Map of Pennsylvania with Allegheny County highlighted.**

**ALLEGHENY**

- |    |                   |    |                  |
|----|-------------------|----|------------------|
| 1  | LEETSDALE*        | 21 | RANKIN*          |
| 2  | EDGEWORTH*        | 22 | BRADDOCK*        |
| 3  | SEWICKLEY*        | 23 | NORTH BRADDOCK*  |
| 4  | OSBORNE*          | 24 | EAST PITTSBURGH* |
| 5  | HAYSVILLE*        | 25 | WILMERDING*      |
| 6  | GLENFIELD*        | 26 | DUQUESNE*        |
| 7  | EMSWORTH*         | 27 | WHTAKER*         |
| 8  | BEN AVON*         | 28 | WEST HOMESTEAD*  |
| 9  | BEN AVON HEIGHTS* | 29 | BALDWIN*         |
| 10 | AVALON*           | 30 | WHITE OAK* (pt.) |
| 11 | BELLEVIEW*        | 31 | PORT VUE*        |
| 12 | Reserve Township* | 32 | LIBERTY*         |
| 13 | SHARPSBURG*       | 33 | GLASSPORT*       |
| 14 | O'Hara Township*  | 34 | CLAINTON*        |
| 15 | ASPINWALL*        | 35 | BRENTWOOD*       |
| 16 | Wilkins Township* | 36 | CASTLE SHANNON*  |
| 17 | TURTLE CREEK*     | 37 | DORMONT*         |
| 18 | CHALFANT*         | 38 | Scott Township*  |
| 19 | FOREST HILLS*     |    |                  |



**Figure 2.14. Political map of Allegheny County (US Census Bureau, 2000).**

### **2.3.4 Summary: Regional Public Library Infrastructure in Pittsburgh**

The above section surveyed the existing literature about the case of a regional public library infrastructure in greater Pittsburgh. Existing historical accounts of libraries in the Pittsburgh area have focused on the legacy of Andrew Carnegie: his biography, philanthropy, and the library buildings he donated. Local histories not limited to those of libraries that have examined the development of regional infrastructures have focused not on libraries but on services like water, sewerage, and transportation. A regional historical perspective of libraries in the Pittsburgh area therefore has yet to be studied. Due to the complex political environment of the Pittsburgh region, and given also the strong library presence in the region and the large numbers of political actors tied to libraries, the Pittsburgh case would serve as an ideal one for the study of the public sphere and public libraries. It would also serve as a suitable case to test and refine the Machtkreislauf model.

## **2.4 LITERATURE REVIEW: PROBLEM STATEMENT**

Several conclusions can be drawn from the above literature review. Firstly, the public sphere is an important topic in library studies. The question of how the public sphere and public libraries relate has formed a sustained research area within the field. The current paradigm for this area, however, faces the problems of anachronism and anatopism. Habermas's circulation of power model has been proposed as an alternative paradigm to overcome these problems. From the literature in the political sciences, it was found that the circulation of power model has been discussed and criticized. Only one case study was found that applies the model, but this

application did not address outstanding criticisms. The model could be enhanced or revised by applying it further to an empirical case. It would be necessary to address the problems of the model if it is to be used as a research paradigm in the library studies field. Finally, in libraries studies and in local Pittsburgh history, a regional library system in the Pittsburgh area is an understudied topic. A public sphere perspective of this library system could lead to a fuller understanding of its development. At the same time, the case of the regional system in Pittsburgh could serve as a testbed for the study of the public sphere and public libraries using the Machtkreislauf model. The above literature review therefore recommends a case study of a regional library system in Pittsburgh using the Machtkreislauf model as an orienting framework. The results of such a study could contribute to the fields of library studies and political science.



### **3.0 METHODOLOGY**

This section discusses the overall research design and specific methodological details for this study. The general research design for this study is called historical case study. Historical case study consists of 3 stages, each with its own method, tasks, and results. The method for stage 1 is theoretical sampling, the method for stage 2 is qualitative content analysis, and the method for stage three is qualitative comparative analysis. Each of these stages, their methods, their tasks, and their results are described in more detail below. Also discussed below are issues related to case selection, the research journal, research ethics, and researcher's stance.

#### **3.1 WHY CASE STUDY?**

The central research question (RQ) for this project is: How might the circulation of power model lead to a fuller understanding of regional library developments in Pittsburgh? This is an open-ended question that calls for description and explanation ([Blaikie, 2010, 2014](#)). The three sub-questions (SQs) of this study include both *what* and *why* questions. The 3 SQs are:

SQ1: What does a tested and refined Machtkreislauf model look like?

SQ2: What does the evolution of the library system in Pittsburgh look like?

SQ3: How does the public sphere affect public library development?

This project adopts historical case study as a research strategy in order to address these SQs. Case study is an effective research approach for exploring new ideas and theorizing about mechanisms in an in-depth way ([Gerring, 2007, pp. 41, 43](#)). It is said that “case studies often tackle subjects about which little was previously known or about which existing knowledge is fundamentally flawed. The case study typically presents original research of some sort” ([Gerring, 2007, p. 79](#)). Case study is therefore an appropriate strategy for this project.

### **3.2 CASE SELECTION**

Section [1.1](#) explained that this project addresses research problems from library studies and political science. Section [1.3](#) then explained that the 3 research problems dovetail in such a way that they can be tied together with a single research question. Given that each research problem is warranted in its own right, it might still be asked how the problems and purposes are justifiably connected in this study in a way that is not arbitrary or merely convenient. Section [1.1](#) noted why, given the findings of past studies, a public sphere perspective is appropriate for the study of libraries in Pittsburgh. The case of Pittsburgh is in need of a research perspective, and the public sphere fulfills that need. It might still be asked why the case of libraries in Pittsburgh is an appropriate one to 1) test and refine the Machtkreislauf model and 2) understand the public sphere and public libraries generally. A dual-faced rationale is therefore needed to justify case selection from the perspective of political science and from the perspective of library studies. In other words, it is still necessary to explain why the case of Pittsburgh is an appropriate one to test and refine the Machtkreislauf model and to say something more broadly about libraries and the public sphere.

For a test-case for the Machtkreislauf model, the case of a regional library infrastructure in Pittsburgh is both an extreme case and a crucial case ([Gerring, 2007, p. 89](#)). It is extreme in the number and types of public and private actors. Allegheny County, the region surrounding the city of Pittsburgh, is infamous for its many municipalities, special districts, and school districts. Moreover, private businesses have often worked closely with governmental units to develop regional infrastructures ([Tarr, 1989](#)). Pittsburgh also has a vibrant third sector of non-profits and foundations. It is this large number of municipalities and the various activities and types of private and third-sector entities that make Pittsburgh an extreme case. The case of Pittsburgh is a crucial case because it encompasses regional-scale political events in a non-European context. If the Machtkreislauf model is to be considered a general model of political power, then it must effectively describe not only national patterns in European contexts, but also regional-scale patterns in US contexts. The model has not yet been proven effective in such a context.

As a case that speaks to the public sphere and libraries more generally, the case of Pittsburgh is an extreme case and it is a pathway case ([Gerring, 2007, pp. 89-90](#)). It is extreme in the sense that the number of libraries in the region is extraordinary both in-state and nationally. Many of these libraries inherited the iconic architecture and legacy of Andrew Carnegie. The case is a pathway case in the sense that it can be used to probe public sphere mechanisms of system development. An in-depth study of the case may reveal causes that explain why the system developed as it did, and these findings can be generalized and applied to libraries more broadly.

### 3.3 HISTORICAL CASE STUDY

#### 3.3.1 What historical case study is

Historical case study is a variation on case study design that was newly developed for this dissertation. Historical case study is a distinctive research strategy. It is a way to think about and imagine the overall design of the research process. Historical case study uses source materials from past and present in order to identify and describe changes in a case over time. It does this by identifying periods within the case, by applying the same interpretive lens to each period, then comparing the periods. Historical case study is a form of “longitudinal comparison” because it uses before/after comparisons of the periods of a treatment group, the case ([Gerring, 2007, pp. 152-157, 160-164](#)).

Historical case study is a particular genre of case study research, and as such, it shares some of the defining characteristics of case study design. Like case study as it is defined by [Yin \(2014, pp. 16-17\)](#), historical case study is used to research complex, real-world phenomena in context using a variety of evidentiary sources. A historical case study is best described as a single-case study with multiple embedded units of analysis. These embedded units are its periods. The object of a historical case study is to describe a case over time—from past to present—and to identify causal factors by comparing and contrasting the case’s periods. To do this, historical case study uses an interpretive instrument to describe a case’s periods in a standardized way, then identify causal conditions that account for the changes (see [Figure 3.1](#)).

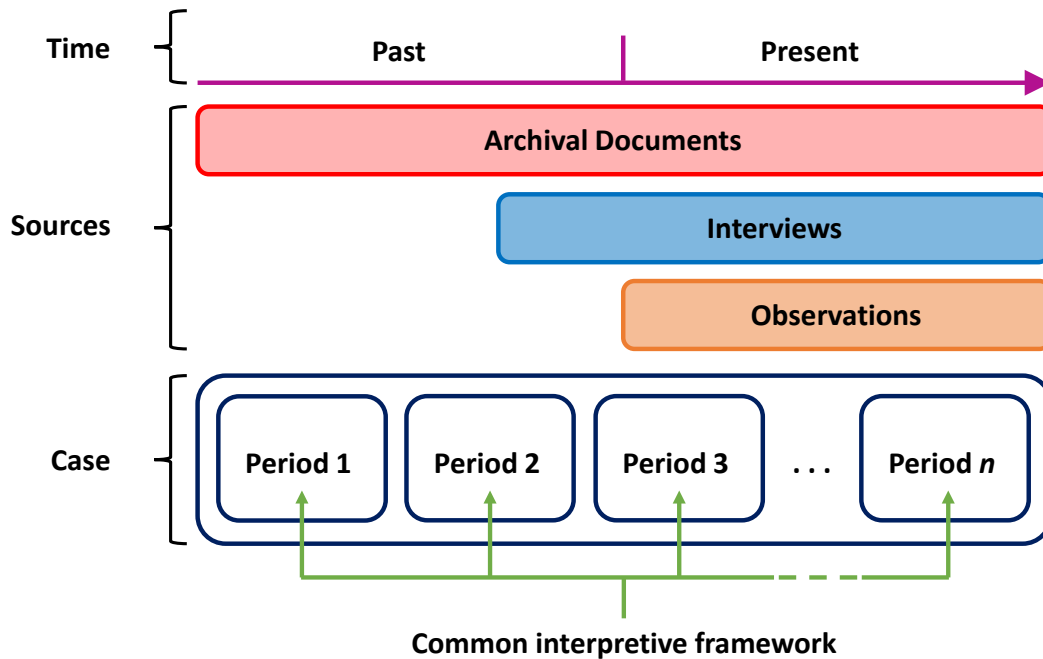


Figure 3.1. Concept of a historical case study.

### 3.3.2 Historical case study compared to other research approaches

Historical case study is a particular kind of case study, but it differs somewhat from how [Yin \(2014\)](#) and others define case study. Unlike a single-case study of an organization, for example, where embedded sub-units of analysis might focus on different aspects of that organization, the embedded units of analysis in a historical case study are periods of time. This periodization is constructed using historical methods, and the resulting historical narrative that is developed during the first stage of a historical case study informs the theoretical sampling protocol for each period (see section [3.4](#)). Second, unlike case study as it is defined by [Yin \(2014, pp. 16-17\)](#), where a case is some contemporary phenomenon only, historical case study is also retrospective

in the sense that it accounts for phenomena that extend well into the past, say, 50 years ago or more. Historical case study therefore uses archival documents as well as interviews and fieldwork as source materials. The source materials serve as the basis for measuring how and why the case changes across periods of time. Historical case study is a distinctive case study strategy because 1) its embedded units of analysis are periods of time, 2) the case stretches from the present into the distant past, and 3) changes in periods are tracked over time using a common interpretive lens.

It is helpful to situate historical case study within a typology of case study designs developed by [Gerring \(2007, pp. 27-28\)](#). In Gerring's typology reproduced in [Table 3.1](#), case studies are gray and non-case studies are green. Historical case study resembles Type 2 in the typology: it is both single-case and diachronic. There is no spatial variation within a historical case study, only temporal variation.

**Table 3.1. Typology of case studies and non-case studies ([Gerring, 2007, p. 28](#)).**

Cases	Spatial variation	Temporal variation	
		No	Yes
One	None	1. [Logically impossible]	2. Single-case study (diachronic)
	Within-case	3. Single-case study (synchronic)	4. Single-case study (synchronic + diachronic)
Several	Cross-case & within-case	5. Comparative method	6. Comparative-historical
Many	Cross-case	7. Cross-sectional	8. Time-series cross-sectional
	Cross-case & within-case	9. Hierarchical	10. Hierarchical time-series

Gerring's typology is useful for distinguishing case studies from large cross-case studies like surveys; however, the problem with this typology is that there is no way to distinguish within diachronic studies between histories and case studies. This conflation of history and case study means that all histories are case studies. This does not make sense: a distinction should be maintained between the two types of diachronic studies, those that study cases in the distant past (history) and those that study cases in the recent past and present (case studies). The distinction between history and case study is important, especially when trying to understand what historical case study is. The distinction is maintained by [Yin \(2014, pp. 9, 12\)](#), in a widely-read text on case study design. This difference between case study and history should be maintained even if it is only a matter of degree.

In order to allow for overlap between case study and history, and in order also to maintain the distinction between the two, the typology by [Gerring \(2007\)](#) can be amended to accommodate [Yin \(2014\)](#) and to show where historical case study lies in relation to case study and history. In [Table 3.2](#), a column is added to distinguish among diachronic studies with a contemporary emphasis (gray) and those with an emphasis on the distant past (blue). The gray cells in the table represent case studies; the blue cells represent histories. Historical case studies (blue-gray) cut across these columns because historical case studies examine cases that span from the distant past into the present. This revised typology establishes historical case study as a unique strategy, accommodates important distinctions established by [Gerring \(2007\)](#), and maintains the intuitive distinction between histories and case studies that is espoused by [Yin \(2014\)](#).

**Table 3.2. Revised typology of case studies, histories, and historical case study.**

Cases	Spatial variation	Temporal variation		
		No	Yes	
			Contemporary	Distant past
One	None	[Logically impossible]	Single-case study (diachronic)	Single-case history (diachronic)
	Within-case		Historical case study	
		Single-case study (synchronic)	Single-case study (synchronic + diachronic)	Single-case history (diachronic)
Several	Cross-case & within-case	Comparative method	Comparative case study	Comparative history

Historical case study overlaps in some ways with other research methods, but it remains a distinctive research approach. These similarities and differences with other research approaches are summarized in [Table 3.3](#). Importantly, historical case study as it is presented here does not mean “studying a case from the past” or “studying a historical case.” Other authors have used the term historical case study in these ways to refer to the study of past events ([Amenta, 2009](#)) or past people ([Currier, 2007](#)). These studies might be better described as historical or biographical studies, respectively, because any type of case study, even a historical one, still uses sources from the present and still touches on contemporary phenomena ([Yin, 2014, pp. 12, 14](#)).



**Table 3.3. Historical case study compared to other research methods and techniques.**

		<div> Historical case study  Comparative case study  Embedded case study  Ethnography  Biography  History  Longitudinal study </div>						
Time	Studies a case in the present	x	x	x	x	x		x
	Studies a case in the distant past	x				x	x	
	Studies a case over time	x	x	x	x	x	x	x
Sources	Uses archival documents	x	x	x	x	x	x	
	Uses interviews	x	x	x	x	x	x	x
	Uses fieldwork	x	x	x	x			x

### 3.3.3 How historical case study works

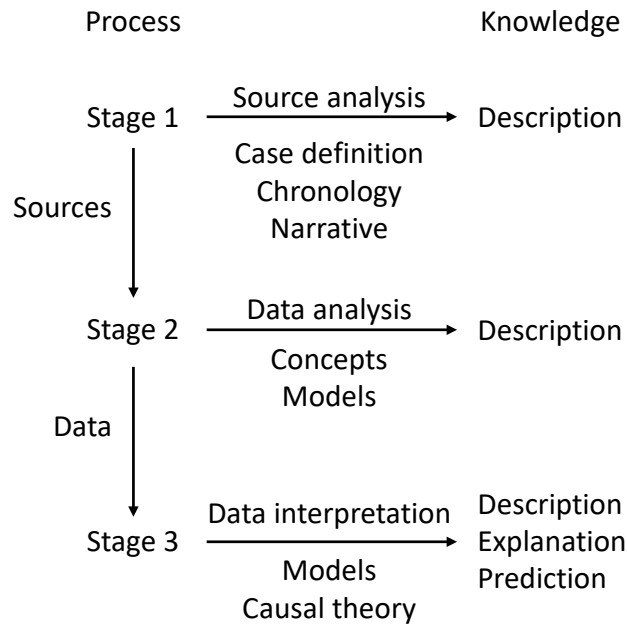
The general process of historical case study consists of 3 stages: 1) source collection and analysis, 2) data collection and analysis, and 3) data interpretation. Each of the stages has its own method, each is subdivided into tasks, and each task produces distinctive results.

Each stage of historical case study requires a distinctive method to achieve that stage's result. The stages proceed in sequence and the results are cumulative. This means that the results of previous stages inform the tasks and methods of successive ones. At the same time, each stage can also stand alone because it produces its own knowledge. [Table 3.4](#) shows the stages of historical case study, together with their methods, tasks, and results. The final column

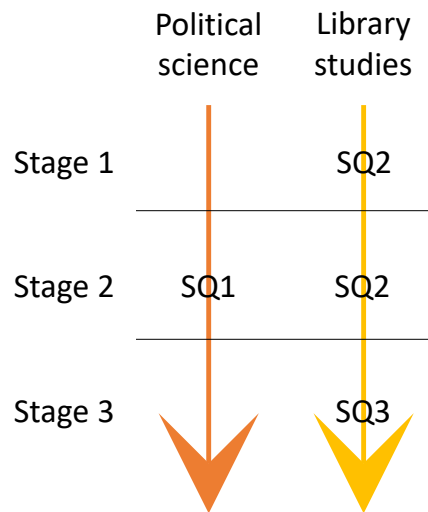
of [Table 3.4](#) draws from [Table 1.3](#) to show which sub-questions are addressed by each task. [Figure 3.2](#) and [Figure 3.3](#) show alternative ways to imagine the overall research process. [Figure 3.2](#) shows how the stages connect and also shows the different knowledge products of each stage. [Figure 3.3](#) shows in which stages research questions are addressed according to field.

**Table 3.4. Stages, methods, tasks, and results of this historical case study.**

Stage		Method	Task	Task description	Result	RQ
1	Source Collection and Analysis	Theoretical Sampling	Define the case	Establish temporal, geographical, and conceptual boundaries for the case.	Definition of the case	SQ2
			Periodize the case	Using sources, divide the case into periods according to actors, events, and cycles.	Chronology and narrative summary of each period	SQ2
			Collect sources	Using descriptions of periods as a guide, collect a variety of relevant source materials.	List of relevant sources to use in stage 2	SQ2
2	Data Collection and Analysis	Qualitative Content Analysis	Develop the instrument	Construct a concept- and data-driven instrument for analyzing the periods.	-A concept- and data-driven instrument -New concepts	SQ1
			Pilot coding	Test and modify the instrument.	A valid and reliable instrument	SQ1
			Main coding	Apply the instrument to all source materials.	Coding matrices and data to use in stage 3	SQ2
3	Data Interpretation	Qualitative Comparative Analysis	Compare periods	Use tables, graphs, and other tools to describe summary data.	Summaries, comparisons, and patterns in data	SQ2
			Explain changes	Use comparative techniques to explain changes in the case's periods.	Outcomes, conditions, configurations	SQ3



**Figure 3.2. The research process and its knowledge products.**



**Figure 3.3. Research process and research questions according to field.**

The first stage of historical analysis is *source collection and analysis*. The metaphor of an *excavation* can be used to describe this stage because the first tasks of historical case study resemble an archaeological dig. As in the process of finding and uncovering an artifact, the first task of historical case study is to determine the scope of the case by revealing its full form. It is first necessary to *define the case*—to determine its boundaries, whether they are spatial, temporal, or conceptual in nature. Historical case study is challenging because, like an artifact that is fragmented, a case's pieces may be scattered across multiple collection sites. This means that establishing a case's contours requires detective work, such as tracking down leads and guessing where new ones might be discovered. Defining the case is like solving a jigsaw puzzle. The first step when solving a jigsaw puzzle is to construct the border. These edges of the case can be geographical, temporal, or conceptual in nature. The first task of historical case study therefore identifies where these boundaries lie; it begins with a small visible section of surface area, continues by brushing away sediment and running one's fingers along the edges, and concludes by lifting the case up out of the soil. This task results in a definition of the case.

The next two tasks of the source collection and analysis stage are *periodize* and *collect sources*. These tasks are carried out in tandem. Periodization is a process of dividing the case into like pieces according to distinctive themes, events, actors, and cycles. Periodization is a necessary step of historical case study for two reasons. First, as cases change over time, so do relevant source materials and their collection sites. As periods become better defined and understood, new potential sources are identified and collected, and these new sources are used to further define the case and its periods. Second, case study requires some form of comparison, and the conditions and outcomes of each period become the units of comparison in the final

comparative analysis. It is by comparing periods that *why* questions can be answered. The second and third tasks of the excavation stage therefore complement one another in a reciprocal way: as the case is better defined in periods, more sources are identified and collected, leading to further conceptual development of the case. These two tasks result in a chronology of key events for each period, a narrative summary of that period, and a pool of relevant sources to use in the next stage. The overall method that guides the first stage of historical study is *theoretical sampling*—chasing leads, imagining new directions, evaluating the trustworthiness of sources, and collecting new sources in a way that leads to a fuller understanding of the case’s contours.

The next stage of historical case study is *data collection and analysis*. This is the stage where an analysis method is applied to the sources in order to generate data about the case. In this study, data collection and data analysis are two sides of a single, integrated process. Data collection in this study cannot be separated from data analysis because data are collected through an analysis process. The specific technique or method of this analysis should include some means or instrument for generating data about the case according to the theoretical framework of the study. Data *happen* or *exist* at the point where the coding instrument meets the source materials. Because archival documents, interview documents, and fieldwork documents constitute the source materials, some content analysis is an appropriate method for this stage. The data collection and analysis stage has 3 tasks: 1) *develop the instrument*, where categories and definitions are developed for data collection, 2) *pilot coding*, where the categories are tested and refined using a sample of the total source materials, and 3) *main coding*, where the interpretive instrument is applied to all sources in the study in a systematic way. The pilot coding phase results in a valid and reliable coding instrument that is both data- and concept-driven; the main coding phase results in data that created from the application of the coding

instrument. The precise method used in this dissertation project is qualitative content analysis (see section [3.5](#)). Qualitative content analysis is a distinctive method that differs from other types of qualitative coding.

Some authors, such as [Blaikie \(2010, pp. 21-25\)](#) combine terms such as source collection, data collection, and data analysis. Other authors may proclaim that data collection precedes data analysis. This may be the case in other kinds of studies, but this study differs in several ways: it maintains a careful distinction between *source* collection and analysis (stage 1) and *data* collection and analysis (stage 2); data *collection* and data *analysis* are combined into a single, integrated process; and source collection and analysis *precedes* data collection and analysis and must be completed before data collection and analysis can begin. There are good reasons for maintaining these distinctions and this order. In this study, source collection and analysis must be handled separately from data collection and analysis and it must be completed before data collection and analysis can begin. This is because, first, the coding instrument that is developed in stage 2 must account for the full variety of sources to be coded. This is to ensure a good fit between the source material and the coding instrument during the coding process. Source collection must therefore be completed before stage 2 can begin in order to ensure that the coding instrument can describe all sources in a valid and reliable way. Second, the pilot coding in stage 2 requires that a minimum percentage of sources are coded. All sources must therefore be collected by the end of stage 1 in order to calculate that minimum number. Third, the pilot coding in stage 2 must incorporate sources across all periods in the case. This is to ensure validity and reliability of the coding frame across the entire case. Sources from all periods must therefore be collected by the end of stage 1 in order to ensure that the coding frame tests well across all periods. Finally, it is paradoxical to assert that data collection precedes data analysis.

This is because data can only happen through an analysis process: data are not “found” or “plucked” from the world. It therefore does not make sense to say that data collection occurs before data analysis, for how can data be collected before they exist? To resolve this paradox, this study establishes source collection and analysis as the first stage and data collection and data analysis as the second, subsequent stage. *Data* are created at the point where the coding instrument meets the source material, and this point is located in the coding process of stage 2.

The third stage of historical case study is *data interpretation*. Interpretation is an appropriate name for this stage because it means to infer a cause or explanation for an observed set of facts. Interpretation consists of two tasks: *compare periods* and *explain changes*. The interpretation stage is where data are presented and new models and theories are constructed in light of the data. *Compare periods* means to report on the results from the main phase in a summary way, using graphs and charts. These means of data display make patterns more visible across the periods of the case. *Explain changes* is the final task of historical case study where data are used to infer explanations relevant to the research question. The method that guides the interpretation is *qualitative comparative analysis*. It is through comparative analysis that *why* questions are addressed. This particular project uses qualitative comparative analysis as an analysis technique to identify and describe causal conditions that explain why the case evolved as it did (see section [3.6](#)). The overall name for stage 3, data interpretation, implies that in this stage abductive inferences are drawn from the data in a way that is at once based on the data but at the same time goes beyond them. Interpretation requires an abductive leap to theories that can explain why the case is as it is.

Historical case study is best understood as a mixed methods research strategy, meaning that it uses both qualitative and quantitative data as a basis for theoretical conclusions.

Periodization may use either qualitative or quantitative data, the main phase may also generate qualitative or quantitative data depending on the analysis method, and theorization in the final stage can draw from both numbers and narrative.

### 3.4 THEORETICAL SAMPLING

#### 3.4.1 What theoretical sampling is

Historical case study draws from a sample of source materials. Unlike a survey study where a sample size and respondents' characteristics are predefined, in a case study the sample is not known in advance. [Altheide \(1996, p. 33\)](#) states that a sampling strategy should “emerge as the researcher inspects and reflects on some initial materials.” In the first stage of research, therefore, the study develops a sample of sources as the nature of the case becomes better known. Sources are identified that are relevant to the case. During this stage, preliminary sources are used to define the boundaries of the case and to divide it into periods. As source collection continues, the definition of the case and its periodization become clearer. Potential source pools may continue to expand as a conception of the case is clarified.

The process of collecting sources in stage 1 of a historical case study is called *theoretical sampling*. It is the process of setting a working definition or theory of a case, then searching for sources in light of that understanding. The *theoretical sampling protocol* is a working list of existing or potential sources to be gathered for data analysis, combined with a set of questions or characteristics of the case that warrant a closer look. The list of sources is informed by the



research question and the nature of the case. Theoretical sampling is a trial-and-error process. Researchers cannot know in advance what sources will be relevant or accessible.

The term theoretical sampling and its conception are associated with grounded theory ([Glaser, 1978, p. 36](#); [Glaser & Strauss, 1967, p. 45](#); [Strauss & Corbin, 1990, p. 176](#)). Unlike some flavors of grounded theory, however, historical case study proceeds with a predefined research question and framework in mind. Theoretical sampling should be treated as a distinctive part of the research process because a preliminary theory of the case is formed ([Altheide, 1996, p. 27](#)). In historical case study, theoretical sampling is used during the source collection and analysis stage as a “first round” of theory development. It is used to complete the tasks of *define the case*, *periodize*, and *collect sources*.

### **3.4.2 Why theoretical sampling is important**

It is impossible for any study to incorporate all possible sources. This is because some sources may no longer exist, some are inaccessible, and some are expensive to obtain. Theoretical sampling is important because it ensures that sources are collected that are relevant to the case and to the research question. It also ensures that sufficient sources are collected from all aspects of the case. This sample of sources forms the basis of the data collection and analysis. Theoretical sampling is important because it defines parameters to ensure that all relevant sources are collected (recall) and to ensure that non-relevant sources are excluded (precision).

### **3.4.3 Principles of source collection**

The basic principles of source collection for this study were to collect a wide variety of types of sources from many diverse actors relevant to the case. From the beginning, there was no minimum or maximum number of sources to collect. The goal was to collect as many relevant sources as possible. One shortcoming of previous studies related to the public sphere and libraries was that they used only a single type of source, annual reports ([Koizumi & Widdersheim, 2016](#); [Widdersheim & Koizumi, 2015a](#)). Reliance on a single type of source from a single author is problematic because it raises the risk of bias. A large number of sources from a diversity of perspectives was therefore important in this study in order to overcome past deficiencies and to reduce the risk of sample bias. Sources that vary in type and origin constitute a more trustworthy and credible basis for generating data and drawing conclusions. Accuracy was an important consideration when collecting sources, and for that reason direct observations and primary sources were emphasized as source materials.

### **3.4.4 Types of source materials**

[Altheide \(1996, p. 2\)](#) defines a document as “any symbolic representation that can be recorded or retrieved for analysis.” A number of different types of documents were gathered for this study to serve as source materials. Documents included archival materials such as letters and internal reports; newspaper, magazine, and journal articles that reported on relevant people or events; interviews; and field observations. Interviews were conducted in an unstructured way so as not to introduce bias into the interview ([Rubin & Rubin, 2012, p. 29](#)). Fieldwork was conducted at public meetings and hearings.

### **3.4.5 Source Management**

All source materials were saved as digital files and entered as records into EndNote reference management software. Source materials were saved as digital copies because they would later be coded and analyzed. A source management library was constructed using EndNote for several reasons: 1) metadata could be added to the files for organization and retrieval; 2) metadata could be used to sort the source files according to period; 3) the source documents could be easily exported into NVivo for coding and analysis; and 4) metadata from the files could be used to generate citation lists for the final write-up.

## **3.5 QUALITATIVE CONTENT ANALYSIS**

### **3.5.1 What qualitative content analysis is**

The second stage of historical case study is data collection and analysis. During this stage, a method is used to generate data about the periods of the case using a common interpretive framework. The development of a common means for describing the periods, and a systematic process for applying those means to the sources, are important in order to compare the periods of the case on equal terms and to ensure that all relevant data are included.

The data collection and analysis method adopted for this project is qualitative content analysis. Qualitative content analysis is defined as “a method for describing the meaning of qualitative material in a systematic way” ([Schreier, 2013, p. 1](#)). The defining characteristic of qualitative content analysis is the coding frame. The coding frame is an interpretive instrument

that is used to analyze source materials in a way informed by the research question and framework of a study.

### **3.5.2 Why qualitative content analysis?**

There are several reasons why qualitative content analysis was selected as the data collection and analysis method for this study. First, qualitative content analysis is appropriate for describing hidden content in source material. One characteristic of qualitative content analysis that distinguishes it from quantitative content analysis is its focus on *latent* meaning as opposed to *manifest* meaning ([Schreier, 2013, pp. 15-16](#)). Understanding latent meaning requires understanding the context of the material being coded. Second, qualitative content analysis develops and applies a standardized coding instrument across the source material. This is appropriate for a historical case study where sources in each period must be analyzed with respect to the same categories. Third, qualitative content analysis emphasizes both validity and reliability. Reliability is ensured during the pilot phase where the coding frame is tested. Validity is also ensured in how the coding frame is developed in light of data from actual sources. Fourth, qualitative content analysis is flexible enough to incorporate concepts from an existing framework. Since this study is informed by a model of the public sphere, the circulation of power model, the coding frame was constructed with these concepts in mind. And fifth, qualitative content analysis produces a variety of data, both qualitative and quantitative. This diversity of data is used to strengthen final interpretations.

It might be asked why qualitative content analysis was used instead of grounded theory or other similar qualitative coding techniques. First, it should be pointed out that there is no single definition of grounded theory. It should also be noted that qualitative content analysis and

grounded theory are not mutually exclusive methods. Construction of a coding frame, for example, requires constant comparison of source materials and the development of categories. Qualitative content analysis diverges from grounded theory, however, because 1) qualitative content analysis builds coding categories using a mix of both source data and concepts derived from an existing framework; 2) qualitative content analysis tests the coding frame, often using a second coder; and 3) qualitative content analysis applies the coding frame across all source materials in a systematic way. The two additional steps of testing the categories and applying them across all the source material in a systematic way give qualitative content analysis an advantage over grounded theory. This is because the categories of the coding frame are more reliable than in grounded theory, due to the testing, and because the systematic application of the coding frame generates a large coding table whose data forms the basis of interpretations. This coding table is not produced in grounded theory, and it is important because it forms the basis of theorization in the data interpretation stage of a historical case study.

### **3.5.3 The coding frame**

A coding frame is defined as “a way of structuring your material, a way of differentiating between different meanings vis-à-vis your research questions” ([Schreier, 2013, p. 61](#)). Coding frames are constructed using categories and sub-categories. Categories are the key aspects or dimensions of source material ([Schreier, 2013, p. 59](#)). They focus the analysis of a source material. Sub-categories provide a more focused analysis. Together, categories and sub-categories are used to summarize the content of source material in light of a research question and research framework.

There are four requirements for an effective coding frame ([Schreier, 2013, p. 71](#)). The first is unidimensionality. Unidimensionality means that each category of the frame captures one aspect of the material only. The second requirement is mutual exclusiveness. Mutual exclusiveness means that the sub-categories do not overlap that that content can be assigned to only one sub-category in each dimension. The third requirement is exhaustiveness. This means that each document of source material must be coded somewhere in the coding frame. The fourth requirement is saturation. This means that the categories and sub-categories in the coding frame are used at least once during coding and that none are left empty.

A coding frame is constructed using concepts from an existing theoretical framework and by modifying categories and sub-categories in the frame in light of source material. Categories are created with a name, a definition, a description or set of indicators, examples, and, where necessary, decision rules ([Schreier, 2013, pp. 94-102](#)).

### **3.5.4 Segmentation**

Segmentation is the process of dividing up source material into smaller units in order that the units fit into the categories of the coding frame ([Schreier, 2013, pp. 126-127](#)). Segmenting is important because: it ensures that all relevant source material is accounted for in the coding; it keeps the research focused on the research question and research framework; and it facilitates comparisons of coding at different points in time or between different coders. A segment of material that is coded according to a category in the coding frame is called a *unit of coding* ([Schreier, 2013, p. 131](#)). Source material can be segmented into units of coding using two types of criteria: formal criteria and thematic criteria. Formal criteria are features of a text other than content, such as sentences, paragraphs, pages, or sections. Thematic criteria are based on

meaning. This project adopts a thematic criterion for identifying units of coding. This criterion is the concept of *communicative event* (see [4.2.1.1](#)). A communicative event is defined as a selection of meaning that is transmitted from an actor to an audience. This thematic criterion was chosen because it is non-arbitrary and because it is based on the public sphere framework that informs this study.

### **3.5.5 The pilot phase**

The pilot phase is an essential part of qualitative content analysis. In the pilot phase, the coding frame is tested and refined by applying it to a portion of the total source material to be used in the final, main analysis ([Schreier, 2013, p. 146](#)). The part of the pilot phase where testing occurs is called the trial coding. The pilot phase is crucial because there is no way to know in advance how the coding frame will work when applied to the source materials. Testing the frame in advance hones the instrument and reduces the likelihood that it will fail to account for all relevant aspects of the source material during the main phase. The pilot phase is also important because it enhances the reliability and validity of the results.

There are three main components of the pilot phase: trial coding, consistency check, and revisions ([Schreier, 2013, p. 146](#)). During the pilot phase, a portion of the total source material is selected and used. There should be a variety of source material from all aspects of the project. Testing the frame on a diverse sample of source material ensures that the instrument is reliable across the study ([Schreier, 2013, p. 149](#)). As a general rule, between 10 and 20 percent of the total source material should be used in the pilot phase ([Schreier, 2013, p. 151](#)). In addition to source variety, a second principle of the pilot phase is that the entire coding frame should be used and tested ([Schreier, 2013, p. 150](#)). The pilot phase is an important time in a study because data

begin to be generated and coding routines take hold. Decisions about the nuts and bolts of the coding process are made at this time.

A central purpose of the pilot phase is to test the reliability of the coding frame. This can be done in two ways, either by intra-coder comparison or by inter-coder comparison, or both. An intra-coder method is when a single coder codes the same material at two points in time, then measures the consistency of those codings. An inter-coder method is when two or more coders code the same material, then compare and measure the consistency of their codings.

This study adopts the inter-coder option. This method is preferred because inter-coder reliability is the stronger of the two measures ([Schreier, 2013, p. 191](#)). Inter-coder reliability will be measured both qualitatively, through discussion, and quantitatively, through Cohen's kappa and percent agreement scores.

### **3.5.6 The main analysis phase**

The main analysis phase is where all source material is coded using the coding frame developed and tested during the pilot phase. No modifications are made to the frame during the main coding. The result of the main coding is a coding matrix where, for instance, rows represent the units of coding, and columns represent the categories of the coding frame (see [Appendix K](#)). For this study, NVivo qualitative data analysis software was used to perform the main coding. Coding data was then transferred from NVivo to Excel spreadsheets in order to create coding matrices.



### 3.5.7 Data presentation

Excel was used to generate tables and graphs of the coding data. Gephi network graph analysis and visualization software was also used to create network visualizations and interpret coding data.

## 3.6 QUALITATIVE COMPARATIVE ANALYSIS

The foregoing section discussed how qualitative content analysis is used in stage 2 of this study, *data collection and analysis*, as a way to generate data and present it in tabular and graphical form. The data can be presented in a way that describes the various features of the case, and these descriptions answer how the system developed as it did, who was involved, what happened, and when. Still, qualitative content analysis by itself is not a suitable method for answering *why* questions—there is no explanation offered in the descriptions it provides. An additional research technique is therefore needed, one that builds on the data generated from qualitative content analysis in order to create an explanatory theory. The explanatory theory answers why the system evolved as it did. It does this because a theory posits an underlying rule that accounts for observable data ([Reichertz, 2014](#)). Qualitative comparative analysis is the method that accomplishes the tasks of stage 3, *compare periods* and *explain changes*. Qualitative comparative analysis is therefore combined with qualitative content analysis—QCA<sup>2</sup>—as a way to fully answer the sub-questions of this research project.

### 3.6.1 What qualitative comparative analysis is

Qualitative comparative analysis is a method for comparing in a systematic way several complex cases. It is a form of *configurational* comparison because the purpose of the analysis is to identify among the cases their common factors, variables, ingredients, or conditions whose various *configurations* or arrangements explain why one outcome obtains in some cases and another outcome obtains in others ([Ragin, 1987](#); [Rihoux & Ragin, 2009](#)). Qualitative comparative analysis is used in studies where between 3 and approximately 15 cases are compared according to several variables ([Berg-Schlosser, De Meur, Rihoux, & Ragin, 2009, p. 5](#)). Qualitative comparative analysis accommodates the idea of multiple conjunctural causation, the idea that multiple constellations or paths of variables may lead to the same outcome ([Berg-Schlosser et al., 2009, p. 9](#)). Using qualitative comparative analysis, both necessary and sufficient conditions can be identified. A necessary condition is one that is present in every combination of conditions that leads to a positive outcome. A necessary condition alone may be insufficient to produce the outcome, but the outcome cannot obtain without it. By contrast, a sufficient condition is one that, by itself, produces the outcome. It may not be present in every combination, but it alone can produce the outcome.

Qualitative comparative analysis is a method used in a variety of fields, including sociology, history, and political science. It offers an attractive alternative to statistical methods that use few variables, a large number of cases, and different assumptions of causality ([Ragin, 1987](#)). There are several variations of qualitative comparative analysis, including crisp-set (csQCA), multi-variable (mvQCA), and fuzzy-set (fsQCA) ([Rihoux & Ragin, 2009](#)). This project uses crisp-set qualitative comparative analysis because the conditions and outcomes identified in the case can be reasonably dichotomized.

### 3.6.2 Why qualitative comparative analysis?

One of the research questions in this study is a *why* question that calls for a causal account, or explanatory theory. Qualitative comparative analysis is a systematic way to develop an explanatory theory, one that is logically consistent, theoretically justified, and empirically supported. As a method, qualitative comparative analysis fits well with a historical case study approach. Historical case study may only focus on a single case, but that case's periods constitute multiple embedded units of analysis that require comparison. Just as qualitative comparative analysis is used to compare separate cases in a cross-case study, so too can the method be used to compare the embedded periods within a historical, single-case study. Qualitative comparative analysis is a method that can be used to describe what is similar or different about the case's periods and also explain, using configurations of conditions and outcomes, why the case evolved as it did. In other contexts, for example, qualitative content analysis has been used to explain the conditions that lead to deforestation of the Brazilian Amazon ([Scouvar et al., 2008](#)) and the conditions that lead to democratic mobilization in authoritarian regimes ([Osa & Corduneanu-Huci, 2003](#)). Due to its focus on time and causal conditions, qualitative comparative analysis fits well methodologically with the design of historical case study and it helps to answer the research question guiding this project. An attractive feature of qualitative comparative analysis is that each step in the theory-building process is documented and described in a transparent way so that readers can assess the validity of the theory.

### 3.6.3 How crisp-set qualitative comparative analysis works

**3.6.3.1 Outcomes.** An important first step for any version of qualitative comparative analysis is to define what the outcomes are and to explain why a particular case exhibits a particular outcome. If cases are arguments that consist of conditions (the premises) and outcomes (the conclusions), then outcomes are important to define because qualitative comparative analysis (QCA) is a method used to show why a case arrives at a particular conclusion.

Crisp-set qualitative comparative analysis (csQCA), like other forms of QCA, uses the conventions of Boolean algebra to describe conditions and outcomes in a formalized notation. In the following configuration, O represents a positive outcome:

$$A*b + B*D \rightarrow O$$

The  $\rightarrow$  symbol designates that O is the outcome of the configuration, meaning that those collections of conditions that precede the  $\rightarrow$  symbol are the causes for that outcome.

Definitions of outcomes are important to know from the beginning of a research project because the definitions inform case selection. In QCA, it is better to include similar cases with different outcomes—cases that fail as well as cases that succeed—in order to show why some cases fail and others succeed ([Berg-Schlosser et al., 2009, p. 21](#)).

**3.6.3.2 Conditions.** Another important first step in QCA generally and csQCA in particular is to define the conditions. Conditions are defined according to the general theoretical framework guiding a study. There are several principles for the development of conditions:

- they should vary across the cases;
- they should be relatively few in number, around 4 to 7; and

- they should be accompanied by hypotheses of how they affect outcomes ([Berg-Schlosser et al., 2009, p. 28](#)).

The notation for conditions also follows Boolean conventions. The following notation states that a collection of several conditions results in a particular outcome:

$$A*b + B*D \rightarrow O$$

In csQCA, conditions are dichotomized to show presence (capital letters) and absence (lower-case letters). Logical operators connect these conditions. An asterisk (\*) means AND, and a plus sign (+) means OR. The above statement therefore can be rewritten to describe how two separate sets of conditions both result in outcome O:

A*b	the presence of condition A <i>AND</i> the absence of condition B
+	OR
B*D	the presence of condition B <i>AND</i> the presence of condition D
→ O	cause outcome O

**3.6.3.3 Dichotomization.** CsQCA is based on Boolean algebra, one used to express binary, true/false statements. In binary logic, true values are expressed using a [1] and false values are expressed using a [0]. In order for csQCA to work, conditions must be dichotomized into true and false values. To do this, thresholds must be established in a non-arbitrary manner, a way that makes sense within the context of the case. There are several principles for dichotomization:

- “be transparent when justifying the threshold;”
- “justify the threshold on substantive and/or theoretical grounds;”
- “avoid artificial cuts dividing cases with very similar values;” and

- “code the conditions in a way that is theoretically expected” ([Rihoux & De Meur, 2009](#)).

The steps of dichotomization are described and explained throughout the process of the analysis.

**3.6.3.4 Data table.** When cases and conditions have been identified and defined, a data table is then constructed where the columns represent conditions and rows represent cases.

**3.6.3.5 Dichotomized data table.** After a data table is constructed, the data for each condition is then assigned a [1] or [0] according the dichotomization rules for each condition. This creates a dichotomized data table. TOSMANA software can be used for this and subsequent steps ([Cronqvist, 2016](#)).

**3.6.3.6 Truth table.** A truth table is a table of all the configurations—the various sets of conditions and outcomes. The truth table is important because it highlights contradictory configurations—those with the same conditions but different outcomes.

**3.6.3.7 Resolving contradictory configurations.** Contradictory cases must be resolved in order to show why some outcomes occur in some cases and other outcomes occur in others. Contradictory configurations can be resolved in several ways, such as adding conditions, adjusting thresholds, and reconsidering outcomes ([Rihoux & De Meur, 2009, pp. 48-49](#)).

**3.6.3.8 Minimization.** QCA favors parsimony—a small number of core conditions that can explain outcomes. Boolean minimization is the process of identifying superfluous conditions

and removing them, thus distilling the configurations to any necessary and sufficient conditions or combinations ([Rihoux & De Meur, 2009, pp. 35-39](#)).

**3.6.3.9 Interpretation.** The somewhat technical process of QCA generally and csQCA in particular—the dichotomization of variables, creation of truth tables, Boolean minimization—can adequately explain causation to a degree, but it cannot by itself fully explain causal mechanisms. A final step of QCA is therefore to interpret the findings of QCA using examples and narrative from the actual case.

### **3.6.4 Configurations or sequences?**

QCA accounts for causal complexity, but by itself it fails to account for temporality. Following the works of ([Abbott, 1983, 1984, 1988, 1990, 1995](#)), several authors have attempted to overcome this limitation by combining sequence analysis with configurational analysis ([Borgna & Struffolino, 2016](#); [Caren & Panofsky, 2005](#)). The assumption is that both the arrangement of factors and their temporal order matter when explaining the historical development of a case or a set of cases.

Historical case study does not face the same limitations of other case study approaches with respect to combining configurational comparative analysis and sequence analysis. This is because temporality is built into a historical case study approach. Both sequence analysis and configurational comparative analysis can be used in a historical case study by first applying QCA to each of the period of study, then analyzing the configurations of each period to identify a temporal pattern. Such a dual analysis reveals an overall trajectory of the case, one that accounts for both causal complexity and temporal order.

### **3.7 RESEARCH JOURNAL**

A research journal was an essential part of this research project. The journal was used for brainstorming, tracking progress, and documenting significant events in the research process. To make the research process more transparent, notes from the research journal are interspersed with the results.

### **3.8 RESEARCH ETHICS**

This research was approved by the Institutional Review Board (now the Human Research Protection Office) at the University of Pittsburgh. The study was classified as exempt. An approval letter can found in [Appendix C](#).

Several types of sources were used in this study, including interviews with human subjects. In order to protect interviewees from any potential harm, interviewee identities remain confidential. Any identifying information was excluded from the dissertation report. The names of interviewees were anonymized using gender-neutral pseudonyms, such as Librarian 1 and Administrator 2. All interview participants were informed of the nature of the study prior to their participation. A copy of the informed consent form used in this study can be found in [Appendix D](#).



### **3.9 RESEARCHER'S STANCE**

This project operates within critical theory, interpretivist, and social realist paradigms ([Blaikie, 2010, 2014](#)). A critical theory approach develops solutions to problems with people and for people, and it regards the study of communication and power as essential to this process ([Blaikie, 2014, p. 12](#)). Interpretivism regards reality as co-constructed meanings shared by social actors. Fully understanding the nature of an event requires understanding the subjective meaning that social actors ascribe to it. Social realism recognizes the existence of social structures that affect social action.

### **3.10 SUMMARY: METHODOLOGY**

The above section presented the general research design and specific methodological details for this study. This study falls under the general heading of case study design. Case study design was selected as a research approach because this study is exploratory in nature, not much is yet known about the case or the concepts used, and the intended results of this study include the development of new theories. The case for this study is the regional public library system in greater Pittsburgh. This case is an appropriate one in order to test and refine the Machtkreislauf model and in order to develop a fuller understanding of the public sphere and public libraries. This is because Pittsburgh is an extreme case and a crucial case for the study of the Machtkreislauf model, and it is an extreme case and a pathway case for the study of the public sphere and public libraries.

Within the general category of case study design, this study adopts historical case study as a specific research strategy. Historical case study was newly developed for this project. As a concept, historical case study is a retrospective longitudinal comparison of the various periods within a single case. The periods of a case serve as its embedded units of analysis. Historical case study blends history with case study because it examines the case from the distant past into the current moment. It does this by collecting and analyzing several different source materials, including archival documents, interview notes and transcripts, and field notes from direct observations. The periods of the case are analyzed using a common interpretive framework. In this study, the framework is informed by the Machtkreislauf model. A common interpretive lens used across the periods of the case allows the case to be viewed over time. Comparison of certain features of each period can reveal why the case evolved as it did.

As a research process, historical case study consists of 3 stages: source collection and analysis, data collection and analysis, and data interpretation. Each of the stages uses its own method, undertakes specific tasks, produces its own results, and addresses certain research questions. The stages proceed in sequence, and the results of this process are cumulative. This means that earlier stages inform later ones: stage 1 produces sources that are used in stage 2 for coding, and stage 2 produces data that is used in stage 3 for interpretation. At the same time, each stage also stands on its own as a distinctive stage because each stage produces its own knowledge: stage 1 results in a definition, narrative, and chronology of the case, stage 2 results in new concepts and models related to the Machtkreislauf model, and stage 3 results in an explanatory theory of the case. In this study, the method used in stage 1 is theoretical sampling, in stage 2 the method is qualitative content analysis, and in stage 3 the method is qualitative comparative analysis. Each of the stages aligns with different research questions for this study:

stage 1 addresses SQ1, stage 2 addresses SQ2 and SQ3, and stage 3 addresses SQ3. Different types of knowledges, including narratives, chronologies, concepts, models, and explanatory theories, are developed in each stage in order to address these questions.

Before beginning this study, proper steps were taken to ensure the protection of research participants. Identifying information of interviewees will remain confidential, and interviewee's names will be replaced with gender-neutral pseudonyms. Before participating in the study, all interviewees must provide informed consent. Details of this study were submitted to the University of Pittsburgh's Institutional Review Board where the study was classified as exempt.

## **4.0 RESULTS**

### **4.1 STAGE 1: SOURCE COLLECTION AND ANALYSIS**

The following section reports on the findings from the 3 stages of this historical case study. Source collection and analysis is the first stage of this historical case study. It consists of 3 tasks: define the case, periodize, and collect sources. This stage results in a definition of the case, a chronology and narrative for each of the embedded periods, and a collection of relevant sources to use in the next stage, data collection and analysis. Source collection and analysis begins to address research question SQ2 of this study, which is: What does the evolution of the library system in Pittsburgh look like? It does this by developing a preliminary description of the case and a theoretical sampling protocol that serves in stage 1 as a guide for source collection. The overall objective of stage 1 is to define what the case and its periods are, and to gather relevant source materials for further analysis.

#### **4.1.1 Definition of the Case**

The first task of stage 1, source collection and analysis, is *define the case*. Defining the case is important because it establishes what the object of study is and what it is not. A definition of the case cannot be fully known in advance until it is excavated, that is, until sources are collected and a sampling protocol is constructed.

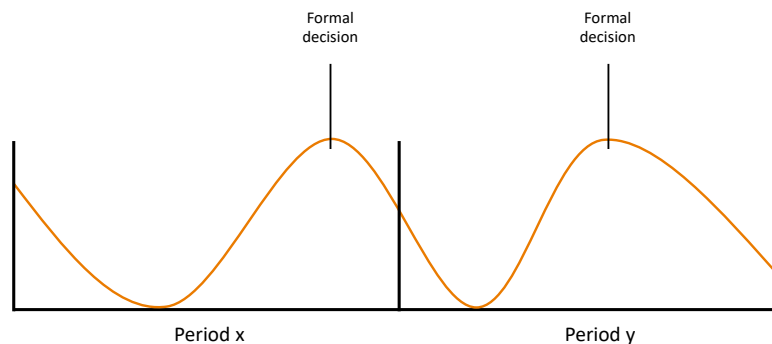
In this project, the case is defined as *discourse related to a regional library system in the greater Pittsburgh region*. The geographical boundaries for the case are Allegheny County, Pennsylvania, the unit of government that includes the city of Pittsburgh proper and its immediate suburbs. The case is bounded temporally by the years 1924 and 2016. The year 1924 was identified as a temporal boundary for the case because it is the first year that a regional library system idea was proposed. The year 2016 serves as a second temporal boundary for the case because no sources about the case were collected beyond that year. The case involves public libraries. Other types of libraries are therefore excluded from the study.

#### **4.1.2 Periodization**

Historical case study depends upon the comparison of time periods. Periods serve as the embedded units of analysis within the historical case study. The second task of stage 1, source collection and analysis, is *periodize*. To periodize means to establish what the case's embedded units of analysis are.

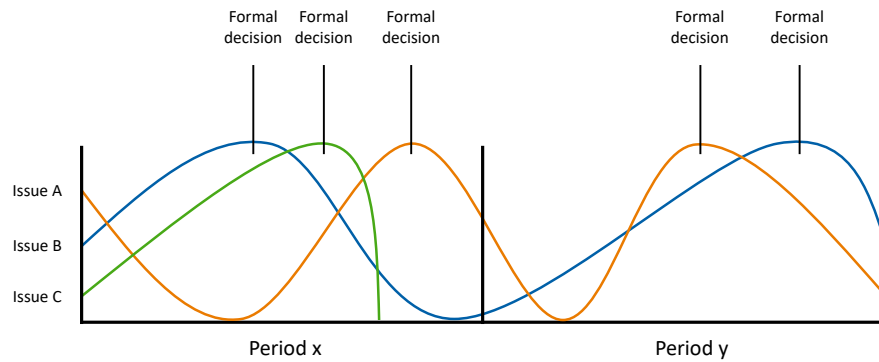
**4.1.2.1 Decision cycles.** In this study, a concept that is central to distinguishing one period from another is *decision cycle*. The concept of decision cycle was developed during the source collection and analysis of stage 1. The concept of decision cycle was developed because it was seen in the source materials that waves of a repeating, formal decision process combined over time to form a pattern (see [Figure 4.1](#); also described in section [4.3.2.1](#)). The concept of cycles is not uncommon in social life: there are annual cycles (seasons, calendar years), economic cycles (shopping trends, fiscal years), and political cycles (election years). Similarly, in the case observed in this study—the public library system in greater Pittsburgh—the evolution of the

system occurred gradually and in waves. Each wave of development was issue-driven and was a confluence of multiple types of power. During each cycle, power built up and accrued until a pivotal formal decision was made. The outcome of the peak formal decision determined how the system evolved, whether there was a substantive change or a continuity. These observations led to the development of the concept of a decision cycle.



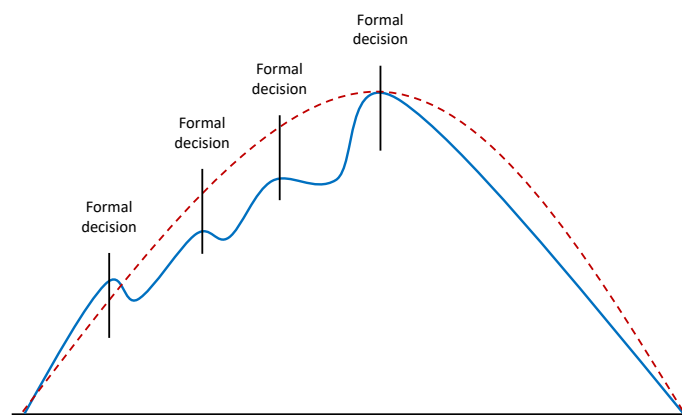
**Figure 4.1. Decision cycles in 2 periods.**

Decision cycles in this case are used to distinguish periods. Decision cycles are issue-driven and do not necessarily correspond to artificial or predefined intervals of time. In other words, the time intervals of each period are not uniform, but instead depend on when formal decisions were made about issues. Each period has a central, primary issue, and the travel or course of the issue defines each period's cycle (see [Figure 4.2](#)). While there are certainly multiple issues observed in each period, in each period there is a single, salient issue whose decisions can be tracked and traced. The salient decision cycle of each period is used to distinguish one period from another.



**Figure 4.2. Decision cycles across periods for 3 issues.**

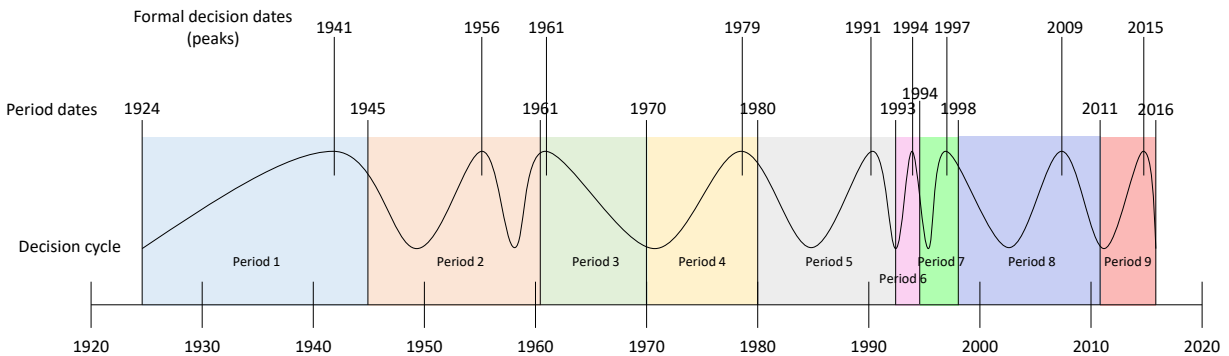
Each decision cycle is composed of micro-decisions that lead up to a larger, all-encompassing macro-decision regarding a particular issue. The smaller decision steps can be distinguished from the general, overarching decision trend. [Figure 4.3](#) shows in a generic way the micro-decisions in blue and the macro-decision trend in red. It is the macro-decision trend that is relevant when using decision cycles to distinguish periods.



**Figure 4.3. Micro-decisions and macro-decision in a decision cycle.**

The distinguishing feature of a period in this case is a *change in process* from its previous period—a new decision cycle. The result of the new process may produce a substantive change or it may maintain the status quo. Each process is comprised of a formal decision or a set of formal decisions that result in an outcome. Each iteration of the cycle constitutes a period.

**4.1.2.2 Periods.** There are 9 periods identified in this case. The concept of a decision cycle was used to carry out the overall periodization of this case as illustrated in [Figure 4.4](#). [Table 4.1](#) shows these periods, their year ranges, and their working titles.



**Figure 4.4. Decision cycle and formal decisions across periods.**

**Table 4.1. Period year ranges and working titles.**

Period	Year range	Working title
1	1924–1945	Periphery and Center



2	1945–1961	County Contract
3	1961–1970	The Rise of District Services
4	1970–1979	Unification Revisited
5	1980–1993	Fiscal Crises and Digital Visions
6	1993–1994	The Pursuit of RAD
7	1994–1997	System Dreams
8	1998–2011	Formula Wars
9	2011–2016	Compliance Culture

**4.1.2.3 Period chronologies.** Chronologies for each period are found in [Appendix F](#).

**4.1.2.4 Period summaries.**

***Period 1: 1924–1945.*** In 1907, the city of Pittsburgh annexed its northern neighbor, Allegheny City. This section of the city is known as North Side. When Allegheny City was annexed, however, control of the library there was transferred to Pittsburgh City Council, not the trustees of the already-existing library system in the city, Carnegie Library of Pittsburgh. Some of the first battles for a regional system in the Pittsburgh area therefore concerned administration of the library in North Side. Several civil society groups, particularly the Civic Club, joined forces with Ralph Munn, the director of the Carnegie Library of Pittsburgh, in an effort to merge Allegheny Library with the city’s Carnegie system. At the same time, civil society groups fought to extend library services into the county, particularly for schools. A 1937 article in a local progressive journal identified nearly 20 public libraries in the county and outside the city. Library services outside the city were thought to be insufficient by some education advocates.

Efforts for extending library services to county schools began in 1924, and proposals to merge the old Allegheny library with the Carnegie system were made in 1926. These efforts continued into the 1930s and early 1940s. In the background during this time was a movement at the state and county levels to consolidate county municipalities with the city of Pittsburgh. This effort failed to pass a county referendum in 1929. This failure of “metropolitanism” initiated a pattern of fractured regional governance in Pittsburgh that continued throughout the 20th century. The failed effort of city-county consolidation also undercut efforts to design a regional library system.

In 1940, efforts for countywide services culminated with a meeting of several civil society groups, library leaders, and school leaders who jointly petitioned the County Commissioners for county library funding. The proposal was rejected by the Commissioners in 1941. By 1942, the Second World War had begun, funding became scarce, and efforts toward regional library services in the Pittsburgh area were abandoned until after the war.

Period 1 is characterized by a flurry of activity by civil society groups who petitioned multiple decision-makers for library services. Despite a seeming abundance of support, these efforts resulted in a series of political failures for the progressive regionalists and a series of wins for the local autonomists. Efforts by the regionalists were stymied by the decision-making bodies they targeted: the city Mayor, the City Council, and the County Commissioners. It is also the case that the decisions by these officials were made within a restrictive economic climate of the Great Depression and then the Second World War. Parochialism, therefore, does not fully explain why a regional system did not emerge. Key actors in this period were the Civic Club of Allegheny County, the Allegheny County Council of Parent-Teachers’ Associations, the Mayor

and City Council of Pittsburgh, Ralph Munn of the Carnegie Library of Pittsburgh, and the Allegheny County Commissioners.

The arc of the decision cycle of period 1 began in 1924, when a regional library system was first proposed. Public sphere pressure built up throughout the 1920s and 1930s until the hearing with the County Commissioners in 1941. The arc peaks in 1941 when the Commissioners decide not to fund the library system.

***Period 2: 1945–1961.*** Following the Second World War, population in the Pittsburgh area continued to increase. This was especially true in the county suburbs that surrounded the city. In 1948, the Civic Club of Allegheny County renewed its efforts to extend library services into the county. With the help of Ralph Munn, they convinced the Allegheny Conference on Community Development to sponsor a survey of libraries. The survey found 31 libraries in the county and uneven service quality outside the city. The study recommended as a distant goal a county library system operated as a division of county government and supported by county funds. In the interim, the study suggested a bifurcated, city-county system.

Efforts toward metropolitanism were still underway in the state legislature. In 1951, a Metropolitan Study Commission was enacted by the state to survey county and municipal services in Allegheny County. One aspect of the study was libraries. The study of libraries was designed and written largely by Ralph Munn. Published in 1955 as part of a larger home rule charter, the library survey recommended a federated, voluntary county system with the Carnegie Library of Pittsburgh as its nucleus.

A new civil society group formed out of the Allegheny County Council of Parent-Teachers' Associations, the Library Planning Committee of Allegheny County. The group first met in 1955 and began to petition the County Commissioners for funding for a county services.

On behalf of the group, Ralph Munn presented a plan to the commissioners. The efforts were successful, and the commissioners contracted with the Carnegie Library of Pittsburgh in 1956. The Munn plan had 4 components: 1) free lending privileges for all Allegheny County residents from the Carnegie Library of Pittsburgh, 2) bookmobile services to areas of the county without a library, 3) inter-library loan services between the Carnegie Library of Pittsburgh and other county libraries, and 4) centralized cataloging and purchasing services by the Carnegie Library of Pittsburgh. In 1956, the Carnegie Library of Pittsburgh became the county library.

Two other major events occurred in 1956. First, under the new mayor David L. Lawrence, the Carnegie Free Library of Allegheny was merged with the Carnegie Library of Pittsburgh. Second, at the national level, the Library Services Act was passed by the US Congress and signed into law by President Dwight D. Eisenhower. This Act would allocate federal dollars to state library agencies to enhance library services.

At the state level, the Pennsylvania Library Association and the State Library worked toward developing a statewide library plan. In 1957, the State Library sponsored a survey of libraries in Pennsylvania. Recommendations based on this survey would become known as “the Martin Plan” after the study’s lead surveyor, Lowell A. Martin. The Martin Plan would form the basis for a new state library plan passed in 1961. At the county level, the Library Planning Committee and Ralph Munn continued to petition the County Commissioners for enhanced county services. Discussions with the County Commissioners continued into the early 1960s, but these local efforts did not produce any tangible changes because they were overshadowed by the statewide adoption of the Martin Plan in 1961.

Period 2 was characterized by major wins for regional library system advocates. The Carnegie Library of Pittsburgh became the county library and began to offer enhanced services

to libraries and patrons outside the city. The North Side library merged with the Carnegie Library of Pittsburgh system. Several major studies proposed, in various ways, a single county-wide system. Civil society groups at the local and state level were essential for advancing the regional concept. The key actors during this period were Ralph Munn and the Carnegie Library of Pittsburgh, the Civic Club of Allegheny County, the Library Planning Committee of Allegheny County, the Allegheny Conference on Community Development, the County Commissioners, the Mayor and City Council of Pittsburgh, the Pennsylvania Library Association, the State Library of Pennsylvania, and the Library Services Branch of the US Department of Education.

The decision cycle for period 2 began with the close of the Second World War. Public sphere pressure continued to build through the early 1950s due to the efforts of civil society, library, and government groups. The cycle peaked in 1956 with the decision to merge libraries and to form a county-funded system. The late 1950s witnessed early implementation of this newly-created system.

***Period 3: 1961–1970.*** Period 3 marks a transformation in the nature of a regional system in Pittsburgh. A new state code in 1961 initiated state funding for libraries and broadened the state's oversight of them. This legislation also added a new role for the Carnegie Library of Pittsburgh: district center. The state plan of 1961 instituted up to 30 district service centers throughout the state. Larger libraries were designated as district centers, and Carnegie Library of Pittsburgh was selected as center for the Pittsburgh district. In addition to its roles as a local library for city residents and a county library for patrons outside the city, the Carnegie Library of Pittsburgh also became a district center whose responsibilities included reference services to all libraries and patrons in the district, advisory and consulting services to libraries,

and instructional meetings for county library personnel. With the extended services also came state funding for all district centers and all local libraries that met service standards. Funding and oversight of the new state plan was administered by the State Library, whose offices in Harrisburg were until then limited mainly to managing the library in the state capital. At the start of its new role as district center, Carnegie Library of Pittsburgh served 27 district libraries and a population of 1,335,977 outside the city. Geographically, the district jurisdiction included all of Allegheny County and parts of Butler County and Westmoreland County.

In 1966, Lowell A. Martin, the architect of the state plan, was again commissioned by the State Library to evaluate how the plan actually fared. He published the results of a re-survey in 1967. His recommendations included mandating county library agencies in counties without a county library, establishing intermediate units in the sparsely-populated central areas of the state, and banning the creation of new local libraries. The Library Development Committee of the Pennsylvania Library Association initiated discussions about the findings in order to determine what legislative action to take. Carnegie Library of Pittsburgh, as District Center Library in Pittsburgh, led discussions throughout Allegheny County. These discussions began in 1967 and continued into 1969.

Period 3 was characterized by an important change in regional library system development. If periods 1 and 2 were a bottom-up process where local civil society groups mobilized to petition local decision makers for county services, then period 3 was a top-down process where a new state law mandated district services. The combined roles of local, county, and district center library created a complex arrangement for the Carnegie Library of Pittsburgh and at the same time began to draw county libraries together into a system.

The decision cycle for period 3 begins in or around the year 1961 when efforts by state library groups led to the development of state library legislation. The cycle peaked that same year with the decision at the state level to implement the plan. The mid- to late-1960s saw the implementation and administration of this new state plan in greater Pittsburgh.

***Period 4: 1970–1979.*** Period 4 was characterized by a continuation of earlier system developments and a series of discussions about modifying the regional system. These discussions ultimately led nowhere. The period began in 1970 with a study published by Ralph Blasingame, former State Librarian of Pennsylvania. In 1969, the County Commissioners asked Blasingame to develop a plan for a county library system. At this point in time, population in the county still seemed to be trending upward, even if the manufacturing base characteristic of Pittsburgh had begun to shift to services. The Blasingame study reached the same conclusion as the 1955 Metropolitan Study Commission report: a unified county library system was needed. The Carnegie Library of Pittsburgh, with some civil society support, continued to push for a centralized system.

In the background, actors at the county and state level continued efforts to restructure Allegheny County government. Like the commissions formed in the 1923 and 1954 to study home rule, a government study commission was formed in 1972 to study government restructuring. These efforts again failed in 1974 and 1978 when charters were rejected in county referenda.

The State Library continued to create long-range plans and continued to receive and distribute federal Library Services and Construction Act funding. This funding was used in Pittsburgh in two major ways during this period. First, the money was used to fund a regional reference center, an idea proposed by Ralph Munn in 1961 and initiated by Keith Doms and the

County in 1966. Second, in 1976, LSCA was used to fund a citizen's study on libraries in the county. The study was an extended criticism of the Carnegie Library of Pittsburgh. It suggested that a county board should be established in order to distribute county money away from the Carnegie Library of Pittsburgh and toward other county libraries. The study was significant because it established a rift between the Carnegie Library of Pittsburgh and surrounding county libraries, claiming that the Carnegie Library of Pittsburgh received county money and dominated policy-making, but failed to offer adequate county services.

Civil society groups were active in a minor way during this period. Dorothea (Dotty) Strang, a founding member of the Library Planning Committee from the 1950s and 1960s, continued library advocacy from within the Allegheny County League of Women Voters. She participated in discussions about the Blasingame study, served on the committee for the 1978 citizens' study, and led library-related meetings in the League.

Despite a proliferation of studies and discussions during period 4 that seemed to agitate for a unified regional library system, these efforts failed. Key actors during this period were the Carnegie Library of Pittsburgh, the County Commissioners, the State Library, and Dorothea Strang.

The decision cycle for period 4 began in 1970 with the publication of the Blasingame study. Minor efforts and other library studies continued throughout the 1970s. The cycle peaked in 1978 with the publication and distribution of the citizens' study. No action was taken by decision-making bodies in reaction to this study, and a chance was missed for substantive system change.

***Period 5: 1980–1993.*** During period 5, populations in the city and county continued to decline from their heights in the 1950s and 1960s. In the early 1980s, the steel industry



collapsed, leaving empty land, lower wages, and an overall weakened tax base to support public libraries. The 1980s and early 1990s were therefore difficult financial years for libraries in the region. Some independent libraries, particularly those in the Monongahela Valley region that were once attached to mills, approached the Carnegie Library of Pittsburgh to discuss annexation. In 1989, the financial crisis for libraries came to a head. The Carnegie Library of Pittsburgh commenced a President's Advisory Committee on the Library to study new funding options and the possibility of branch closings. The committee's final report published in 1990 found to no one's surprise that the library was underfunded. The report also proposed several options for countywide system formation that, if adopted, could help to curtail library closings.

Digital, linked computer technologies also came to the fore during this period. In 1989, the main branch of the Carnegie Library of Pittsburgh unveiled several public access terminals to connect to its online catalog, CAROLINE. By 1992, this catalog would be accessible to other Carnegie branches and to some libraries in the county. The vision of a digital, networked library system was promoted by Bob Croneberger, director of the Carnegie Library of Pittsburgh.

In 1990, a new actor took the stage: Frank Lucchino. Lucchino, a lawyer and magistrate, was a progressive liberal who was active on city council since the 1970s. He was unsuccessful in his bids for mayor and state Auditor General, but now he hoped to leave a mark as County Controller. In 1990, Lucchino issued a special report on county restructuring, calling again for home rule and inter-municipal coordination. He mentioned libraries specifically as an attractive area for inter-municipal consolidation. Then, in 1991, Lucchino published a second special report that focused exclusively on libraries. The report encouraged greater cooperation among county libraries outside the city and urged for increased county funding for them.

It is difficult to overstate the effect that Lucchino had on the mobilization of county libraries. Following the publication of his report in 1991, county libraries joined together to form the first county wide library association, County Library Association Serving the People (CLASP). The group was based in part on an existing regional cooperative, the Library Association of South Hills (LASH). Also following the report in 1991, Lucchino formed and chaired the Commission on the Future of Libraries in Allegheny County (CFLAC). The Commission obtained funding from the Buhl Foundation to support a County Library Director, who began in 1992. The Commission, together with the Carnegie Library of Pittsburgh and CLASP, coordinated several projects, including Project Link-Up, which installed computer and telecommunication equipment to connect libraries across the county to CAROLINE. This was the start of a union catalog and an automated circulation system in the county.

Period 5 began with several fiscal woes that led to several new regional system developments. The central actor during this period was Frank Lucchino, a veteran of local politics but a library outsider. Lucchino's vision of a regional political system merged with Croneberger's vision of a digital one. The county libraries were drawn together organizationally as well as technologically.

The decision cycle for period 5 started in the politically and economically challenging times of the early 1980s. Political power began to grow toward the end of the 1980s with the resolution by CLP to find alternative funding models and to connect libraries digitally. Lucchino further energized the regional idea, leading to the peak of the cycle and the decisions to form CFLAC and CLASP in 1991. The years 1992 and early 1993 witnessed administration of these new organizations.

***Period 6: 1993–1994.*** In period 5, Croneberger initiated an online catalog at the Carnegie Library of Pittsburgh and, together with Lucchino, took preliminary steps toward constructing an integrated county library system. With his publications and political savvy, Lucchino rallied county libraries, resulting in CLASP and the Commission on the Future of Libraries. By early 1993, however, the momentum of the county movement had dwindled. Meeting attendance at CLASP was down, and funding had not yet been found to connect all libraries in a digital network.

Period 6 began in mid-1993. During this time, there were several political initiatives in the background at the state and county levels. The Allegheny Conference on Community Development and the Pennsylvania Economy League, together with County and City leaders, developed a plan for a new funding source for cultural entities in the city and county. The plan was to develop a Regional Asset District, a special governmental unit in Allegheny County that would raise sales tax by 1 percent. Half of the revenue from the tax would be redistributed to municipalities throughout the county. The other half would be administered by a city-county board and distributed to eligible cultural assets, organizations like the aviary, conservatory, zoo, stadium, and libraries. The proposition of funding from the Regional Asset District sparked further developments in a countywide library system.

In June and July of 1993, the Pennsylvania Economy League contacted the Carnegie Library of Pittsburgh and CLASP to inform them of the pending legislation. The legislation passed the state legislature in December 1993 and was signed by the Governor. The County Commissioners also approved the special district in early 1994. The sales tax went into effect in July. Eligible regional assets were decided by the board by the end of September 1994.

Carnegie Library of Pittsburgh would most certainly receive funding from RAD: it was the county and district library, and it offered services to all county residents. At the time, it was initially unclear whether other county libraries were also eligible funding because their services were limited mainly to their local areas. CLASP and CFLAC struggled to imagine how county libraries could receive a portion of the new funding source without endangering existing funding from their municipalities.

CLASP, Lucchino, and the County Library Director, while working together with the Allegheny Conference on Community Development and strategic consultant Bill Dodge, agreed that several principles must guide their proposal to RAD. First, the libraries must speak with one voice: they must approach the RAD board as an association of libraries, not as individual libraries. To do this, CLASP restructured and became the Allegheny County Library Association (ACLA), a non-profit association. Second, as a condition for receiving RAD funding, individual county libraries must serve the entire county, not just their own areas. Third, to be eligible to receive RAD funding, a library must be a member of ACLA and it must already be state-funded. Fourth, RAD was intended as a supplement to local funding, not a replacement. RAD money could be used to leverage more local funding. Fifth, the funding distribution would follow a formula. Several factors in the formula determined how much RAD money a library received, including population, distress, and local funding. And sixth, libraries could join ACLA to receive RAD funding voluntarily, but if they did, then they must agree to the terms of the association.

ACLA developed a convincing proposal and presented it to the RAD board in September 1994. In October, together with the Carnegie Library of Pittsburgh, they received RAD funding: ACLA received 5 million dollars and CLP received over 11 million dollars. Both ACLA and

CLP became statutory assets, meaning that their RAD funding was guaranteed for at least 10 years.

Meanwhile, as libraries pursued RAD funding, Lucchino, Croneberger, CLASP, and the County Library Director worked toward expanding Project Link-Up, a project that would become the Electronic Information Network. Croneberger hired a consulting firm, RMG, to plan the expansion. Lucchino and Croneberger approached Doreen Boyce of the Buhl Foundation for funding. By December 1993, they announced plans for the network to all libraries in the county. In July of 1994, a comprehensive plan was developed for the new network. Lucchino and Croneberger pitched the Electronic Information Network to several foundations for capital funding. This was the last step of the planning phase before EIN transitioned into the implementation phase.

Period 6 was characterized by cooperative efforts made toward funding for countywide projects. The groundwork for these projects was laid during period 5. ACLA and EIN became new means of unifying libraries into a countywide system. The key actors during period 6 were CLASP, Lucchino, CFLAC, the County Library Director, the Allegheny Conference on Community Development, the RAD board, and state and county officials.

The decision cycle for period 6 lasted approximately a year starting from the time in mid-1993 that the county library organizations were informed about plans for RAD and began preparing their proposal. A movement for a regional library system grew in early- to mid-1994, led by local library organizations, CLP, and Lucchino. The cycle culminated in late 1994 when ACLA and CLP received RAD funding, the EIN received foundation support.

***Period 7: 1994–1997.*** ACLA was successful in obtaining RAD funding, but prior to October of 1994, the association had not fully considered how to distribute the money in an

equitable way to libraries throughout the county. CLP received its own funding that was supposed to replace its city and county money. For ACLA, however, the RAD money was not a replacement, it was completely new. How much would each library get, and what would each library do with the money it received? Period 7 follows the initial RAD funding when county libraries tried to resolve basic organizational issues such as funding and governance. In the early years of ACLA, not all libraries in the county chose to join the association due to perceived economic losses. As a condition of receiving RAD funding, libraries had to serve all the county. This meant sharing collections with other libraries. Smaller, less-well-funded libraries would certainly benefit from this resource sharing because they wouldn't have to buy new books—they could just borrow them from other libraries in the system. Larger, more-well-funded libraries therefore risked exploitation if they joined the county system.

At the same time, in late 1994 the Electronic Information Network became a reality. The board was appointed and began creating policies. Foundation funding for EIN began in late 1994. EIN consisted of both physical infrastructure and personnel. As a physical thing, EIN was a secure, intra-county network that connected libraries to a shared catalog and circulation system. As an organization of staff, EIN personnel provided the complete hardware, software, and networking capabilities to all county libraries. EIN infrastructure was initially housed at the CLP main branch. Initial capital funds were provided by Foundations and the County. Funding then came from RAD through ACLA and CLP. During this period, EIN was an organization in a liminal state: it was embedded between CLP, ACLA, and the Commission on the Future of Libraries. Its board consisted of 7 members: 2 from CLP, 2 from ACLA, 2 from CFLAC, and 1 from the School of Information Sciences at the University of Pittsburgh. At the same time, it had its own director and staff.

In period 7, the ACLA libraries took on another challenge. Almost as soon as the dust from RAD funding and EIN had settled, ACLA leaders launched efforts to re-organize to become a federated system. From its founding in 1994, ACLA was a non-profit membership association: libraries could join voluntarily, agree to uphold the membership agreement, and in return they could expect a share of the RAD funding. The ACLA board mediated between all the county libraries and the RAD board. ACLA was a pass-through organization. As far as RAD funding went, this structure worked. The problem was state funding. As a non-profit member association, ACLA was not recognized by the State Library as a library system: though individual libraries in ACLA still received state funding and were still part of the library district headed by the Carnegie Library of Pittsburgh, ACLA the organization was not eligible for state benefits. Some ACLA founders recognized that if ACLA became a federated library system in the eyes of the state, then the association could receive state benefits above and beyond what individual libraries received. ACLA leaders such as Marilyn Jenkins, the new executive director, and Al Kamper, an ACLA board member who was also District Coordinator at Carnegie Library of Pittsburgh, campaigned for ACLA to become a federated system. Many libraries opposed the transformation because the reorganization compromised the autonomy of individual libraries. By the end of 1997, however, the association became a federated library system.

Period 7 was characterized by formula and membership conflicts by ACLA after achieving the status of a regional asset, maturation of EIN, a movement toward federation status, and increasing oversight of county libraries by ACLA and the RAD board. The key actors during period 7 were the ACLA board and executive director, ACLA member libraries, the RAD board and executive director, Carnegie Library of Pittsburgh, the EIN board and staff, and local foundations.

The decision cycle for period 7 began in 1994 as a new countywide library organizations—ACLA and EIN—began to work out administrative issues. Almost immediately, the issue of a federated library system created a new decision process. After extended debate, the cycle peaked in 1997 when libraries voted to become a federated system.

***Period 8: 1998–2011.*** Period 8 follows ACLA’s turbulent reorganization as a state-recognized federated library system. The association initiated a long-range planning process and hired Library Planning Associates, the same consulting firm that helped them with a 5-year planning project in 1996. The consultants’ second report published in early 2001 proposed several changes, including a dissolution of the Commission on the Future of Libraries, a takeover of bookmobile services, a change of EIN to a 501(c)3 corporation separate from CLP, and a takeover of district services from CLP. Some of these changes occurred immediately. In 2002, EIN renamed to eiNetwork and became a separate corporation with two members, CLP and ACLA. That same year, the Commission dissolved and ACLA took over administration of bookmobile services.

During period 8 there was a prolonged debate among ACLA libraries and between the ACLA membership and the RAD board about the distribution formula. As early as 2001, an ACLA task force recommended adding performance factors to the distribution formula. The ACLA membership developed several distribution formulas during this period. In 2009, the proposed formula was rejected by the RAD board. A revised formula was then approved by the RAD board, but ACLA soon revisited formula revisions in 2010. Despite over a decade of work on the funding formula, the association failed to develop a solution that satisfied all libraries and met the approval of the RAD board.



Key actors in period 8 were the ACLA member libraries, the Electronic Information Network, Carnegie Library of Pittsburgh, the RAD board, and the State Library.

The decision cycle of period 8 was a more protracted one compared to the previous two accelerated cycles. The period began following the creation of a federated system and with the rise of a new issue: the distribution formula. The county libraries held extended discussion regarding this issue, and also consulted with the RAD board. The height of the cycle occurred in 2009 and 2010 when formula revisions were voted down by the RAD board.

***Period 9: 2011–2016.*** Period 9 begins with the completion of a review of ACLA's operations by an independent consultant, ParenteBeard. The consultant was hired by the RAD board to assess ACLA's finances and to identify areas for improvement. The report found duplication between ACLA and CLP, and it also identified communication and transparency issues with ACLA's governance.

In 2013, in light of the findings of the report, ACLA and CLP leadership resolved to undertake a re-envisioning process. They hired another consultant, Nicole Swerhun, to facilitate a countywide conversation about libraries. The study was called Library Service in the 21st Century. The envisioning process lasted until 2014 when a County-City Library Service panel issued another report. The report called for a further centralization of services between CLP and ACLA. It also called for mandatory standards for county libraries.

In 2014, service standards were already mandated and monitored by the State Library. Compliance with state standards was required to receive state funding. ACLA-specific standards had been promoted intermittently by the group since 2001, but they were never adopted. Many libraries objected to the idea of ACLA-specific standards, but by mid-2015 the ACLA board implemented system-specific standards for all county libraries. The issue of standards caused

significant tension between ACLA member libraries and ACLA leadership, exacerbating the very problems identified by ParenteBeard in 2012 that prompted the city-county library study.

The decision cycle for period 9 started at the beginning of the re-envisioning process. After the study's report was issued, several discussions were held with local libraries regarding the implementation of system standards. Despite objections, the height of the cycle occurred in 2015 when the ACLA board decided unilaterally to implement standards.

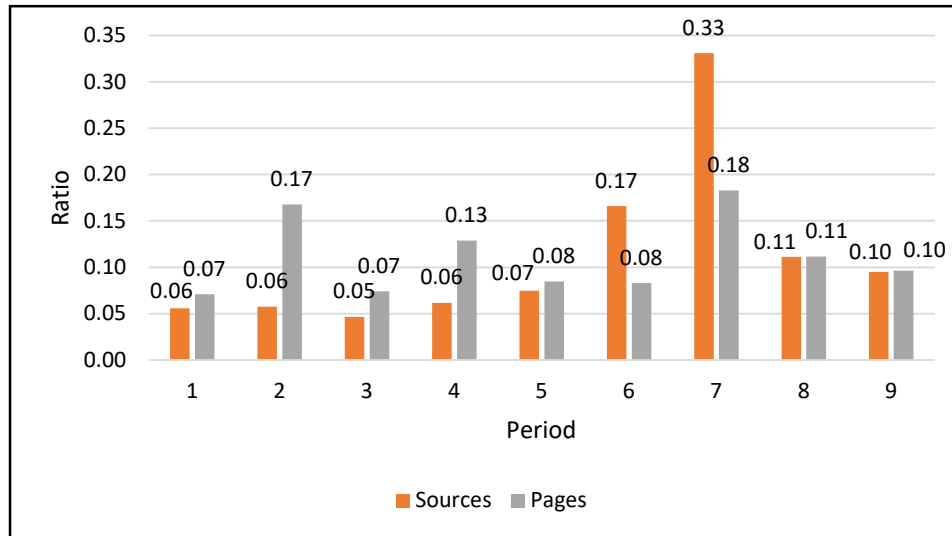
### **4.1.3 Source Materials**

**4.1.3.1 Overview of source materials used.** A third task of stage 1 is to collect source materials to use in stage 2, data collection and analysis. The collection and analysis of sources occurs in conjunction with the development of a case definition, period summaries, and period chronologies described above. Historical case study uses a variety of source types and source collection techniques in order to collect relevant, trustworthy source materials.

For this study, a total of 967 unique source items were collected. These sources included archival documents, interview transcripts and notes, and fieldnotes from direct observations. The segments of coding in some sources applied to different periods in the study. Some reports, interviews, and historical accounts stretch across multiple periods of time. These documents are later coded as separate items in stage 2. In order to account for how the same documents may be coded separately for each relevant period, some sources are counted more than once in the tallies below. The total number coded sources for the entire study is therefore 988. These source items consist of a total of 7,553 pages (see [Table 4.2](#)). Full citation lists for all source materials used in each period can be found in [Appendix E](#). [Figure 4.5](#) shows the ratio of source items and pages collected and used for each period.

**Table 4.2. Summary of sources and pages by period.**

Period	Sources	Pages
1	55	536
2	57	1,266
3	46	559
4	61	973
5	74	640
6	164	626
7	327	1,381
8	110	844
9	94	728
Total	988	7,553



**Figure 4.5. Ratio of sources and pages by period.**

**4.1.3.2 Archival and document sources.** Documents such as those from archives and newspapers are the first type of source used in this study. Several relevant archival collections were visited in order to gather these archival documents. These collections were located at the William R. Oliver Special Collections Room at the Carnegie Library of Pittsburgh, the University of Pittsburgh Archives Service Center, the Heinz History Center Detre Library and Archives, and the Allegheny County Library Association office in West End, Pittsburgh. Virtual archives on the Allegheny County Library Association Wiki were also used. Details about these collections are found in [Table 4.3](#).

**Table 4.3. Archival collections used in this study.**

	Collection name	Archive location
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1	Director's Office Collection	William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Oakland, Pittsburgh
2	District Services Collection, Series 2	William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Oakland, Pittsburgh
3	Civic Club of Allegheny County	University of Pittsburgh Archives Service Center, Point Breeze, Pittsburgh
4	County Commissioners Minutes	Detre Library and Archives, Heinz History Center, Strip District, Pittsburgh
5	History File, Allegheny County Library Association	Allegheny County Library Association office, West End, Pittsburgh
6	Allegheny County Library Association Wiki	<a href="http://acla.pbworks.com">http://acla.pbworks.com</a>

In addition to archival collections, newspaper collections were also used. Newspaper articles were found on microfilm and in the Pennsylvania Room at the Carnegie Library of Pittsburgh.

Additionally, documents were used from the Allegheny County Law Library and the libraries at the University of Pittsburgh.

**4.1.3.3 Interviews.** Interviews are a second source type gathered for this study. Unstructured interviews were conducted with key informants in a snowball-like process. The interview process began with an interview with a key informant central to the case. Subsequent potential interviewees were identified in that initial interview. Each subsequent interview also identified further potential interview candidates. Potential candidates were chosen who might address outstanding questions about the case or who could further elucidate certain details or events. A variety of interviewees of different positions were sought. Candidates were contacted by phone or by email at which time the details of the study were explained.

Interviews were conducted in an unstructured way. This means that interviewees were asked as an introductory question a broad, open-ended prompt such as “Could you tell me about...?” Follow-up probes were then interjected into the interview when necessary. No universal interview protocol was used for all participants. Instead, several key questions were prepared in advance of each interview that related specifically to that interviewee and their experiences. The objective of the unstructured format was to have interviewees recall their own thoughts and experiences in a way dictated by their own sense of importance and their own perspectives. The unstructured format was also adopted to avoid introducing interviewer bias.

In order to incorporate diverse perspectives on the case, interviews were conducted with different types of actors, including library administrators, librarians, trustees, and politicians. Library administrators are those in administrative positions who have management responsibilities. Librarians are those who carry out library services but have no management responsibilities. Trustees are those who serve or have served on library boards. And politicians are those who hold or have held elected office and who have been involved in library-related organizations.

In order to protect the confidentiality of interview sources, gender-neutral pseudonyms were assigned that reflect the sources' positions. A total of 25 interviews were conducted with 15 unique individuals for a total time of more than 34 interview hours ([Table 4.4](#)). The interviews were conducted from December 2014 through April 2016. All interviews were held in-person with the exception of one phone interview. Notes were taken during all interviews, and interviews were recorded whenever possible. Transcripts of the interviews were created in the event that an interview was recorded. A single interview might produce both interview notes and an interview transcript. Both were used as source materials when they yielded different coding segments. Segments from a single interview often spanned across more than one period.

**Table 4.4. Interviews conducted for this study.**

Interview	Interviewee	Duration (minutes)
1	Library Administrator 7	60
2	Library Administrator 7	67
3	Library Administrator 6	60
4	Librarian 2	60
5	Trustee 3	70
6	Trustee 2	56
7	Library Administrator 2	50
8	Library Administrator 4	123
9	Library Administrator 5	101
10	Library Administrator 3	86
11	Politician 1	66
12	Library Administrator 1	130
13	Library Administrator 6	60

14	Trustee 1	45
15	Library Administrator 1	360
16	Library Administrator 9	15
17	Library Administrator 6	56
18	Librarian 1	125
19	Library Administrator 3	56
20	Library Administrator 5	75
21	Library Administrator 2	35
22	Trustee 2	74
23	Library Administrator 1	120
24	Librarian 1	62
25	Library Administrator 8	56
	Total (minutes)	2,068
	Total (hours)	34.46

**4.1.3.4 Fieldwork.** In addition to archival and interview sources, this study used observations and artifacts collected from fieldwork as source materials. Fieldwork began in March 2015 and continued until March 2016. Fieldwork was conducted at public meetings. Several different types of meetings were attended in order to different aspects of the case. The meetings included Allegheny County Library Association general membership meetings, Board of Director meetings, and Librarians Advisory Council meetings. A Regional Asset District proposal hearing was also attended. Fieldwork was conducted at a total of 9 public meetings for a total of over 14 observation hours (see [Table 4.5](#)).



**Table 4.5. Durations of meetings.**

Meeting	Duration
1	1 hour
2	2 hours
3	2 hours
4	2 hours
5	2 hours
6	2 hours
7	2 hours
8	1 hours 16 min.
9	30 minutes
Total	14 hours 46 min.

**4.1.3.5 Other sources.** A number of other miscellaneous sources were retrieved for this study. Sources were retrieved from the World Wide Web, the Wayback Machine of the Internet Archive, a videocassette, social media such as Facebook, and online discussion board posts.

**4.1.3.6 Source material types.** Source types can be distinguished into several categories, including meeting minutes, letters, and reports. These categories are described in [Appendix G](#).

**4.1.3.7 Source material collections and origins.** Sources were collected from a variety of different locations. The number and ratio of sources collected from each location for each of the 9 periods is shown in [Appendix G](#).

#### **4.1.4 Summary: Stage 1 Results**

Stage 1, source collection and analysis, developed a full and detailed description of the case. This was done by producing several results: a case definition, periodization of the case complete with narratives and chronologies for each period, and a collection of several types of source materials relevant to the case. The concept of a decision cycle was introduced as a way to think about the case over time and to distinguish one period from another. Nine different periods were identified from 1924 to 2016. The source materials gathered in stage 1 for each period will be used in stage 2 for systematic coding and analysis.

The 3 tasks of stage 1—define the case, periodize, and collect sources—occurred in tandem: as more sources were found and analyzed for relevance and meaning, fuller descriptions of the case were developed, leading to more detailed descriptions of each period and further possible sites for source collection. Theoretical sampling was used as a method to fill out the description of the case while consulting with a sample of source materials. Principles of source collection included collecting as many source materials as possible from as broad and as diverse an array of perspectives as possible.

The collection of source materials gathered in stage 1 included archival documents, interview notes and transcripts, and field observations. A total of 988 sources and a total of 7,553 pages of source material were collected. The archival documents were gathered from several sites in Pittsburgh, including the Oliver Room at Carnegie Library of Pittsburgh, the

Heinz History Center Detre Library and Archives, the University of Pittsburgh Archives Service Center, Allegheny County Law Library, Allegheny County Library Association headquarters in West End, various Web-based online collections and social media, and local newspapers. A total of 25 separate interviews were conducted with 15 individuals related to the case. These participants were identified through snowball sampling and contacted via phone or email. In addition to archival documents and interviews, fieldnotes were taken from direct observations at 9 public meetings. These specific meetings were attended because they were sites of formal decision-making—formal public spheres—where important decisions and discussions related to the case could be observed.

During the process of source collection, all source materials were digitized and then managed using EndNote in order to facilitate the addition of metadata and in order to later export them into NVivo for coding in stage 2.

## **4.2 STAGE 2: DATA COLLECTION AND ANALYSIS**

Data collection and analysis is the second stage of historical case study. The 3 tasks of data collection and analysis are: develop the coding instrument, pilot coding, and main coding. This study uses qualitative content analysis to complete these tasks. Qualitative content analysis is a distinctive kind of qualitative coding technique where a coding instrument is developed, tested, and then applied systematically to source materials. The data collection and analysis stage in this study results in a data- and concept-driven coding frame, one that is valid, reliable, and one that incorporates new concepts related to the circulation of power model. The stage also produces data to be used in stage 3, the data interpretation stage. Stage 2 addresses research questions

SQ1 and SQ2. SQ1 asks: What does a tested and refined Machtkreislauf model look like? SQ2 asks: What does the evolution of the regional public library system in Pittsburgh look like? Stage 2 develops new concepts and models to address SQ1, and it develops a coding instrument that is used to address SQ2.

#### **4.2.1 The Coding Frame**

The first task of stage 2 is to develop the coding frame. The coding frame is a set of hierarchically-organized categories and sub-categories that are used to describe the source materials gathered in stage 1. The data generated using the coding frame is then used to form a theoretical understanding of the case. The coding frame is an interpretive instrument, and like any instrument, it must be developed and calibrated with respect to an existing theoretical framework while using source materials particular to a case. Development of the coding frame is done in an iterative way by establishing categories, then applying these categories to the source materials in order to determine how well the categories adequately describe the material. The full coding frame for this project can be found in [Appendix I](#). Below are descriptions of the categories and sub-categories of the coding frame.

**4.2.1.1 Concept-driven foundations.** Data is the intersection of source material and existing theory. The framework of a project is its theoretical backdrop—it determines what aspects of the source materials are examined, in what way, and in a way that produces data. Without understanding the framework of a project, data from that project are without context—they are meaningless. The central ideas of this project are used to build the categories and sub-categories of the coding frame, which is then used to generate data. It is therefore important to understand

the foundational ideas of the coding frame so that the data from this project are meaningful. This project uses ideas drawn from sociology, communication, political science, and information science. The central concept-driven ideas of the coding frame are explained below. Concept-driven means that the ideas were borrowed from others and integrated into the coding frame before the coding frame was applied to source materials.

***Generalized media and communication.*** The first idea undergirding this project is that communication includes transmissions of not only linguistic, but also non-linguistic information. In other words, communication is not only the exchange of words; it is also an exchange of power. This idea is drawn from sociology and the works of Talcott Parsons and his student Niklas Luhmann. Luhmann explains what is meant by a generalized media of communication:

Generalized symbolic patterns that fulfill these requirements can be concepts that organize individual selection chains. They can embrace different systems and organize the selectivity of one system in relation to the way in which others use their power of selection. This type of pattern we call generalized media of communication. ([Luhmann, 1976, pp. 511-512](#)).

Luhmann goes on to say how power is a form of generalized media:

They employ their selection pattern as a motive to accept the reduction, so that people join with others in a narrow world of common understandings, complementary expectations, and determinable issues. Media are not only words, symbols, or, codes; they are meaningful constellations of combined selectivity which can be signified by words, symbolized, and codified legally, methodologically or otherwise. Prominent

examples are money and power, and we would like to add truth, love, and perhaps art.  
([Luhmann, 1976, p. 512](#))

The idea that power is communicated between actors as a way to coordinate action is central to this project.

***Social and economic power.*** The Machtkreislauf model introduced by [Habermas \(1996\)](#) contains two forms of power: communicative and administrative. Habermas's later work, however, contains other forms of power, including social power. This project therefore adds two types of social power in order to update the Machtkreislauf model with ideas from [Habermas \(2006\)](#). The first addition is economic power. Economic power means transmissions of money. The second addition is what are called "backroom deals." Backroom deals are a form of social power—they rely on social status and personal connection as a means to influence decision making.

***Components of communication.*** The social theory of Habermas, including the Machtkreislauf model, assumes a communicative approach to political science and sociology. Because communication is so central to the ideas in the social theory used in this project, it is important to identify the general components of communication and explain how these components are incorporated into the coding frame.

The general components of communication are described by Harold Lasswell and Claude Shannon. Lasswell defines communication as:

Who

Says What

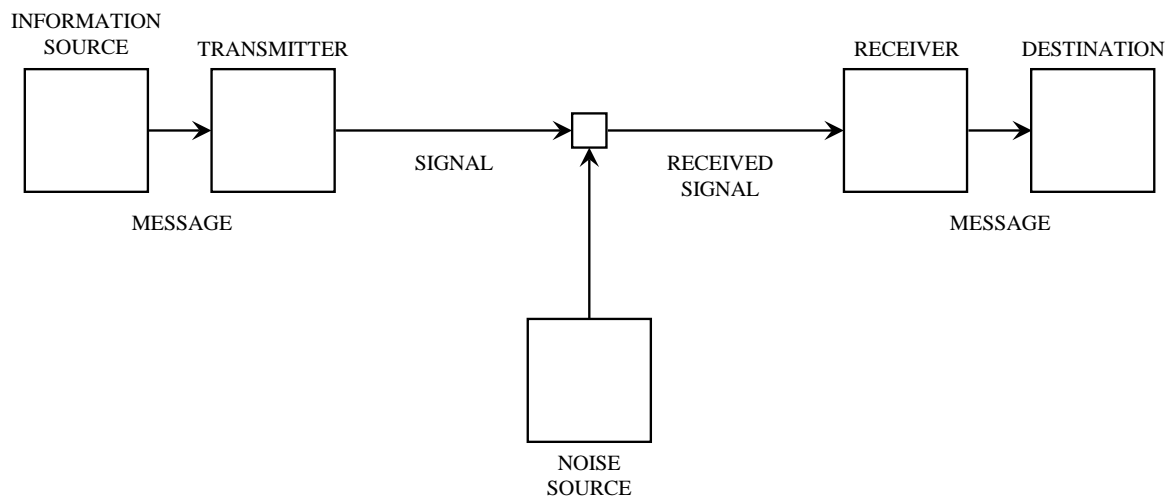
In Which Channel

To Whom

With What Effect?

([Lasswell, 1948, p. 37](#))

In Lasswell's schema, there is a sender and receiver, a medium (channel), a message, and a result. The general communication system visualized by [Shannon \(1948\)](#) uses these same components, but also recognizes that noise can interfere with a signal transmission (see [Figure 4.6](#)).



**Figure 4.6.** A general communication system ([Shannon, 1948, p. 2](#)).

The coding frame uses the basic ideas from Lasswell and Shannon. The sender and receiver are called *actor* and *audience*, respectively. *Power* is one medium or channel of transmission. The other means of communication is *legitimation*. Legitimation refers to the context out of which a message is sent, whether a message was discussed or agreed upon. The

message of the exchange is called the *issue*. The effect of a communicative exchange is called its *implementation*.

***Who or what is an actor?*** Actors are essential components of communication and of the coding frame in this project. But what counts as an actor? [Parsons \(1951, p. 26\)](#) defines actors as bundles of units. The units are the social acts performed by the actor and oriented toward other actors, and statuses and roles of the actors and audiences, and the composite of all the actor's acts, status, and roles within the social system. Importantly, actors can be individual or collective in nature. This definition of actor is used for this project, where actors can be both individual, biological beings and abstract entities such as formal groups.

***Communicative events.*** Analysis and coding of the sources requires some definition of a standardized unit of coding, some way to identify what the coding segments will be. Following [Luhmann \(1995, p. 154\)](#), this study adopts the notion of a “communicative event” for the smallest analyzable unit of coding, the unit to form single coding segments in the source material. A communicative event is a selection of meaning that is transmitted from an actor to an audience. The medium of transmission can be linguistic (e.g., requests, proposals, explanations) or non-linguistic (e.g., money, power). The event terminates with some response or reaction from the addressee. Similarly, [Parsons \(1951, p. 24\)](#) calls events “acts” and defines an act as “a unit in a social system so far as it is part of a process of interaction between its author and other actors.” This study adopts the notion of event or act as the unit of coding and, by coding and compiling these events, uses these units to sketch out a general communicative process for each period.



**4.2.1.2 Data-driven foundations.** The data-driven nature of this project—the application and comparison of existing concepts in the Machtkreislauf model to source materials—led to conceptual refinements and new conceptual ideas. These developments are described below. Unlike the concept-driven ideas described above, the data-driven ideas were added to the coding frame in the preliminary applications of the coding frame to source materials.

**Formal decision.** [Flynn \(2004\)](#) identified an ambiguity in the notion of communicative power used by [Habermas \(1996\)](#). The problem is that communicative power is used to refer to two things: 1) discursive power generated through discussion in the public sphere that then influences decisions, and 2) the formal decisions themselves. In order to solve this ambiguity, this project develops a distinct type of power besides communicative power, administrative power, and social power. This new type of power is called *formal decision*. Formal decision refers to a binding decision made by a formal body. Communicative power, therefore, retains a single meaning—discursive power generated in a public sphere that influences formal decisions.

A conceptual drawing of formal decision can be found in [Figure 4.7](#). A more polished concept image showing formal decision and its relation to other types of power is shown in [Figure 4.8](#). These figures illustrate the relationships of formal decision, communicative power, administrative power, and social power. As seen in the figures, formal decision occurs at a decision point—the crest of the wave. Leading up to the decision is communicative power—the influence that a public sphere has on decision making body with respect to a certain issue. The decision point marks the difference between communicative power and administrative power. Once a decision is made and formal decision power is cast, the issuing body can base administrative power on that formal decision. Administrative power may take the form of enforcement, sanctions, grants, and so on. Like both communicative power and administrative

power, formal decision power has an actor and an audience—those who transmit the power and those who are targeted by the power.

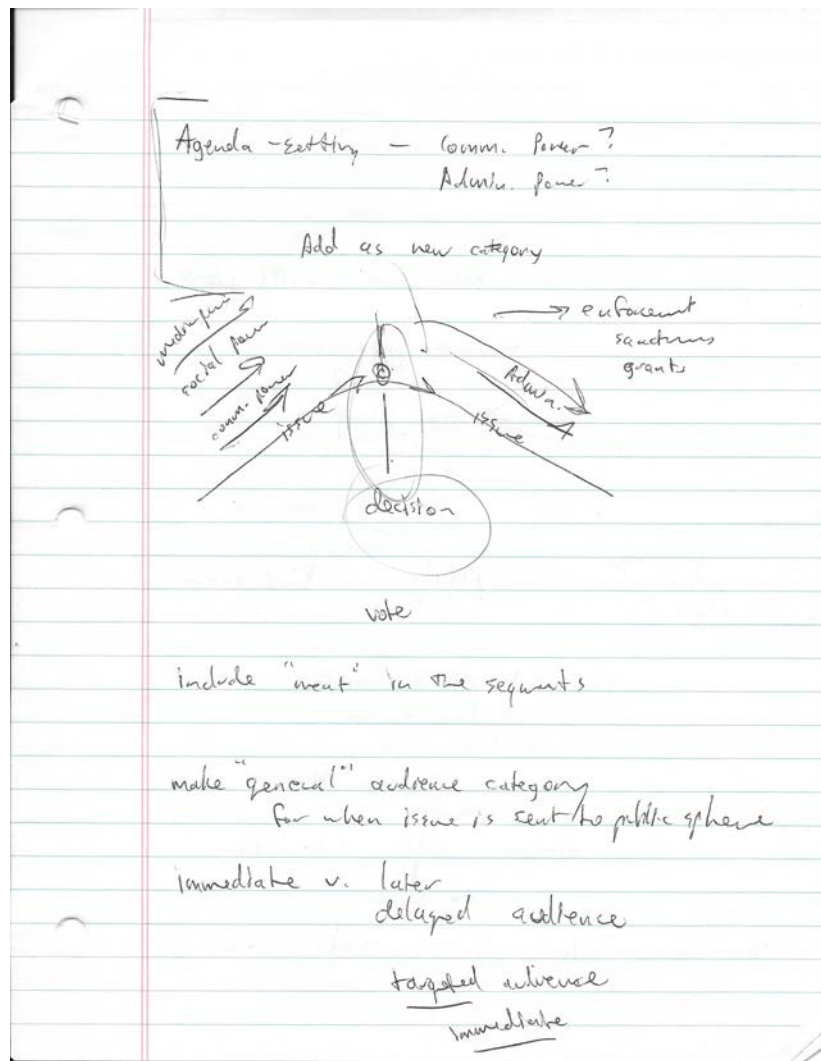


Figure 4.7. Research journal conceptual sketches on formal decision (3-7-16).

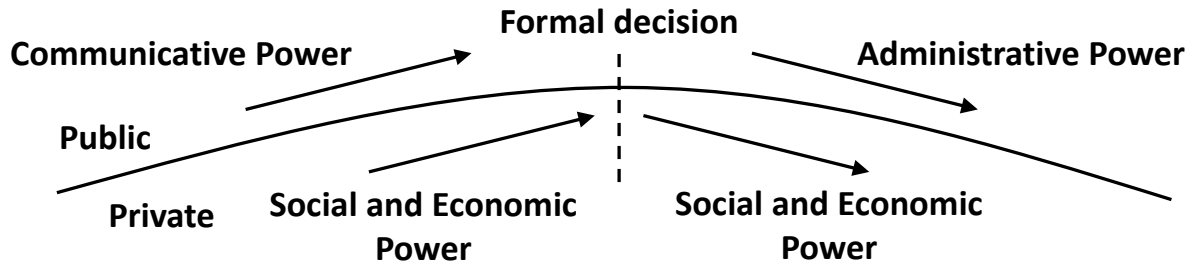


Figure 4.8. Formal decision and its relation to other forms of power.

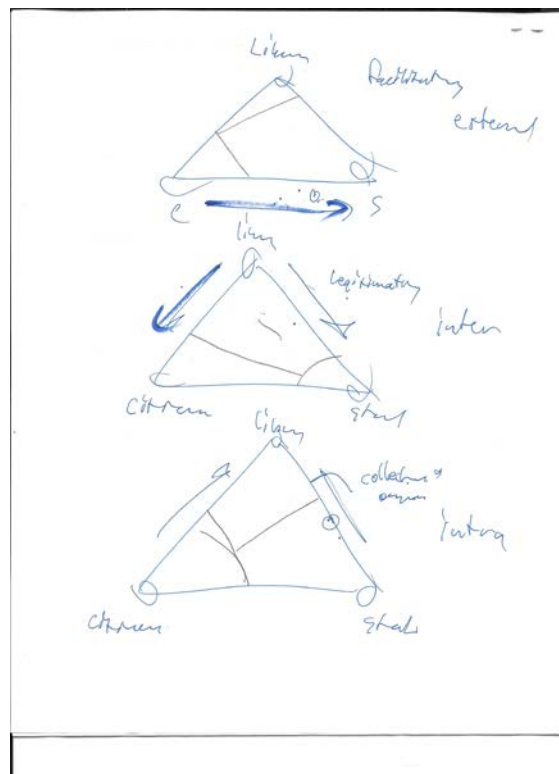
***Narrowcast vs. broadcast.*** Besides formal decision power, a second distinction that was found necessary after preliminary applications of the coding frame was the distinction between *narrowcast* and *broadcast*. The distinction is needed because in some communicative events, there is a distinct, targeted, and identifiable audience. These are cases of narrowcasts. In other cases, however, the audience is not a distinct individual or group. The audience may be whoever can be reached by the transmission or whoever is tuned in. These are cases of broadcasts. Audiences in the coding frame were therefore distinguished into broadcast audiences and narrowcast audiences.

***Diffuse public vs. coalesced public.*** Consistent with the distinction between broadcast and narrowcast is that between *diffuse public* and *coalesced public*. These two types of publics have different roles in a communication system. A diffuse public is the audience of a broadcast. The public is diffuse because it is not clear who exactly receives or responds to a broadcast. A diffuse public cannot create or respond to a transmission without taking on a more substantive form. A coalesced public is a public with a more discernible identity. A coalesced public can both receive and send transmissions.

***Circuits of power.*** A central data-driven idea of this study is the *circuit*. During the early development of the coding frame, it was determined that the Machtkreislauf model did not adequately fit the source material. The problem with the Machtkreislauf model is that it assumes a single decision-making core. The original model is organized using a single set of concentric circles and a single set of pathways for communicative and administrative power. This model did not fit with the case of libraries in Pittsburgh because, in reality, there is more than one decision-making core, there are multiple concentric rings, and there are several pathways for communicative and administrative power. The first realization that the circulation of power model did not fit the case came when sketching out the various relationships of the Allegheny County Library Association with other entities (see [Figure 4.9](#)). Fieldnotes about the library system show that it is complex with multiple decision-making bodies that, taken together, do not display a concentric, hierarchical structure.



The basic idea of a circuit is that there are multiple decision-making cores, inner peripheries, and outer peripheries throughout society. Looking back, it might be said that formative ideas for a circuit emerged as early as August 2014 (see [Figure 4.10](#)). These ideas were further developed while constructing the coding frame and during the pilot phase (see [Figure 4.11](#)). Ideas for how to visualize and combine circuits were developed during the main phase (see [Figure 4.12](#) and [Figure 4.13](#)).



**Figure 4.10. Formative ideas for a circuit (8-26-14).**

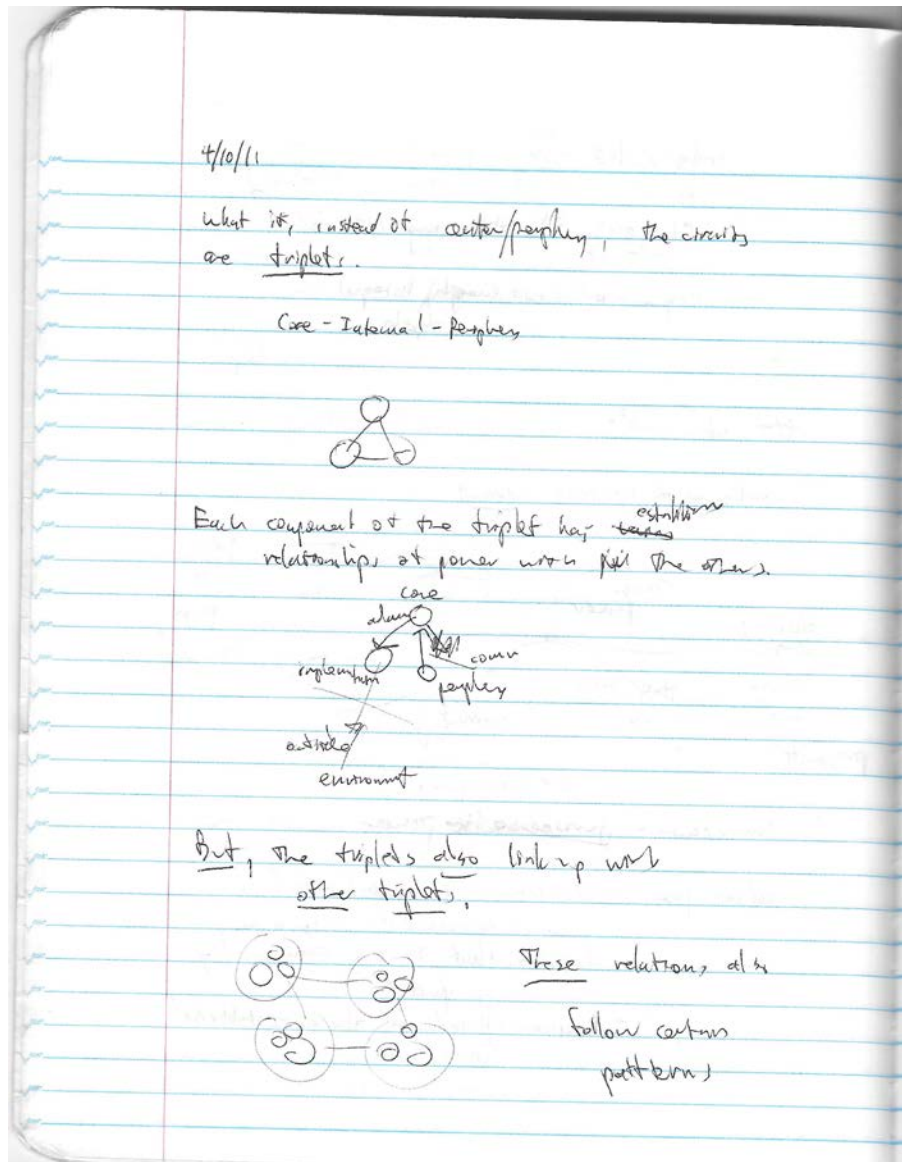


Figure 4.11. Research journal sketches on formative ideas for circuits (4-10-16).

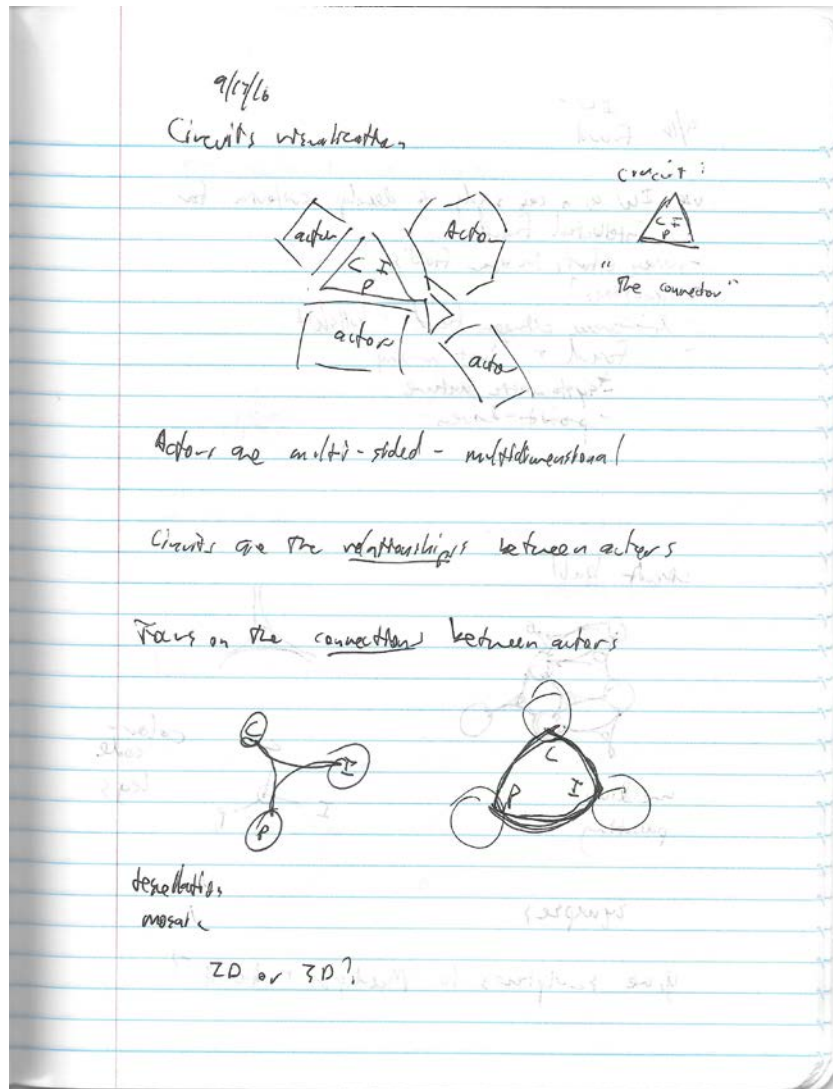


Figure 4.12. Circuits take on a new structure; the idea of tessellation emerges (9-17-16).



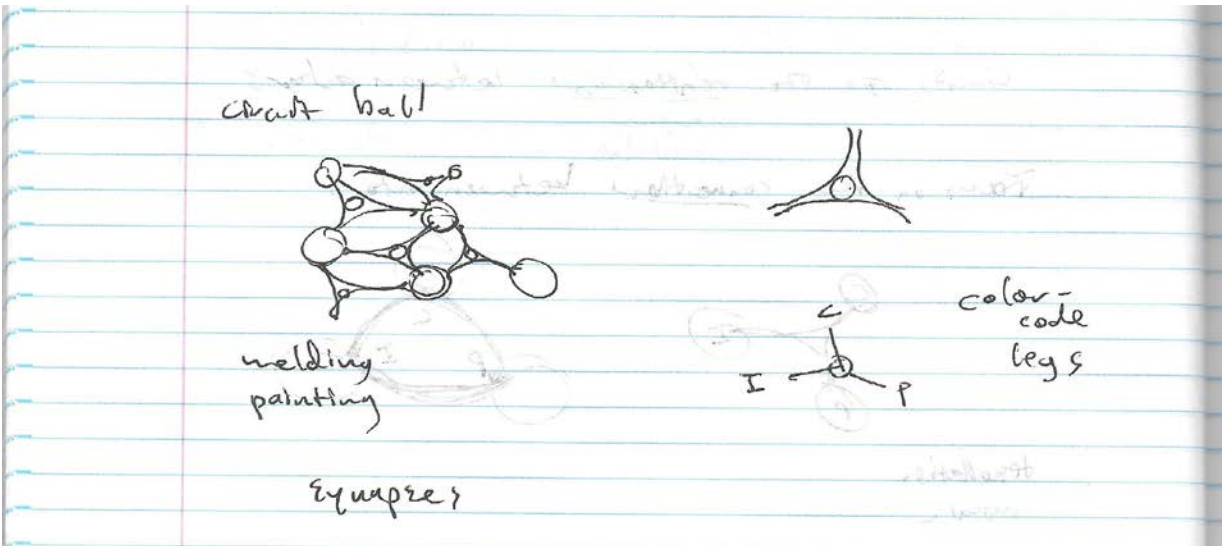


Figure 4.13. Newest iterations of circuit and tessellation structures (9-18-16).

A circuit has 4 positions and multiple types of power that flow between them (see [Figure 4.14](#)). The first three positions resemble those of the original Machtkreislauf model, but the fourth position is new. The first position is the core. The core of a circuit is its decision-making body, such as a board, a director, or a court. A core can be polycephalous. The second position is the inner periphery. The inner periphery administers functions or tasks as assigned by the core. The third position is the outer periphery. The outer periphery is where the core and inner periphery come into contact with actors from the circuit's environment. The fourth position in a circuit is its diffuse public, where the core and inner periphery transmit broadcasts.

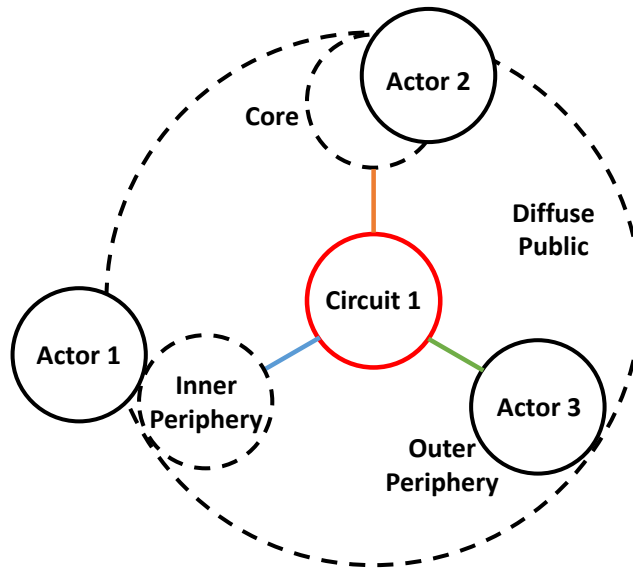
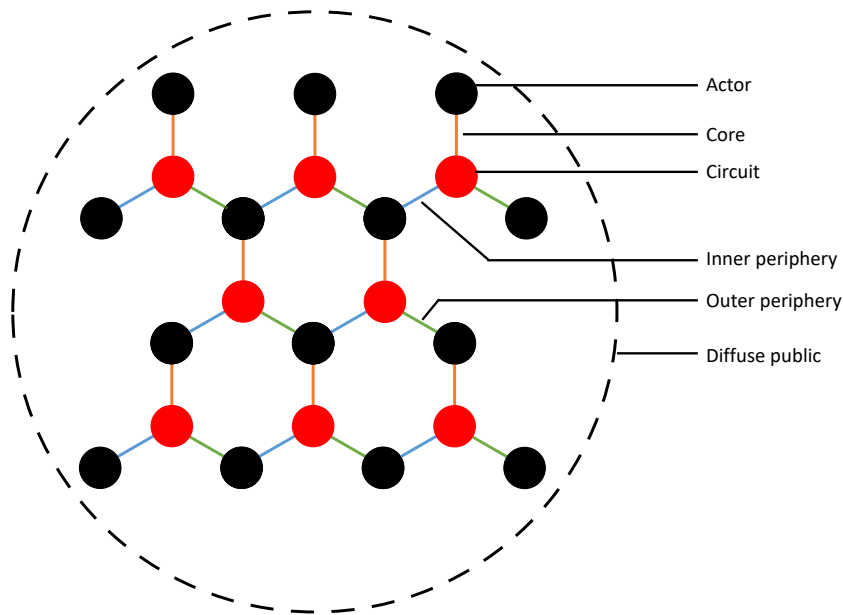


Figure 4.14. Positions in a circuit: core, inner periphery, outer periphery, diffuse public.

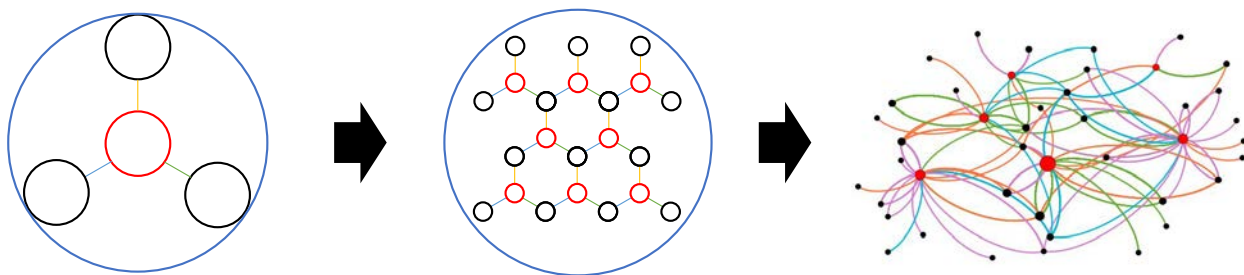
Individual circuits can be combined to form *tessellations*. That is, tessellations are larger social structures that consist of interlocking circuits and actors (see [Figure 4.15](#)). The term tessellation was chosen due to the repeated, polygonal pattern that emerges as circuits combine.



**Figure 4.15. Tessellated circuits.**

A circuit is an example of what [Parsons \(1951, p. 25\)](#) calls a relational institution. A relational institution has two aspects: positions and roles. A position is the place in an institution that an actor occupies relative to other positions in the institution. The position accords an actor certain powers relative to actors in other positions of the institution. In a circuit, for instance, actors can inhabit the positions of core, inner periphery, outer periphery, and diffuse public. In each of these positions, actors play certain roles. A role is what the actor does in that position, whether it is a sender or receiver, whether it transmits meaning through one type of power or another. In a circuit, there are two main roles—sender and receiver—and four main types of power that can be exchanged: communicative, administrative, formal decision, and social. Actors can occupy multiple positions in a circuit or a tessellation. Actors can also play multiple roles simultaneously. [Parsons \(1951, p. 26\)](#) calls actors “bundles” of positions and roles.

Circuits compose tessellations, and the concept of a tessellation can be combined with case data using network visualization software in order to form an empirical model (see [Figure 4.16](#)). In the far-right tessellation can be seen the actors (black nodes), circuits (red nodes) and the various positions and directionalities of the actors within the circuits (colored edges). Directionality in graphs is shown using curved edges where the flow follows the curve clockwise.



**Figure 4.16. Transformation of circuits to tessellation using case data and graphing software.**

**4.2.1.3 Categories and sub-categories of the coding frame.** A full coding frame that was used in the main coding is found in [Appendix I](#). Below are short descriptions of each of the main categories and sub-categories in the coding frame. Fuller descriptions complete with examples, indicators, and decision rules can be found in [Appendix I](#).

**Power.** Power is the first category of the coding frame. Power is a form of communication, a transmission from sender to receiver. In a circuit or tessellation of circuits, power is visualized as a vector or edge. There are four types of power: administrative,

communicative, formal decision, and social. Administrative and communicative power can take the form of narrowcasts or broadcasts depending on the audience. Social power can take the form of economic power or backroom deals.

***Year.*** Years are coded to indicate the time when a communicative event occurred. The year range in the coding frame is from 1924 to 2016.

***Actors.*** The actors were organized by type to facilitate coding. There are several types of actors in the coding frame. These include federal government, state government, county government, municipal and city government, school districts, the Regional Asset District, library groups, civil society, economic system, and other.

***Actor positions and roles.*** Actors occupy positions and play roles in circuits. There were 13 circuits identified in this study: 1) national, 2) state, 3) county, 4) city, 5) ACLA, 6), intra-library, 7) municipal, 8) school district, 9) RAD, 10), EIN, 11) civil society, 12) economic, and 13) unknown. Circuits are identified and distinguished from other circuits by their decision-making cores. The basic structure for each of the circuits is the same: circuits have four positions—core, inner periphery, outer periphery, and diffuse public—and they display patterns of power transmissions. In the outer peripheries of circuits are *suppliers* and *customers*. These terms are borrowed from the Machtkreislauf model. A customer is a coalesced public that attempts to procure benefits from the core for their particular constituency. Suppliers are coalesced publics that attempt to influence core decision-making through moral-practical discourse. Despite a common structure, however, there are nuances specific to each circuit. In many cases, certain actors consistently occupy certain positions in the circuits. This does not

mean that exceptions do not occur, but the stability and recurring nature of some actor positions provides a general idea of how the different circuits are organized.

### ***Audiences***

Audiences in the coding frame are largely the same as actors. The key difference between actors and audiences are the case of broadcasts. There are several kinds of audiences that receive broadcasts and are not included in the list of actors. These audiences are described below.

***Audience positions and roles.*** The audience positions and roles are largely the same as actor positions and roles. The exception to this rule are cases of audiences that receive broadcasts. In a circuit, these audiences occupy the position of a diffuse public. During coding, then, in any communicative event where an audience received a broadcast, that audience was coded as a diffuse public.

### ***Issues.***

The issues contained in the coding frame and coded for in the main analysis phase are described below in [Appendix I](#).

***Legitimation.*** As described in sections [2.2](#), legitimation is a public sphere process. It refers to argumentation about an issue where all those affected by a decision attempt to reach a consensus about it. There are several types of legitimation included in the coding frame of this study, described in [Appendix I](#).

***Implementation.*** Implementation is the effect of a communicative event. There are several types of implementation included in the coding frame in this study, described in [Appendix I](#).

#### **4.2.2 The Pilot Phase**

After the development of the coding frame, the next task of stage 2, data collection and analysis, is testing of the coding frame in the pilot coding phase. Pilot coding is necessary in order to ensure consistency of the coding frame. This study used a second coder and inter-coder reliability testing during the pilot phase. A total of 116 sources, or 11.7 percent of all sources collected, were coded during the pilot phase. Sources were coded from all periods of the case. There were 9 trial coding rounds, and during each coding round different sources were coded. Inter-rater reliability was measured qualitatively and quantitatively. The average Cohen's kappa score for all rounds was 0.967. The pilot coding is explained in further detail in [Appendix H](#).

#### **4.2.3 The Main Analysis Phase**

Following the development of the coding frame and the pilot coding phase, the third task of stage 2 is the main coding. During the main coding phase, the coding frame is used to analyze all the source materials of the case. The main coding results in coding matrices for all the periods of the case. These coding tables constitute the data of this project. This data is then used and interpreted in stage 3 in order to construct an explanatory account of the public sphere and its effects on the development of public libraries.

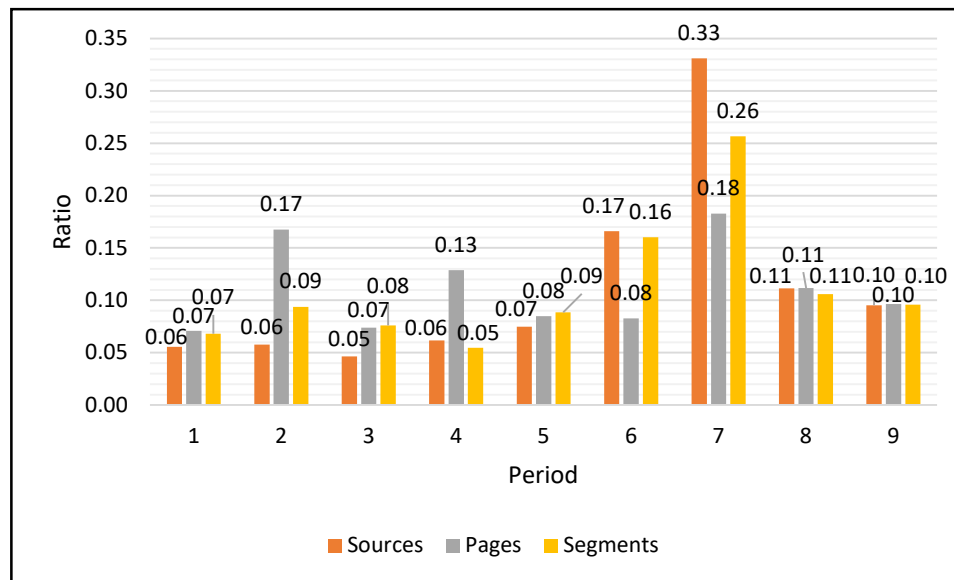
**4.2.3.1 Timeline.** The main coding took place over a 3-month span, from August 6, 2016 to November 6, 2016. Importantly, qualitative content analysis is done manually. A paced schedule was therefore used to manage fatigue and ensure consistent progress (see [Table 4.6](#)). At least 10 sources were coded each day, 70 each week, and 300 each month. Additional sources were coded per day when feasible. A qualitative data analysis software package, NVivo, was used during the coding process to manage the source material, coding frame, and data.

**Table 4.6. Number of sources coded per month.**

Month	Date range	Sources coded
1	August 6–September 5	355
2	September 6–October 5	300
3	October 6–November 6	333
	Total	988



**4.2.3.2 Overview of coding data.** A total of 988 sources were coded during the main coding phase. These sources consisted of 7,553 pages of material. A total of 1,773 segments were identified and coded from this material (see [Table 4.7](#)). This is an average of 1.8 segments per source. The main coding resulted in a total of 19,503 data points because there are 1,773 rows and 11 columns in the coding table. The ratios of sources, pages, and segments by period are shown in [Figure 4.17](#). In the interests of research transparency, open data, and data re-use, coding tables have been included in [Appendix K](#). Keys for these tables are included in [Appendix J](#). Data were transferred manually from NVivo to Excel after the main coding was completed.



**Figure 4.17. Ratios of sources, pages, and segments by period.**

**Table 4.7. Summary data for main coding phase.**

Period	Total coded sources	Total pages of source material coded	Total coding segments	Data points (segments x 11)
1	55	536	121	1,331
2	57	1,266	166	1,826
3	46	559	135	1,485
4	61	973	97	1,067
5	74	640	157	1,727
6	164	626	284	3,124
7	327	1,381	455	5,005
8	110	844	188	2,068
9	94	728	170	1,870
Total	988	7,553	1,773	19,503

#### **4.2.4 Summary: Stage 2 Results**

Stage 2, data collection and analysis, used the sources gathered and the periods identified in stage 1 as the basis for conducting a systematic coding process. The purpose of the coding process was to describe each of the periods of the case using a common lens informed by the Machtkreislauf model. The coding process produced data about the case that will be used in stage 3 for interpretation. The name for the systematic coding technique used in stage 2 is

qualitative content analysis. Qualitative content analysis proceeded in 3 steps: development of the coding frame, pilot coding, and main coding. During stage 2, several results were produced from the completion of these 3 tasks. During the development of the coding frame, the Machtkreislauf model was used to inform in a concept-driven way the main categories of the frame. This resulted in new concepts that were introduced to the frame, and while doing so the Machtkreislauf model was revised in order to better fit the case. These new concepts included formal decision, narrowcast and broadcast, diffuse public and coalesced public, and circuits of power. A new general model, called a tessellation, also resulted during the development of the frame. The tessellation was introduced as a way to model the case's periods using network visualization techniques. These new concepts and the new modelling technique, together with the combination with other existing concepts, resolved existing criticisms of the Machtkreislauf model identified in the literature review. They resulted in a coding instrument that fit the case well. The main categories of the finalized coding frame included power, year, actors, audiences, positions and roles, issues, legitimation, and implementation.

Following the development of the coding frame, the frame was pilot-tested by applying it systematically to a portion of the source materials. An inter-coder comparison was conducted by the principal researcher and another qualified individual using both qualitative and quantitative metrics. Over 9 trial coding rounds, 116 sources—11.7 percent of the total number of sources in the study—were coded across all 9 periods of the case. At this time, minor revisions to the coding frame were made. At the completion of the pilot phase, the average Cohen's kappa score for all rounds was 0.967. Through the pilot coding process, the coding frame was found to be valid and reliable according to qualitative and quantitative measures. The pilot phase resulted in a coding frame ready to use for main coding.

After the pilot coding phase was completed, the main coding phase was conducted. During the main coding, all 988 source materials in the study and all 7,553 pages of source material were coded using the coding frame established in the pilot phase. The main coding identified 1,773 segments of coding and generated 19,503 data points. The coding process was conducted using NVivo coding software. Following the coding, the codes were transferred into Excel in order to create coding matrices. Organization of the data in this tabular form will facilitate data interpretation in stage 3. The main coding therefore resulted in data matrices.

### **4.3 STAGE 3: DATA INTERPRETATION**

Data interpretation is the third stage of historical case study. This stage uses the data generated in stage 2 as a basis for forming descriptive and explanatory accounts of the evolution of the case. Stage 3 in this project addresses SQ2 and SQ3. SQ2 asks: What does the evolution of the regional public library system in greater Pittsburgh look like? This question calls for a descriptive account. SQ3 asks: How does the public sphere affect public library development? This question calls for an explanatory account.

The method used in stage 3 is qualitative comparative analysis. Comparative analysis here means to observe the changes or continuity in the case over time, then describe and explain the changes or continuity. Some form of comparison is essential for the tasks of describing and explaining because it is through the act of comparison that relevant causal mechanisms can be identified. For example, for two periods with seemingly similar conditions but different outcomes, it might be asked what was significantly different about the periods that caused the two different outcomes to occur. Likewise, for periods with seemingly different conditions but

the same outcomes, it may be asked what shared conditions were significant in each period that led to the same outcomes. Comparative analysis is the process of identifying the conditions that matter—the causes—that explain why certain outcomes obtain in some periods and not others.

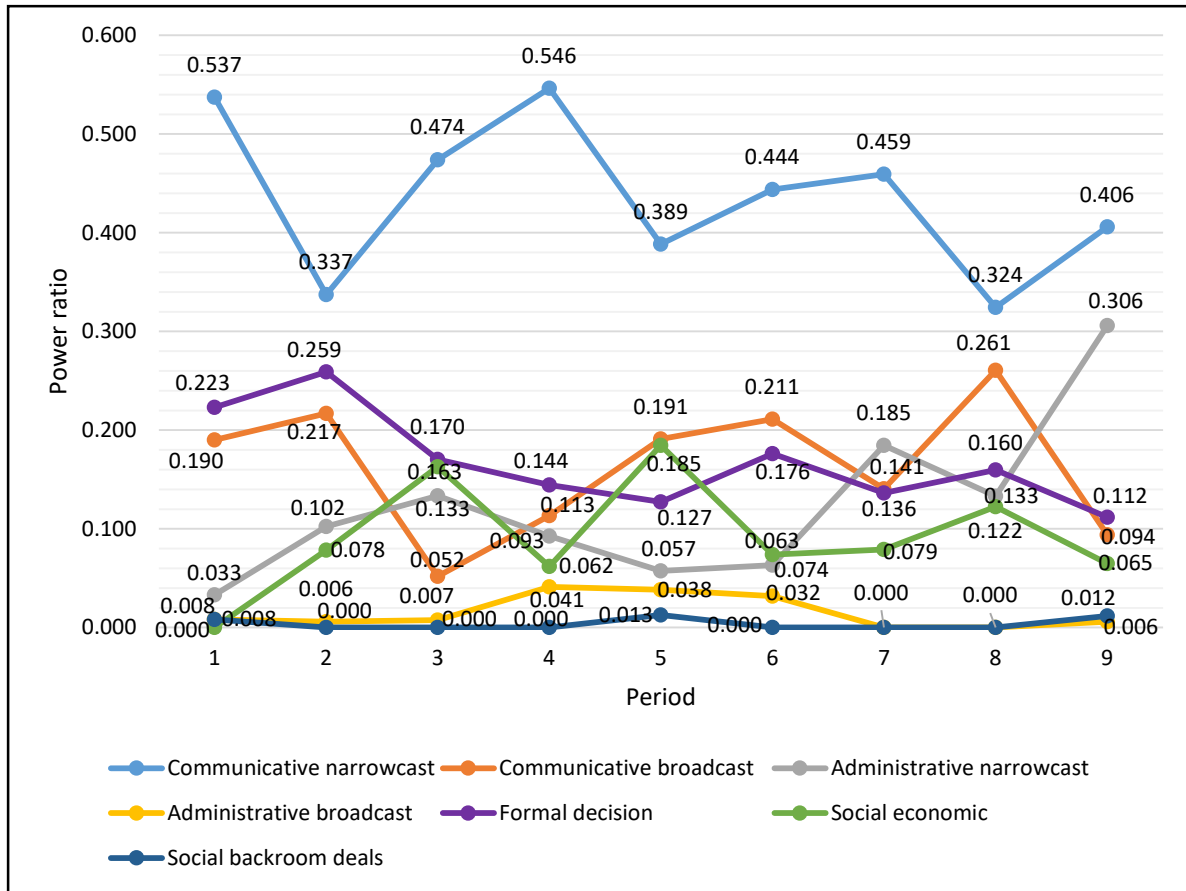
There are two tasks achieved by comparative analysis in this data interpretation stage: 1) compare the periods over time; and 2) explain the changes. In this stage, the descriptive component occurs first. Data displays are used to present summary data from the case. The data from stage 2 is used as the basis for these displays. The displays are interpreted and described as a means for identifying how the case remained the same or changed over time. In other words, the similarities and differences in each period are described. Following this, the second, explanatory component of stage 3 develops a causal account. The descriptions are used as the basis for developing a causal theory that can explain why the outcomes occurred as they did. The explanatory component also uses data from stage 2, but it uses the data to identify the outcomes and the causal configurations that explain them. The second, explanatory task uses a specific technique called crisp-set qualitative comparative analysis (csQCA) as a way to develop the causal account.

#### **4.3.1 Comparison of periods**

The first task of stage 3 is to compare the periods of the case descriptively. This is done by presenting the data about the periods in a summary way. At the outset of this task, it is not clear what the causal conditions might be. The data must therefore be interrogated broadly and in an open-ended way. Summary data for the case is useful for observing the entire case over time in order to compare its periods. The summary displays use ratios as a means for comparing the periods on an equal scale. Ratios are used because the numbers of sources and segments differed

in each period. More granular descriptions of the data from each period that are not intended to be compared across periods can be found in [Appendix L](#).

**4.3.1.1 Power.** [Figure 4.18](#) shows the types of power and how they differed by period. Communicative narrowcast was proportionally the greatest type of power in every period. Period 1 and period 4 were the two periods where communicative narrowcasts were the greatest: communicative narrowcasts represented over 50 percent of the power types exhibited in those periods. In all periods, communicative narrowcasts represented over 30 percent of power types. Formal decisions, communicative broadcasts, and administrative narrowcasts were present in all periods in a moderate way. Administrative narrowcasts seemed to trend upward over time, whereas communicative narrowcasts seemed to trend downward. Social economic power was first exhibited in period 2, and for all following periods it was consistently exhibited. Administrative broadcasts and social backroom deals represented relatively minimal proportions of the power types found in each period. There were two small spikes in social backroom deals: one in period 5 and one in period 9.



**Figure 4.18. Types of power over time.**

**4.3.1.2 Actors.** [Figure 4.19](#) shows the 10 most prevalent actors across the case. It can be seen from this figure that there is no consistently-dominant actor across all periods. In period 1, the Civic Club of Allegheny County initiated a high proportion of activity, but influence by the Civic Club largely disappeared in subsequent periods. The Board of County Commissioners was a consistent actor in periods 1 through 5, but its influence waned from period 6 onward. Pennsylvania General Assembly also initiated some activity in early periods, as well as in periods 6 and 8, but in periods 5, 7, and 9, the influence of the state legislature was minimal.

Mass media outlets were a prevalent actor in several periods, including period 1, period 2, and from period 4 onward. There was an especially high proportion of transmissions sent by mass media outlets in period 8. The Pennsylvania State Library exhibited a strong presence in the early-middle periods, from period 3 to period 5. Similarly, though not as strongly, local libraries in Allegheny County were moderately active from period 3 through period 7. CLASP and the Commission on the Future of Libraries both appeared as strong actors in period 5. They continued to exhibit a large proportion of activity in period 6. Beginning in period 6, however, two other strong actors appeared: ACLA and the Regional Asset District. The Regional Asset District maintained a strong presence from period 6 through period 9. ACLA became an especially prevalent actor in periods 7, 8, and 9.

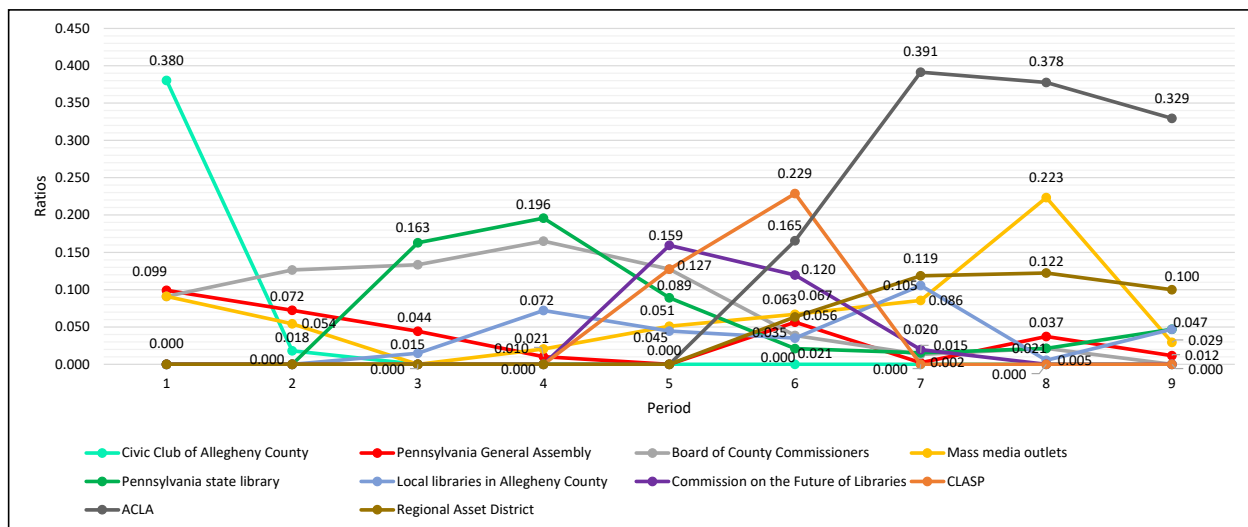
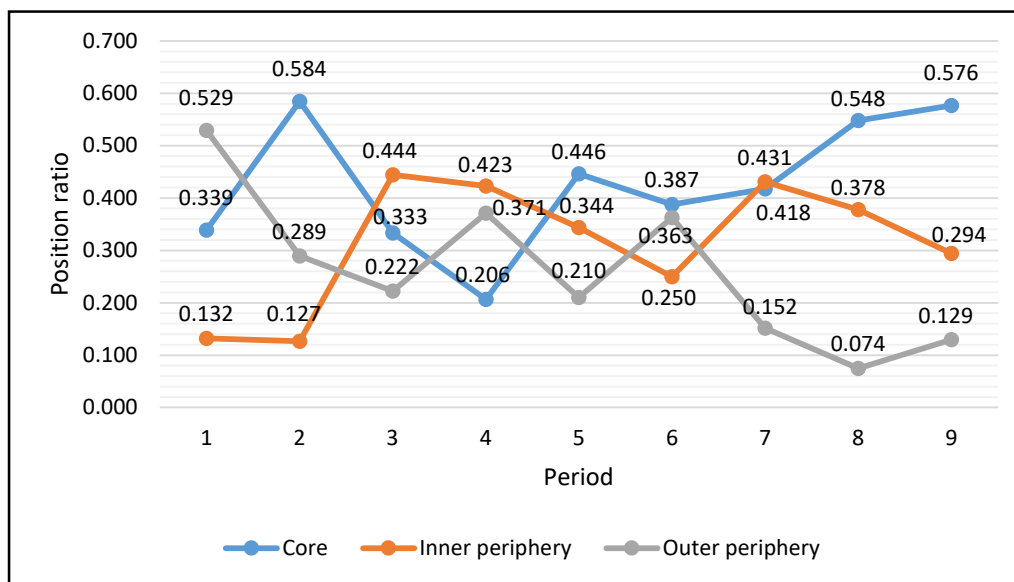


Figure 4.19. Top 10 actors over time.



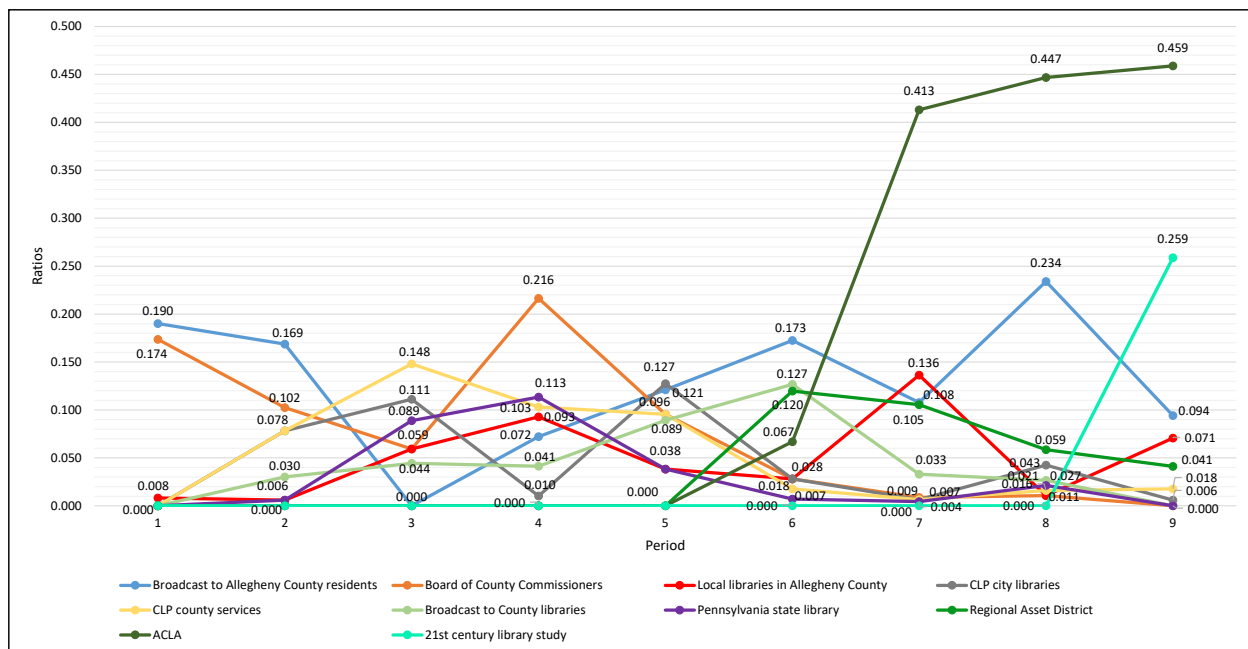
**4.3.1.3 Actor positions.** [Figure 4.20](#) shows the proportions of actor positions in each period. Activity from the core, inner periphery, and outer periphery all rise and fall across the case. Core activity seems to mirror inner periphery activity inversely: in periods where activity from core is low or falls, activity from the inner periphery is high or rises. From period 1 to period 6, increased activity from the outer periphery activity presages increased activity from core positions. This pattern ceases in period 7 when activity from the outer periphery remains low as core activity remains high.



**Figure 4.20. Actor positions over time.**

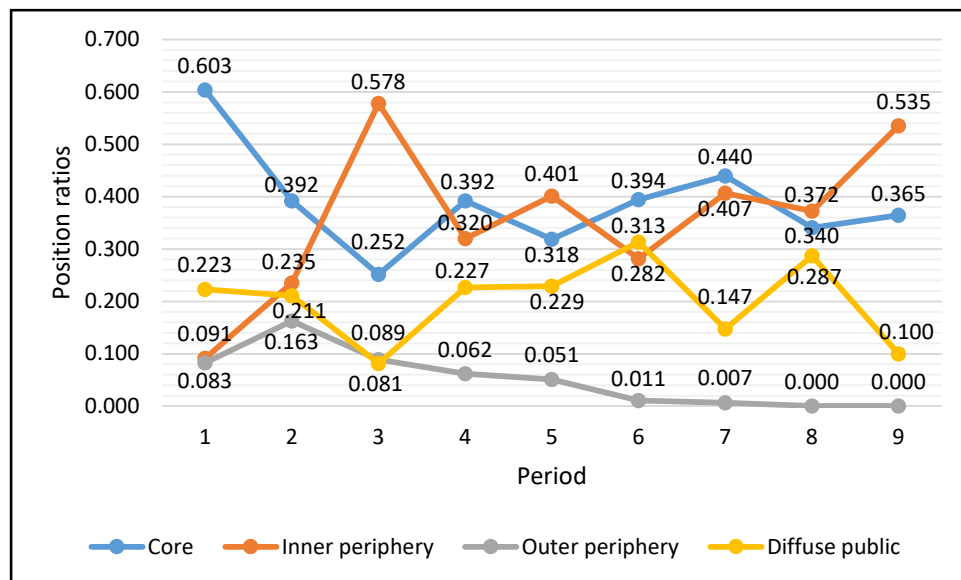
**4.3.1.4 Audiences.** [Figure 4.21](#) shows the top 10 audiences of the case across the 9 periods. As with the most prevalent actors across the case, no single audience is consistently strong in all

periods. The Civic Club of Allegheny County is the most frequent audience in period 1, but it does not remain an audience beyond period 2. A number of audiences remain moderately stable across all periods, including the Pennsylvania General Assembly, mass media outlets, and the Board of County Commissioners. Local libraries in Allegheny County appear as an audience in period 3 and maintain an audience presence throughout the following periods. The Pennsylvania State Library appears as an audience in period 3, it peaks as an audience in period 4, and then it remains a minimally-frequent audience in the remaining periods. As was the case of actors, CLASP and the Commission on the Future of Libraries appear as strong actors in periods 5 and 6. The Regional Asset District, and especially ACLA, then become prevalent audiences from period 6 onward.



**Figure 4.21. Top 10 audiences over time.**

**4.3.1.5 Audience positions.** [Figure 4.22](#) shows audience positions across the periods of the case. Proportions of inner periphery and diffuse public exhibit a near-inverse relationship: when inner periphery ratios increase, diffuse public ratios decrease. The exception to this rule is the change from period 4 to 5 when both ratios increase. Core and diffuse public ratios follow a near-parallel pattern until period 7 when the ratios begin to exhibit an inverse relationship. Outer periphery ratios show a trend downward from period 2 onward. In periods 7, 8, and 9, audiences in the outer periphery were audiences in less than 1 percent of coded segments.



**Figure 4.22. Audience positions over time.**

**4.3.1.6 Circuits.** [Figure 4.23](#) shows the proportions of circuit activity in each period. Like actors and audiences, the proportions of circuit activity change across the periods without any single circuit remaining dominant. The civil society circuit is highly active in periods 1 and 2, its activity drops in period 3, then it surges in periods 4, 5, and 6. The circuit is highly active again in period 9 after a fall in activity during periods 7 and 8. The county circuit is highly active during the beginning and middle periods of the case, but its activity dwindles for the last three periods. The Pittsburgh city circuit is prevalent in periods 1, 2, and 3, then again in period 5, but otherwise it is not very active. The state circuit is especially prevalent in periods 3 and 4, but this activity dwindles for the remainder of the case. The economic circuit is active during periods 1 and 2, then lags in period 3, but it increases in activity until it peaks in period 8. The intra-library circuit increases in activity from period 1 to period 5, then falls in activity and remains relatively low for periods 6 through 9. The local municipal circuit and local school district circuit are relatively inactive throughout the case. In period 6, the ACLA circuit and the Regional Asset District circuit increase in activity as the activity in other circuits, such as the county, intra-library, and Pittsburgh city, begins to fall. ACLA becomes the dominant circuit in periods 7, 8, and 9. The EIN circuit displays some activity in periods 7 and 8.

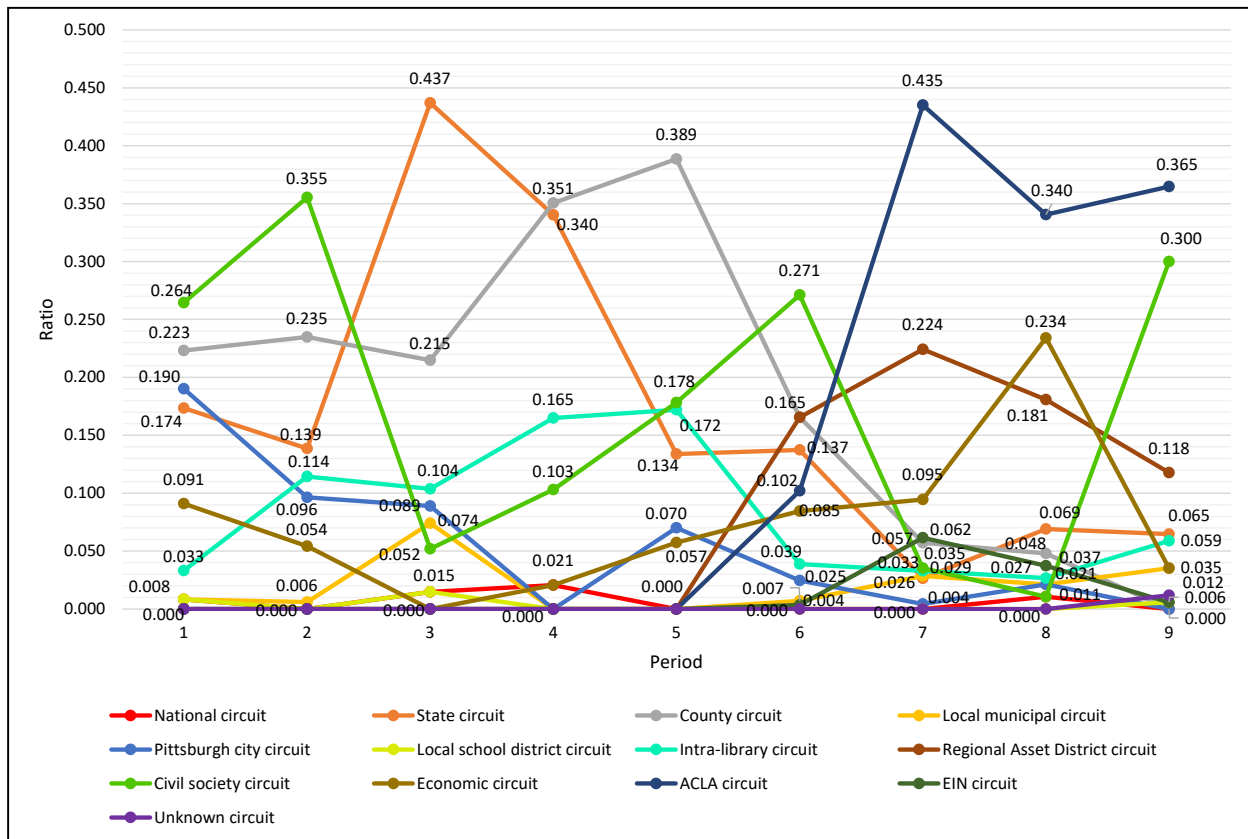


Figure 4.23. Circuits over time.

**4.3.1.7 Issues.** Figure 4.24 shows the 10 most prevalent issues in the case and their ratios in each period. No single issue remains the dominant one throughout the case. Countywide system formation and unification was a major issue in periods 1, 2, and 4, and in period 9 it was also a moderate issue. The merger between Pittsburgh city and Allegheny city libraries was a moderate issue in periods 1 and 2, but afterward it was a non-issue. The city library budget was a minor issue in periods 1, 2, 3, and 5. County funding was a moderate issue from period 2 to period 6. The Pennsylvania state library code was a leading issue in period 3. Library studies were significant issues in periods 3 and 4, then again in period 9. RAD funding became a major issue

in period 6, and it remained a moderate issue during periods 7, 8, and 9. EIN was a moderate issue in periods 6, 7, and 8. The federated system was a leading issue in period 7, and in period 8 the leading issue was the distribution formula.

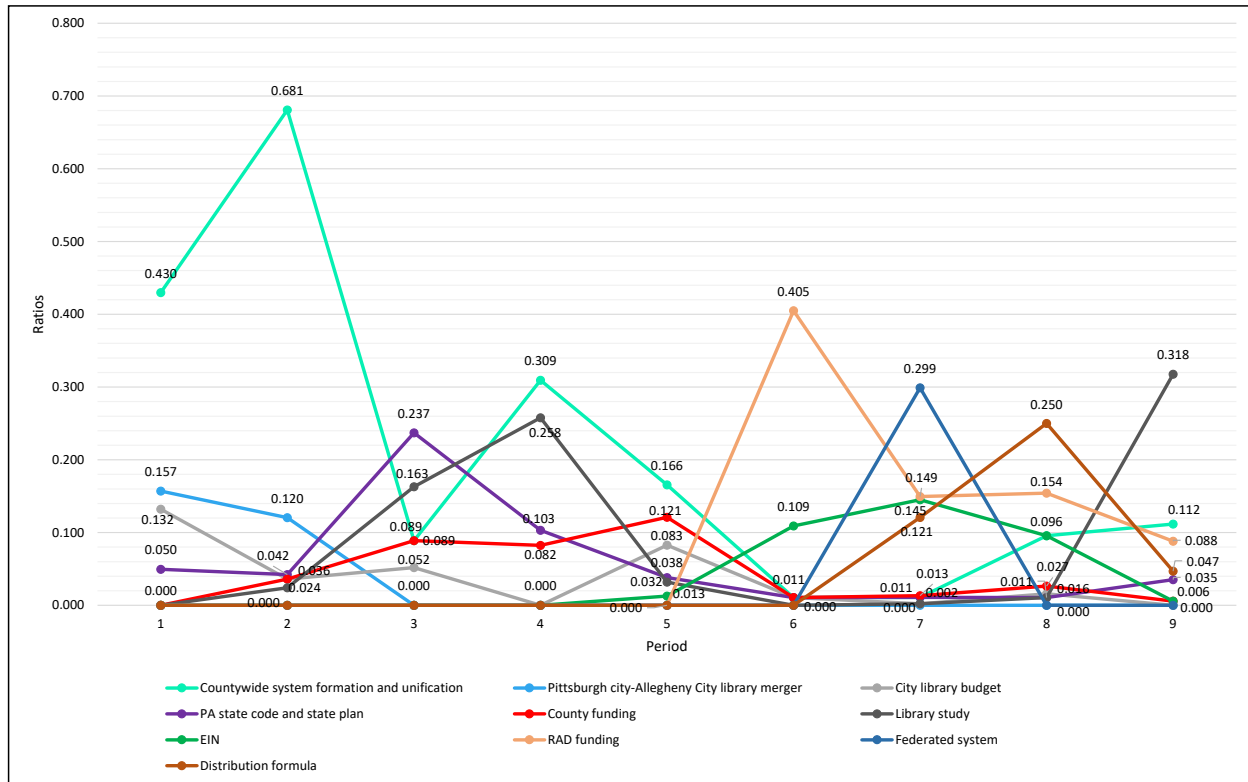


Figure 4.24. Top 10 issues over time.

**4.3.1.8 Legitimation.** [Figure 4.25](#) shows the changes in types of legitimation throughout the case. Successful legitimation through discussion and periphery support was the dominant form of legitimation in all periods except period 3, where legitimation was mostly unknown. Unknown legitimation and successful legitimation through discussion and periphery support

mirrored one another inversely throughout the case. Successful legitimation through consensus was seen only rarely, in periods 1 and 2. Legitimation failures through objections were present in all periods, especially periods 4, 7, 8, and 9 where it represented more than 10 percent of legitimation types. Legitimation failures through bypassing representative publics were seen very rarely in all periods except period 9 where there was a minor increase.

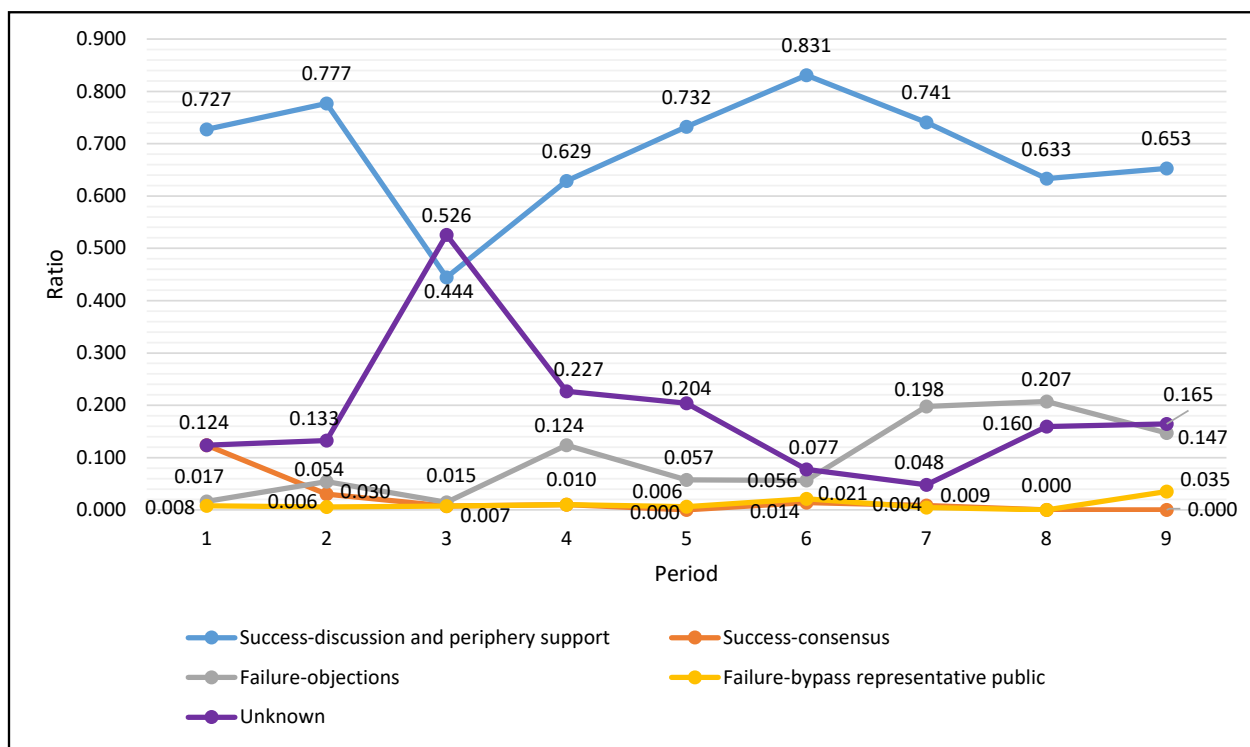


Figure 4.25. Legitimation over time.

**4.3.1.9 Implementation.** [Figure 4.26](#) shows the changes in implementation types throughout the periods of the case. Implementation success was exhibited more than other types in all periods

except for period 1. Periods 1, 4, and 8 exhibited comparably low proportions of implementation success and relatively high proportions of implementation failures. Unknown implementation exhibited a moderate but stable presence throughout all periods of the case.

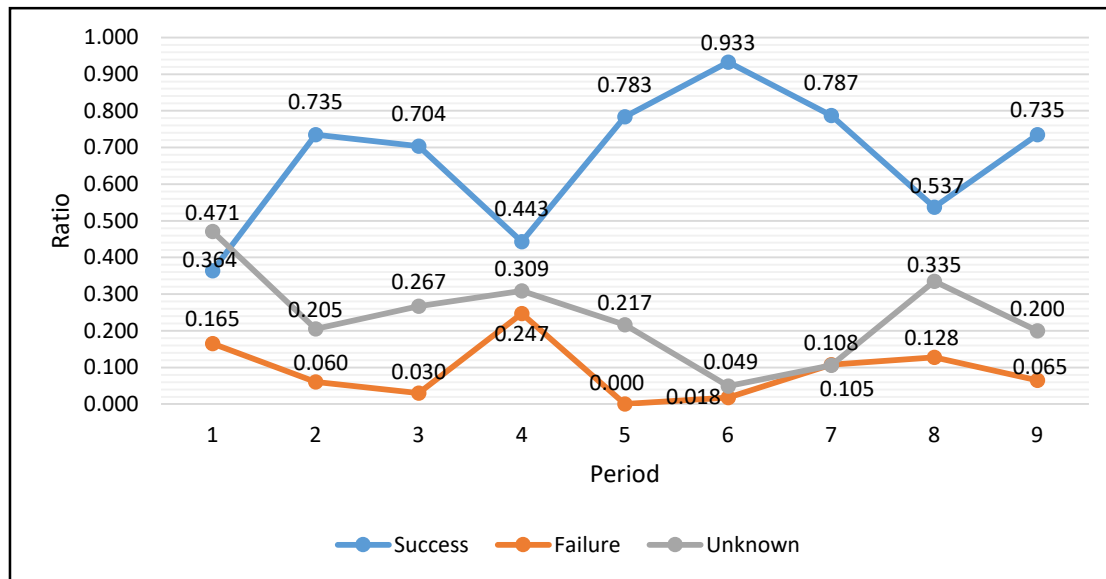


Figure 4.26. Implementation over time.

### 4.3.2 Explanation of changes

The comparisons above describe how the periods changed across the case with respect to the categories analyzed in stage 2. Building on these descriptions, the second task of stage 3 is to explain why the case changed over time as it did. To do this, this task uses a specific method, crisp-set qualitative comparative analysis. Crisp-set qualitative comparative analysis (csQCA) is a configurational comparative method that is used to develop a causal account of the case. To



construct a causal account, csQCA uses the narratives and chronologies generated in stage 1 (section [4.0](#)) and the data generated in the main coding of stage 2 (section [4.2.3](#) and [Appendix K](#)) to identify outcomes and conditions. The objective of csQCA is to interpret the data in order to understand why the case evolved as it did. The presence or absence of certain conditions can explain why some outcomes obtained in some periods and other outcomes obtained in others. The configurations of conditions for each period are used to explain why a certain outcome obtained. CsQCA is an appropriate method to use at this stage because it addresses SQ3: How does the public sphere affect public library development? The presence or absence of certain conditions related to the public sphere can explain how the public sphere influences public library development.

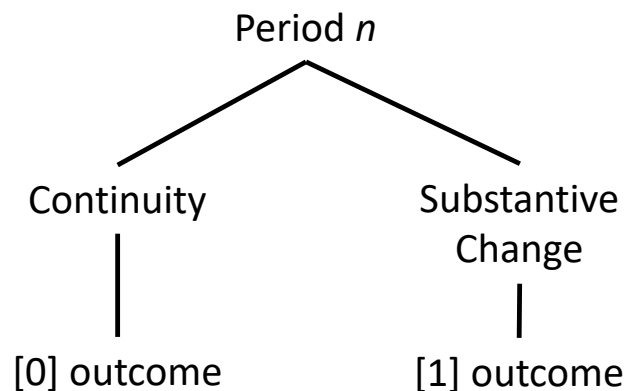
#### 4.3.2.1 Outcomes

***Outcomes defined.*** For the purposes of this analysis, a positive outcome is defined as *a substantive change in the system as a result of a formal decision*. Substantive changes include the following:

- a new actor;
- a new circuit;
- a new tessellation structure;
- an actor inhabits a new position relative to another actor; or
- a change in power relations.

Conversely, a negative outcome is defined as *continuity*, or as *no substantive change in the system as a result of a formal decision*. In a truth table, positive outcomes are coded with a [1], negative outcomes are coded with a [0].

An explanation of the difference between a substantive change ([1] outcome) and a non-substantive change ([0] outcome) first requires a clearer distinction between *period* and *substantive change*. Periods are distinguished not by outcomes, but by new decision cycles characterized by *re-imaginings*, *new orientations*, or new *attempts* to implement substantive changes. The concept of a decision cycle was introduced in stage 1. Because attempts to change the system vary in their results and outcomes, a substantive change is not the defining characteristic of a period. In other words, a new, distinct period is a necessary condition for a substantive change but not a sufficient one. Any period  $n$  can consist of either positive or negative outcomes (see [Figure 4.27](#)).



**Figure 4.27. Possible outcomes for a decision cycle in some period  $n$ .**

***Qualitative descriptions of outcomes.*** The outcomes for each period can be described qualitatively using the narratives and chronologies developed in stage 1. These descriptions

outline the basic decision cycle of each period and establish whether the period exhibited a positive or negative outcome.

In period 1, several civil society groups petitioned city and county decision-making bodies for an extension in library services and for a merger of libraries. Despite this activity, all efforts failed. Because there was no substantive change in the library system, period 1 represents a negative outcome.

In period 2, civil society and library actors again petitioned for changes in library services. This time, efforts were successful. In 1956, several significant changes occurred in the system. Period 2 therefore represents a positive outcome.

In period 3, the county libraries became part of the state system with the passage of the new state code in 1961. For the first time, county libraries occupied the inner periphery of the state circuit. Therefore, period 3 represents a positive outcome.

In period 4, several library studies were carried out by civil society, state, and library groups. Despite a strong concern for library system development, no substantive changes occurred. Period 4 therefore represents a negative outcome.

In period 5, several library studies led to the emergence of new library groups, a new county commission, and a county library director. Due to these changes, period 5 represents a positive outcome.

In period 6, a new circuit—RAD—emerged, and county library groups successfully petitioned to become part of the inner periphery of that circuit. For the first time, libraries were audiences of administrative and economic power transmitted by the RAD board. In light of these substantive changes, period 6 represents a positive outcome.

In period 7, ACLA transformed into a federated system, thereby changing its relationship to the state library and its member libraries. Due to this substantive change, period 7 represents a positive outcome.

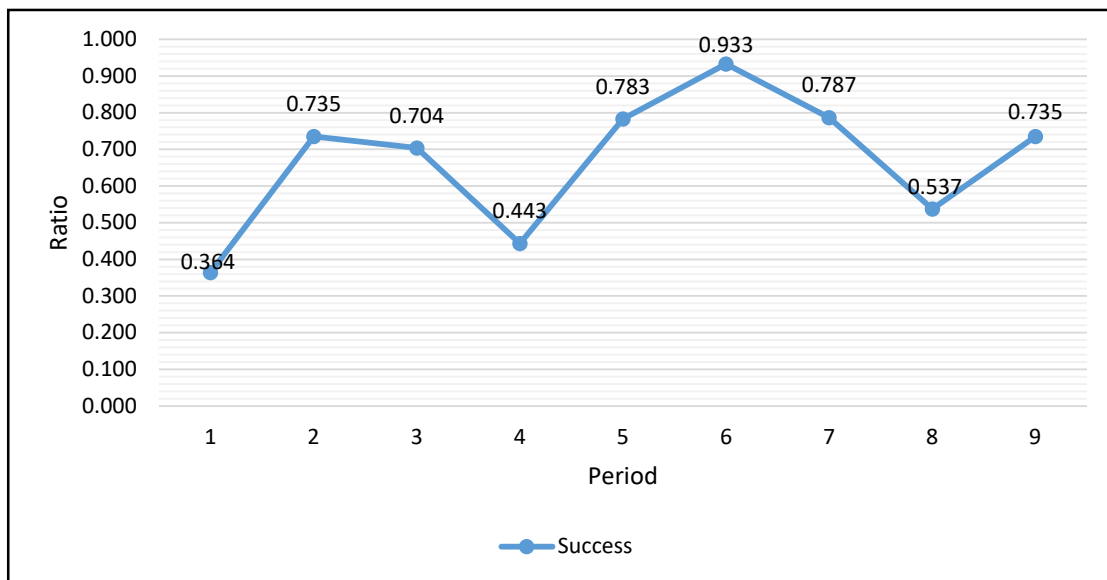
In period 8, changes in ACLA's distribution formula and member library standards were debated at length, but no changes were implemented. Period 8 therefore represents a negative outcome.

In period 9, the ACLA board implemented system standards, and a new circuit seemed to emerge that combined ACLA and CLP decision-making bodies. Because of these changes, period 9 represents a positive outcome.

***Quantitative measures of outcomes.*** Outcomes can also be measured quantitatively using the data gathered in stage 2. An accurate measure of outcomes in this case is *implementation success*. Periods with low implementation success can be said to exhibit negative outcomes, while those with high implementation success can be said to exhibit positive outcomes. Implementation success is a valid measure of a period's outcome because implementation success was coded for transmissions whose issues were not just legitimated successfully, but were actually taken up and adopted through a formal decision process.

[Figure 4.28](#) shows the implementation success ratios for each period. These ratios are shown in tabular form in [Table 4.8](#). These data show relatively low implementation success rates for periods 1, 4, and 8. The other periods show relatively high implementation success, suggesting that the issues proposed in those periods were adopted relatively frequently. This quantitative data corroborates the outcomes established through qualitative means in the above section. In the above section, periods 1, 4, and 8 were said to exhibit negative outcomes, and periods 2, 3, 5, 6, 7, and 9 were said to exhibit positive outcomes.

Using the implementation success data, [Figure 4.29](#) shows that a threshold of 0.7 accurately distinguishes periods with positive outcomes from those with negative outcomes. Above this threshold are periods with relatively high implementation success ratios and therefore positive outcomes. Periods below the threshold, periods 1, 4, and 8, have relatively low implementation success and therefore negative outcomes. The green line in [Figure 4.29](#) represents the threshold of 0.7, and the red line represents the median value, which is 0.735.



**Figure 4.28. Implementation success ratios by period.**

**Table 4.8. Ratios of implementation success by period.**

Period	Implementation success
1	0.364

2	0.735
3	0.704
4	0.443
5	0.783
6	0.933
7	0.787
8	0.537
9	0.735

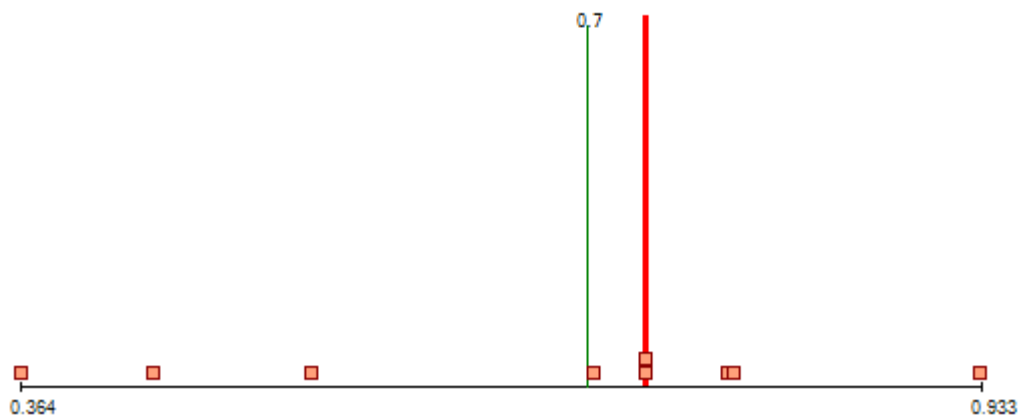
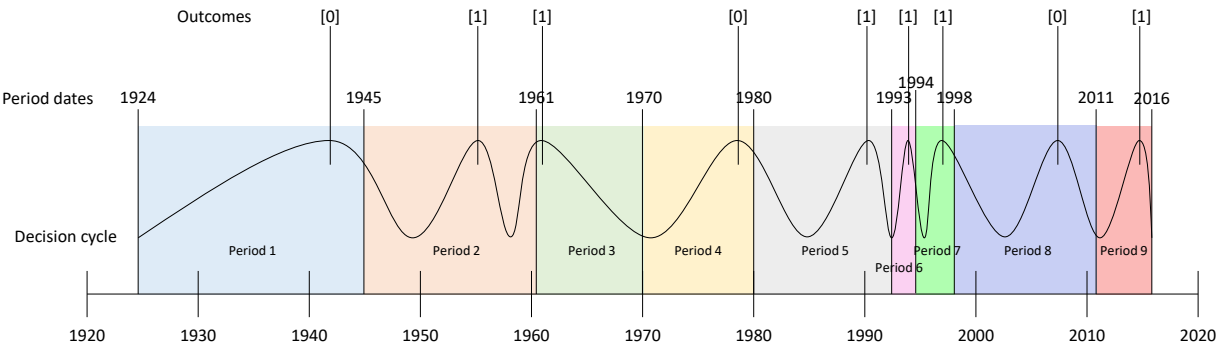


Figure 4.29. Threshold for positive outcomes of implementation success.

**Outcome summary.** [Table 4.9](#) below summarizes the outcomes from the periods of the case based on the qualitative and quantitative analyses above. In total, there are N=6 positive outcomes and N=3 negative outcomes. [Figure 4.30](#) visualizes these outcomes across the case for each period, together with the decision cycle and decision point for each period.

Table 4.9. Summary of periods and outcomes.

Period	Outcome
1	0
2	1
3	1
4	0
5	1
6	1
7	1
8	0
9	1



**Figure 4.30. Outcomes by period.**

**4.3.2.2 Conditions.** The definition of outcomes represents only the first part of csQCA. Conditions must also be identified and described as a way to explain why the outcomes occurred. The objective of csQCA in this study is to explain why some periods exhibited substantive change while others did not. Why did the system evolve in some periods and not others? How might the public sphere account for this?

There are 4 conditions that can be derived from the data to explain outcomes of the case. These conditions were developed in light of patterns displayed in [4.3.1](#).

***Civil Activity.*** The first condition is civil activity. Civil activity is defined as signal traffic from civil society actors who are proponents of a system change. The hypothesis for this condition is, the presence of civil activity can account in part for a positive outcome in some periods because they agitated for system change in those periods. Civil activity is measureable and it is stated as a ratio. A ratio is used to enable comparisons between different periods with different numbers of communicative events. The civil activity ratio for a period is derived using the following formula:

$$\text{civil activity ratio} = \frac{\text{transmissions by pro-change civil society actors}}{\text{total number of transmissions}}$$

[Table 4.10](#) shows civil society advocates and their transmissions by period. Not all civil society actors are included in a calculation of civil activity, only those actors from civil society who advocated for change in the library system. Civil society groups that opposed changes are excluded.



**Table 4.10. Transmissions from civil society advocates by period.**

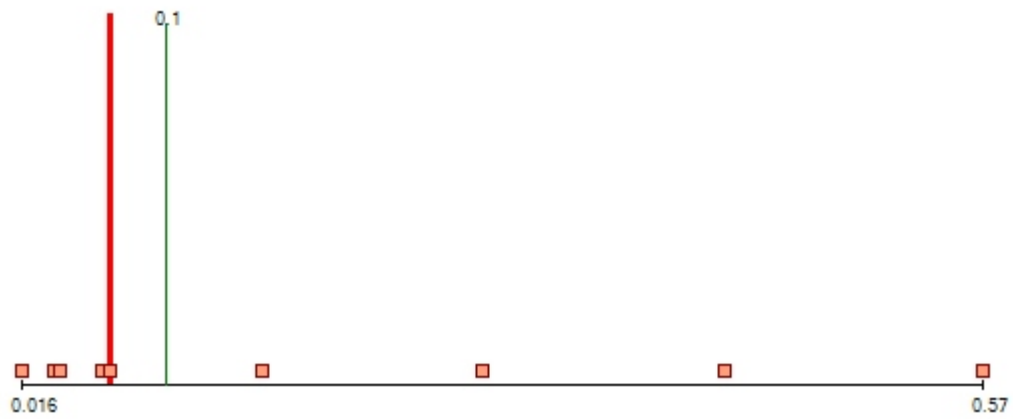
Civil society actor	Period								
	1	2	3	4	5	6	7	8	9
Pennsylvania Economy League	1		1			5	1		
Private civil society actor	1	3	4	6		4	6	1	2
Civil society-other	1	2		2					
Allegheny Federation of Women's Clubs	1								
Metropolitan Plan Commission	3								
Allegheny County Council of Parent-Teacher Associations	8			1					
Multiple civil society groups	8	2	2	1					
Civic Club of Allegheny County	46	3							
Private corporation or foundation		2	1		4	4	8		
Allegheny Conference on Community Development		8			1	4	1		
Metropolitan Study Commission		21							
Library Planning Committee of Allegheny County			1						
League of Women Voters				1	1				
Some combination of city, county, and civil society groups				4		1		1	
Buhl Foundation								1	
21st century library study									46
Total	69	70	9	15	6	18	16	3	48

[Table 4.11](#) shows the number of transmissions from civil society advocates in each period, the total of number of transmissions in each period, and the civil activity ratios by period.

**Table 4.11. Civil activity ratios by period.**

Period	Civil society transmissions	Total transmissions	Civil activity ratio
1	69	121	0.570
2	70	166	0.422
3	9	135	0.067
4	15	97	0.155
5	6	157	0.038
6	18	284	0.063
7	16	455	0.035
8	3	188	0.016
9	48	170	0.282

[Figure 4.31](#) shows the min/max, median, and threshold values for the civil activity ratios of the periods. The red line represents the median value and the green line represents the threshold value. The median value is 0.067. The orange boxes represent the locations of the ratios for each period along the ordinal scale. The value of 0.1 was chosen as the threshold value to distinguish presence from absence. This is because the four periods above the threshold—period 1, period 2, period 4, and period 9—were characterized in the initial case description in section [4.0](#) by significant civil society movements. This threshold value therefore reflects these movements and aligns with qualitative descriptions of the case.



**Figure 4.31. Min/max, median, and threshold values for civil activity.**

Given the definition of civil activity, its threshold value, and the data from each period, [Table 4.12](#) shows the truth table for the condition of civil activity.

**Table 4.12. Truth table for civil activity.**

Period	Civil activity
1	1
2	1
3	0
4	1
5	0
6	0
7	0
8	0
9	1

***Responsiveness.*** The second condition is responsiveness. Responsiveness is a measure of how well audiences respond to and implement the issues proposed to them through transmissions that are legitimated successfully. Like civil activity, responsiveness is stated as a ratio. It is the ratio of successfully-legitimated transmissions to legitimated transmissions that are also implemented. The responsiveness ratio for each period is calculated using the following formula:

$$\text{responsiveness ratio} = \frac{\text{legitimated transmissions that are implemented}}{\text{total number of legitimated transmissions}}$$

The hypothesis underlying this condition is that the presence of responsiveness can account in part for positive outcomes (system changes) and its absence can account in part for negative outcomes (continuity). If a system exhibits responsiveness to successfully-legitimated transmissions by implementing them, it is hypothesized that the system changes in response. Systems that exhibit unresponsiveness are closed and do not change.

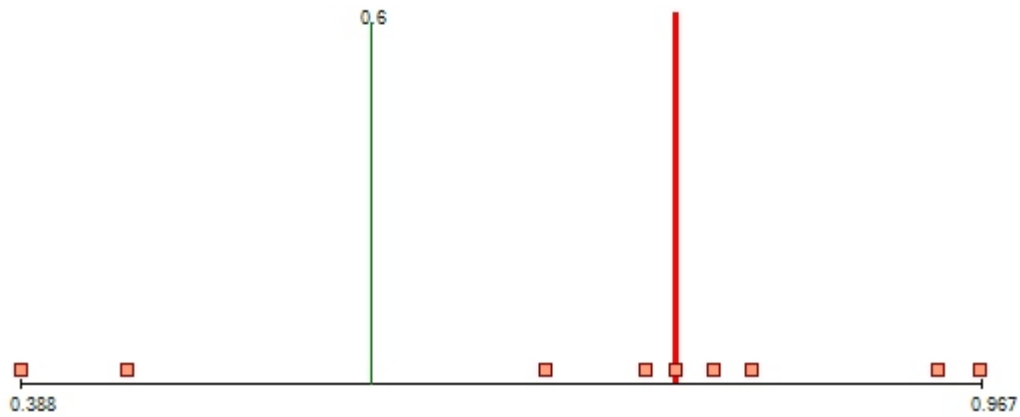
[Table 4.13](#) shows the numbers and types of legitimated transmissions, the numbers and types of implemented transmissions, and the ratio of legitimated transmissions to those that are also implemented.

**Table 4.13. Ratio of implemented transmissions to legitimated transmissions.**

Period	Legitimation success			Implementation			Ratio
	Discussion and periphery support	Consensus	Total	of discussion-legitimated transmissions	of consensus-legitimated transmissions	Total	
1	88	15	103	27	13	40	0.388
2	129	5	134	103	5	108	0.806
3	60	1	61	42	1	43	0.705
4	61	1	62	27	1	28	0.452
5	115	0	115	90	0	90	0.783
6	236	4	240	228	4	232	0.967
7	337	4	341	317	4	321	0.941
8	119	0	119	91	0	91	0.765
9	111	0	111	92	0	92	0.829

[Figure 4.32](#) shows the min/max, median, and threshold values for the condition of responsiveness. The median value is 0.783. The value of 0.6 was selected as the threshold value because it separates the two periods with very low responsiveness—period 1 and period 4—from the other periods that had high to relatively-high responsiveness. That period 1 and period 4 are absent responsiveness according to this threshold fits the qualitative descriptions of the periods

in section [4.0](#) [Figure 4.32](#) and similar subsequent images were created using TOSMANA software ([Cronqvist, 2016](#)).



**Figure 4.32. Min/max, median, and threshold values for responsiveness.**

Given the definition of responsiveness, its threshold value, and the data from each period, [Table 4.14](#) shows a truth table for each period with respect to the responsiveness condition.

**Table 4.14. Truth table for responsiveness.**

Period	Responsiveness
1	0
2	1
3	1
4	0
5	1
6	1
7	1
8	1
9	1

***Legitimacy.*** The third condition is legitimacy. Legitimacy describes the overall ability of a system to use discussion and consensus as a means to transmit power in legitimate ways. Legitimacy is measureable and it is stated as a ratio. The ratio is calculated using the following formula:

$$\text{legitimacy ratio} = \frac{\text{legitimated transmissions}}{\text{total transmissions}}$$

The hypothesis underlying this condition is that the presence of legitimacy in a system accounts in part for changes in that system. A corollary hypothesis is that an absence of legitimacy in a system inhibits system changes.

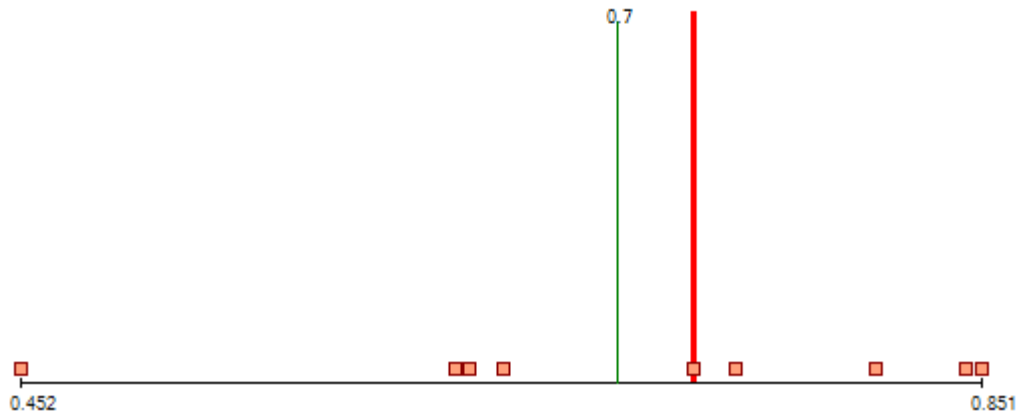
[Table 4.15](#) shows the numbers, types, and totals of legitimation, total events, and legitimacy ratios by period.

**Table 4.15. Legitimation, total events, and legitimacy ratios by period.**

Period	Legitimation			Total events	Legitimacy ratio
	Discussion and periphery support	Consensus	Total		
1	88	15	103	121	0.851
2	129	5	134	166	0.807
3	60	1	61	135	0.452
4	61	1	62	97	0.639
5	115	0	115	157	0.732
6	236	4	240	284	0.845
7	337	4	341	455	0.749
8	119	0	119	188	0.633
9	111	0	111	170	0.653

[Figure 4.33](#) shows the min/max, median, and threshold values for responsiveness. The median value is 0.732. The value of 0.7 was selected as the threshold because it is located in an existing gap between low- and high-legitimacy periods. According to this threshold, periods 3, 4, 8, and 9 are absent legitimacy, and this result makes sense given the descriptions of the period in [4.0](#)





**Figure 4.33. Min/max, median, and threshold values for legitimacy.**

Given the definition of legitimacy, its threshold value, and the data from each period, [Table 4.16](#) shows a truth table for each period with respect to the responsiveness condition.

**Table 4.16. Truth table for legitimacy.**

Period	Legitimacy
1	1
2	1
3	0
4	0
5	1
6	1
7	1
8	0
9	0

**Resistance.** The fourth condition is resistance. Resistance describes the discursive *friction* in a system during a period's decision cycle. Resistance is stated as a ratio. It is calculated using the following formula:

$$\text{resistance ratio} = \frac{\text{legitimation failures-objections}}{\text{total transmissions}}$$

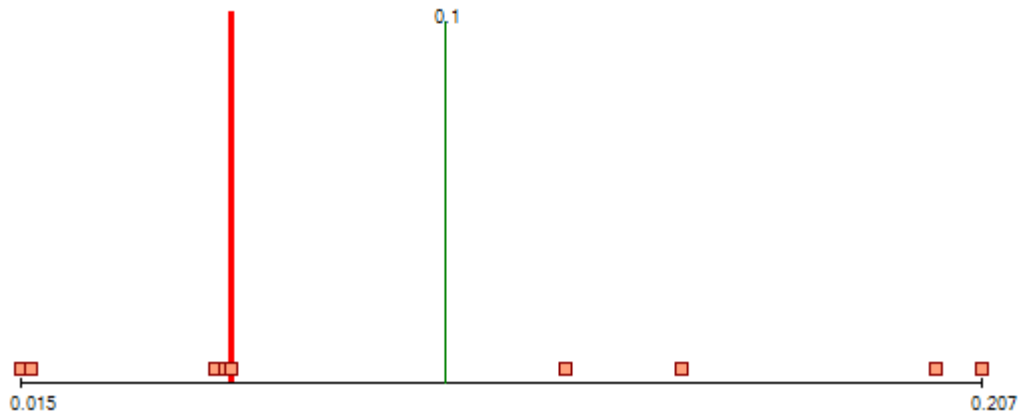
This condition is theoretically grounded in the idea that periods with a high ratio of objections during discussions will block substantive changes from occurring. Implicit in the idea of resistance is the idea that a threshold of legitimation failures through objections, if reached, can stall substantive change. It may be possible to block changes even in a period where the ratio of successful legitimations is also relatively high.

[Table 4.17](#) shows the failed implementations, total events, and resistance ratios by period.

**Table 4.17. Failed legitimations through objections, total events, and resistance ratios by period.**

Period	Legitimation failure-objections	Total events	Resistance ratio
1	2	121	0.017
2	9	166	0.054
3	2	135	0.015
4	12	97	0.124
5	9	157	0.057
6	16	284	0.056
7	90	455	0.198
8	39	188	0.207
9	25	170	0.147

[Figure 4.34](#) shows the min/max, median, and threshold values for resistance. The median value is 0.057. The value of 0.1 was chosen as the threshold value because it marks an already existing gap between relatively low- and high-resistance periods. The condition of resistance is therefore present in periods 4, 7, 8, and 9. This dichotomization makes sense in light of the qualitative evidence presented in section [4.0](#). All periods with high resistance according to this threshold were contentious periods.



**Figure 4.34. Min/max, median, and threshold values for resistance.**

Given the definition of legitimacy, its threshold value, and the data from each period, [Table 4.18](#) shows a truth table for each period with respect to the responsiveness condition.

**Table 4.18. Truth table for resistance.**

Period	Resistance
1	0
2	0
3	0
4	1
5	0
6	0
7	1
8	1
9	1

**4.3.2.3 Summary data table.** [Table 4.19](#) below shows the condition ratios and outcomes for each period.

**Table 4.19. Summary data table of conditions and outcomes by period.**

Period	Civil activity	Responsiveness	Legitimacy	Resistance	Outcome
1	0.570	0.388	0.851	0.017	0
2	0.422	0.806	0.807	0.054	1
3	0.067	0.705	0.452	0.015	1
4	0.155	0.452	0.639	0.124	0
5	0.038	0.783	0.732	0.057	1
6	0.063	0.967	0.845	0.056	1
7	0.035	0.941	0.749	0.198	1
8	0.016	0.765	0.633	0.207	0
9	0.282	0.829	0.653	0.147	1

**4.3.2.4 Summary truth table.** [Table 4.20](#) below is a summary truth table that shows configurations of conditions and outcomes. Period 5 and period 6 share the same configuration.

**Table 4.20. Summary truth table including conditions and outcomes.**

Period	Civil activity	Responsiveness	Legitimacy	Resistance	Outcome
1	1	0	1	0	0
2	1	1	1	0	1
3	0	1	0	0	1
4	1	0	0	1	0
5, 6	0	1	1	0	1
7	0	1	1	1	1
8	0	1	0	1	0
9	1	1	0	1	1

[Figure 4.35](#) below shows a Venn diagram of the truth table. Green areas represent periods with positive outcomes and red areas represent periods with negative outcomes. White areas represent logical remainders—hypothetical configurations that were not found in this study. The Venn diagram was created using TOSMANA ([Cronqvist, 2016](#)).

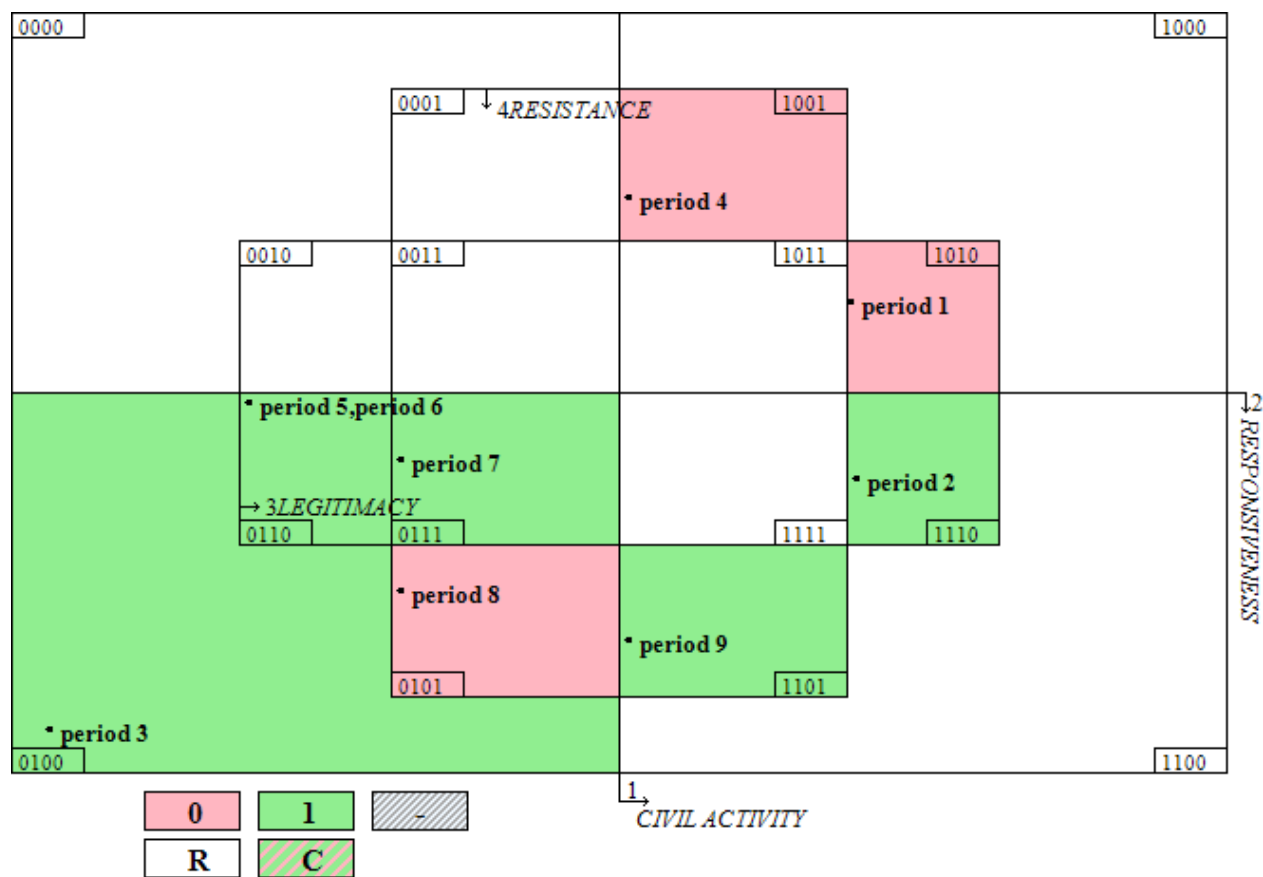


Figure 4.35. Venn diagram of the truth table configurations.

**4.3.2.5 Necessary conditions.** For any condition, the consistency of its necessity is computed in the following way: “the number of cases with a [1] value on the condition AND a [1] outcome value, divided by the total number of cases with a [1] outcome value” ([Rihoux & De Meur, 2009, p. 47](#)). The computation for each condition is shown in [Table 4.21](#). There was 1 necessary condition found in this study: responsiveness. This means that for any case with a positive outcome, responsiveness was also present.

**Table 4.21. Necessity scores for each condition.**

Condition	Number of cases with a [1] value and a [1] outcome	Total number cases with a [1] outcome	Necessity score
Civil activity	2	6	.333
Responsiveness	6	6	1
Legitimacy	4	6	.667
Resistance	2	6	.333

**4.3.2.6 Minimal formulas.** Minimal formulas are configurations of conditions and outcomes with superfluous conditions removed. Superfluous conditions are irrelevant as causes because their presence or absence does not affect the outcome. Minimization therefore distills sets of configurations to the conditions that matter—the ones that, should they change, outcomes would also change. The conditions shown in the minimal formulas are considered the *causes* of positive outcomes. Minimal formulas were calculated using TOSMANA. The resulting minimization formulas are an outcome’s *prime implicants*, and these formulas can be divided into *terms* ([Rihoux & De Meur, 2009, pp. 35, 57](#)).

In [Appendix M](#), two sets of minimal formulas are provided for each outcome: those without logical remainders and those including logical remainders. Logical remainders are the white, empty spaces shown in the Venn diagram in [Figure 4.35](#). They represent configurations that were not observed in this study. Logical remainders are useful to consider because their inclusion results in more parsimonious formulas ([Rihoux & De Meur, 2009, p. 59](#)). More



parsimonious formulas can be created by making simplifying assumptions about the logical remainders.

As shown in [Appendix M](#), the attempts to find minimal formulas using TOSMANA were not successful. This is because the minimal assumptions for [1] and [0] outcomes resulted in contradictory simplifying assumptions. Minimal formulas therefore had to be constructed in an alternative way by resolving these contradictory simplifying assumptions.

**4.3.2.7 Resolving contradictory simplifying assumptions.** A contradictory simplifying assumption occurs when the same logical remainder is used to explain both [1] and [0] outcomes. The presence of contradictory simplifying assumptions is logically problematic because the same sets of conditions cannot be used to explain both [0] and [1] outcomes ([Yamasaki & Rihoux, 2009, pp. 136-137](#)). The procedure to address the problem of contradictory simplifying assumptions is to add hypothetical, non-observed cases to the truth table in a way that resolves the contradictions. The addition of the hypothetical configurations should be theoretically well-justified. After the new truth table is minimized, the resulting formula should be one that makes sense logically, empirically, and theoretically, and one that is parsimonious ([Yamasaki & Rihoux, 2009, p. 137](#)).

Of the 16 ( $2^4$ ) possible configurations, 8 were observed in the case and 8 are logical remainders. In the minimal formulas of both [0] and [1] outcomes above, 6 logical remainders were used to explain both the [0] outcome and the [1] outcome. There are therefore 6 contradictory simplifying assumptions that must be resolved.

There are 3 rules that can be applied to the logical remainders that would eliminate the contradictory simplifying assumptions:

1. Responsiveness is a necessary condition for a [1] outcome;

2. The presence of resistance overrides the presence of responsiveness, resulting in a [0] outcome; but:
3. The presence of legitimacy or civil activity in addition to responsiveness overrides resistance and results in a [1] outcome.

These three rules make logical, empirical, and theoretical sense. The rule that responsiveness is a necessary condition for system change is supported by the observed cases. No observed cases without high responsiveness had positive outcomes, so it is reasonable to assume that in non-observed cases, the necessity of high responsiveness would hold true. Similarly, high resistance was present in period 8, a negative-outcome case where both civil activity and legitimacy were absent. Periods 7 and 9 exhibited legitimacy and civil activity, respectively, and both had positive outcomes. This suggests that responsiveness alone is an insufficient condition for a positive outcome, and that resistance can be overcome with the presence of either legitimacy or civil activity.

These 3 rules can be used to create 8 hypothetical cases to add to the truth table in order to resolve the contradictory simplifying assumptions. The resulting truth table is shown below in [Table 4.22](#). The results of the truth table are visualized in a Venn diagram in [Figure 4.36](#).

**Table 4.22. Summary truth table with hypothetical cases included.**

Period	Civil activity	Responsiveness	Legitimacy	Resistance	Outcome
1	1	0	1	1	0
2	1	1	1	0	1
3	0	1	0	0	1
4	1	0	0	1	0
5, 6	0	1	1	0	1
7	0	1	1	1	1
8	0	1	0	1	0
9	1	1	0	0	1
hypo A	0	0	0	0	0
hypo B	0	0	1	0	0
hypo C	0	0	0	1	0
hypo D	0	0	1	1	0
hypo E	1	0	1	1	0
hypo F	1	0	0	0	0
hypo G	1	1	1	1	1
hypo H	1	1	0	0	0

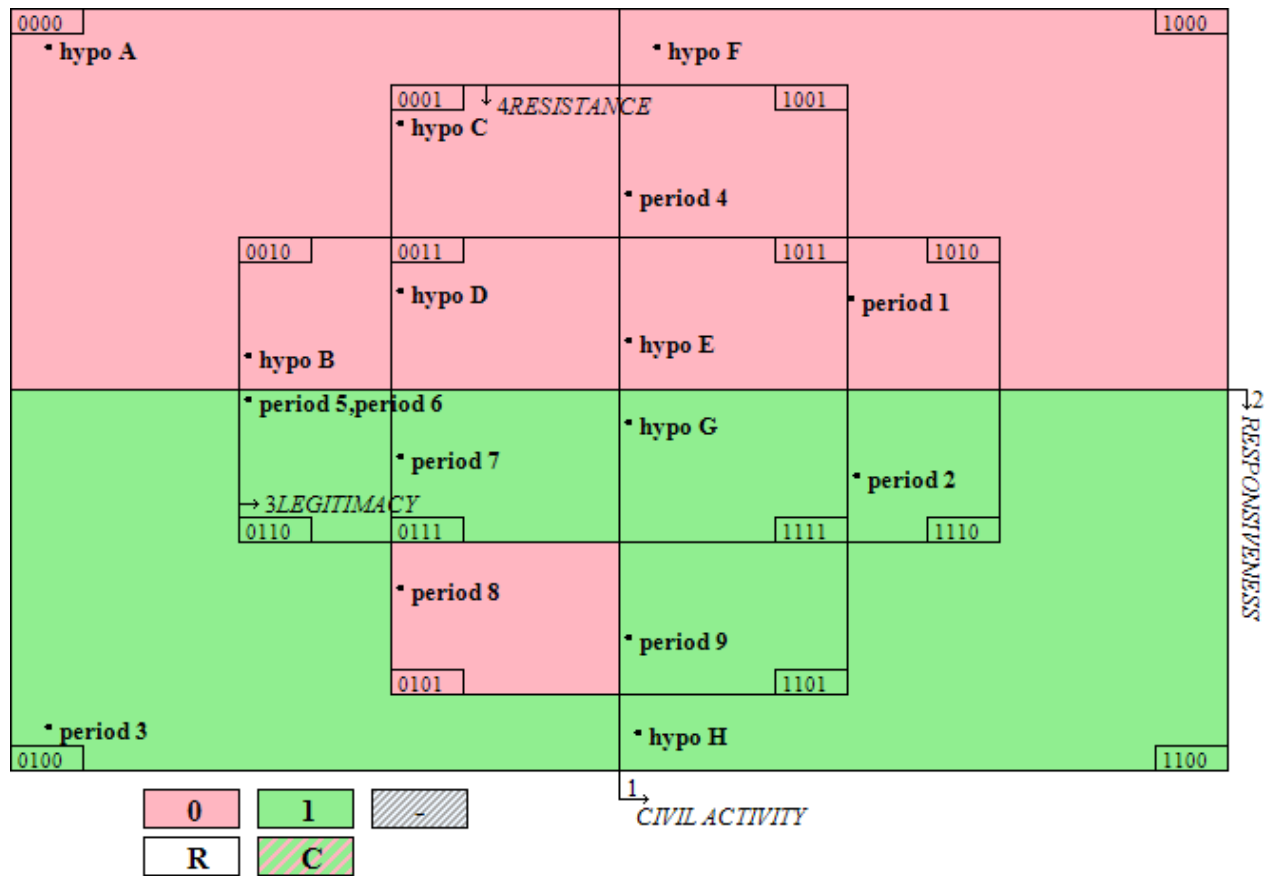


Figure 4.36. Venn that includes hypothetical cases to resolve contradictory simplifying assumptions.

***Revised minimal formula for [1] outcome.*** Boolean minimization can be performed again on the new truth table to produce minimal formulas for both outcomes. The minimal formula for the [1] outcome is as follows:

CIVIL ACTIVITY * RESPONSIVENESS	+	RESPONSIVENESS * LEGITIMACY	+	RESPONSIVENESS * resistance	→ SYSTEM CHANGE
(period 2, period 9, hypo G, hypo H)		(period 2, period 5, period 6, period 7, hypo G)		(period 2, period 3, period 5, period 6, hypo H)	

The three terms of the formula offer concurrent explanations for periods 2, 5, and 6, hypo G, and hypo H. This minimal formula can be read as follows:

“The [1] outcome (SYSTEM CHANGE) is observed:

- In periods that combine high civil activity [CIVIL ACTIVITY] *AND* high responsiveness [RESPONSIVENESS]

OR

- In periods that combine high responsiveness [RESPONSIVENESS] *AND* high legitimacy [LEGITIMACY]

OR

- In periods that combine high responsiveness [RESPONSIVENESS] *AND* low resistance [resistance].”

Since the three different paths to system change share the condition RESPONSIVENESS, the minimization formula can be rewritten as follows:

$$\text{RESPONSIVENESS} * \left\{ \begin{array}{l} \text{CIVIL ACTIVITY} \\ \text{LEGITIMACY} \\ \text{resistance} \end{array} \right\} \rightarrow \text{SYSTEM CHANGE}$$

Coverage for the [1] outcome formula is shown in [Table 4.23](#).

**Table 4.23. Coverage for revised [1] outcome minimal formula.**

Term	Raw coverage	Unique coverage	Solution coverage
1	2/6	1/6	6/6
2	4/6	1/6	
3	4/6	1/6	

***Revised minimal formula for [0] outcome.*** Using the revised truth table with hypothetical cases included, the minimal formula for the [0] outcome is as follows:

responsiveness + civil activity \* legitimacy \* RESISTANCE → system change  
 (period 1, period 4, (period 8, hypo C)  
 hypo A, hypo B, hypo  
 C, hypo D, hypo E,  
 hypo F)

The minimal formula is read as follows:

“The [0] outcome (system change) is observed:

- In periods with low responsiveness [responsiveness]

OR

- In periods that combine low civil activity [civil activity] AND low legitimacy [legitimacy] AND high resistance [RESISTANCE].”

Coverage for the revised [0] minimal formula is shown in [Table 4.24](#).

**Table 4.24. Coverage for revised [0] minimal formula.**

Term	Raw coverage	Unique coverage	Solution coverage
1	2/3	2/3	3/3
2	1/3	1/3	

### **4.3.3 Summary: Stage 3 Results**

In stage 3, data interpretation, the data created in stage 2 was used as the basis for describing and explaining changes in the case over time. This was done by comparing data from each period. These comparisons addressed SQ2 and SQ3: they provided a description of the case over time, then an explanation for why the case evolved as it did. The first task of stage 3, compare periods, summarized the data about the main coding categories for the periods. The summaries described in a quantitative way the ratios of power, actors, audiences, positions, circuits, issues, legitimization, and implementation for each period across the case. Generally, it was found that no actors, audiences, or issues were dominant throughout the entirety of the case. On the contrary, the prominent actors, audiences, and issues changed according to period. In some periods, civil society actors were dominant actors, and these actors seemed to initiate important changes in the system, but this was not always the case. In period 1, for example, the Civic Club was a dominant actor but no substantial changes occurred. A significant shift in the case occurred in period 5 when new actors, audiences, and issues arose to replace old ones. The new actors included CLASP, CFLAC, ACLA, and EIN. It was also found that communicative narrowcasts were the predominant form of power in every period. Related to the development of a causal

account of the case, it was found that not all periods exhibited stable implementation outcomes. Periods 1, 4, and 8, for instance, had relatively low ratios of implementation, suggesting that in these periods the issues that were proposed were not instituted. Also related to the development of a causal account, some periods had relatively high ratios of successful legitimation or relatively high ratios of objections. Taken together, these observations suggested that some combination of civil society actor engagement, successful legitimation, objections, and implementation could explain why the case seemed to evolve in some periods but not others.

Based on the descriptions developed in the first task of stage 3, the second task, explain changes, identified causal conditions to explain why some periods of the case exhibited substantive changes but others did not. The method used for this task was crisp-set qualitative comparative analysis (csQCA). Using this method, each of the 9 periods of the case was assigned a positive or negative outcome. Outcomes were assigned in part using implementation ratios: periods with high implementation ratios exhibited change and were given a positive value, while those with low implementation ratios exhibited continuity and were given a negative value. There were 6 periods with positive outcomes and 3 with negative outcomes. The four conditions used to explain the positive or negative outcomes were civil activity, responsiveness, legitimacy, and resistance. In each period, positive or negative values for these conditions were also assigned using quantitative measures. Each period was assigned a positive or negative value for each condition. At the conclusion of the csQCA process, high responsiveness was found to be a necessary condition for periods with positive outcomes. High responsiveness, together with either high civil activity, high legitimacy, or low resistance, was found to be the causal configuration sufficient to explain the positive outcomes in 6 of the periods. Conversely, it was found that either low responsiveness or low civil activity, low legitimacy, and high resistance



were sufficient causal configurations to explain the negative outcomes in 3 of the periods. These findings explain why the case evolved and changed at some points in time and not others. Because civil activity, responsiveness, legitimation, and resistance are conditions that relate to the public sphere, these findings also demonstrate that the public sphere is essential for understanding the development of public library infrastructure and for implementing changes to it. These findings are further elaborated in the discussion section that follows.

## **5.0 DISCUSSION**

The following section discusses in depth the design and results of this study. A further discussion of the research design used in this study is warranted because it was newly developed for this project and because this study was the first time it was applied. This discussion section also synthesizes the research results from the preceding 3 stages of analysis. The section proceeds by first reviewing the motivation, strategy, and design for the study. The results of the study are then discussed in depth. The results are situated within a larger body of related literature. Following a discussion of the research strategy and design, this section discusses the new and revised Machtkreislauf model that was developed in stage 2. Then, this section reviews the general explanatory theory of the public sphere and public libraries developed in stage 3. Following this, a descriptive and explanatory account of the history of the regional library system in greater Pittsburgh is discussed, drawing from the results of stages 1, 2, and 3.

### **5.1 RESEARCH STRATEGY AND APPROACH**

#### **5.1.1 Problem and solution sequences**

The purpose of this project was to develop a fuller historical understanding of the relationship between the public sphere and public libraries. The project was motivated in part by 3 research

problems from the fields of library studies and political science (see [Table 5.1](#)). The study began by considering a research problem from library studies (RP1), namely that the existing public sphere paradigm in the library studies field was inadequate and a new one was recommended. One proposed solution to this problem (S1) was to adopt the Machtkreislauf, or circulation of power, model as a research framework. The Machtkreislauf model is a general political model of the public sphere that was chosen because it is the most well-developed public sphere model and it did not face the same difficulties as the existing public sphere paradigm. The solution to use the Machtkreislauf model, however, carried with it its own difficulties. The second problem (RP2), therefore, was that the model faced several objections, and if it was to be used in library studies as a research paradigm, then the model's flaws had to be addressed lest future studies inherit them. The objections to the model therefore had to be addressed before adopting it, and this could be done by refining it by applying it to an empirical case. The solution (S2) to the second problem was first to revise and refine the existing Machtkreislauf model in order to address its flaws. To accomplish this, the regional public library system in Pittsburgh was seen as an appropriate test-case. The case was doubly appropriate because it could not only be used to create a new and better model, it could also be used to more fully understand the historical dynamics of the public sphere and public libraries—the central purpose of the study. Nevertheless, S2 also presented its own difficulties. The third research problem (RP3) was that the case of the regional public library system in Pittsburgh had not yet been fully unpacked or explored: it had been overlooked in library histories and in local historical accounts of Pittsburgh. Because of this, the scope of the case was not yet known. The solution (S3) to this third problem was therefore to research the case from scratch, to excavate its history before using

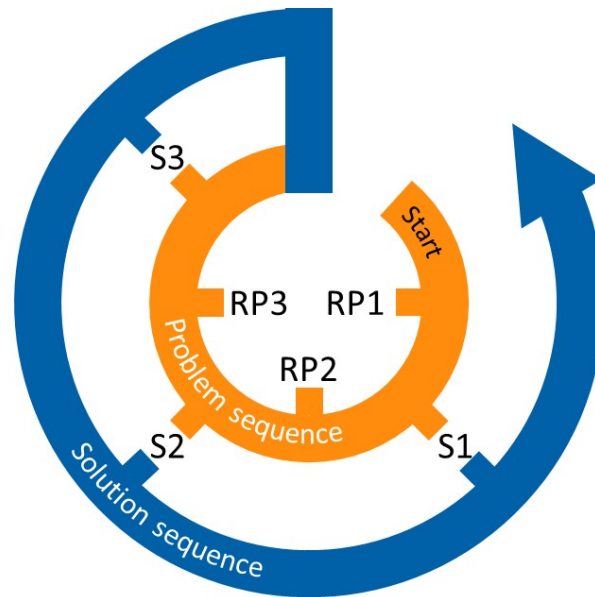
it as a test-case for the Machtkreislauf model and before using it to study the public sphere and public libraries.

**Table 5.1. Research problems and their corresponding solutions.**

Research problem	Problem statement	Solution	Solution statement
RP1	A new public sphere paradigm is needed to develop a historical understanding of public library development.	S1	Use the Machtkreislauf model as a new research paradigm.
RP2	The Machtkreislauf model requires revision and testing.	S2	Use the case of the regional public library system in Pittsburgh to refine the model.
RP3	The history of the regional public library system in Pittsburgh is not yet known.	S3	Develop a fuller historical account of the Pittsburgh case.

Each research problem of this study thus had an identifiable solution, but the first two solutions to the first two problems also presented their own additional research problems. RP1 could be solved with S1, but S1 presented RP2. RP2 could be solved with S2, but not without also presenting RP3. Only RP3 could be solved with S3 without presenting an additional problem. This order, the logic of how research problems and their solutions were identified and incorporated into this research project, was the study's *problem sequence*. [Figure 5.1](#) shows this sequence in orange. The order of the problem sequence was RP1, followed by S1, RP2, S2, RP3, and S3. The order in which the problems had to be addressed, however, ran counter to that of the problem sequence. The problems had to be solved in the reverse order that they were identified. The order in which this study had to approach and solve the research problems was this study's *solution sequence*. [Figure 5.1](#) shows this sequence in blue. The solution sequence for this study began with S3, then worked backward to S2 and S1. The problem and solution

sequences of this study formed its core layers. The methodological process for this study, discussed below, was designed with these sequences in the background.



**Figure 5.1. Problem sequence and solution sequence of this study.**

### 5.1.2 Question sequence

In addition to its motivating research problems, this research study was also guided by research questions. This study had one central, overarching research question and three sub-questions (see [Table 5.2](#)). The central research question (RQ) for this study was: How does the Machtkreislauf model apply to the regional public library system in Pittsburgh? This question is

both a *what* question and a *why* question: it is a what question because it calls for a description, and it is a why question because it calls for an explanation. The descriptions solicited by this question took the form of narratives, chronologies, empirical models, and graphical illustrations. The explanation solicited by the question took the form of a causal theory of the public sphere as it relates to public library development.

**Table 5.2. Research questions and their expected knowledge types by field.**

	Field	Question statement	Type of knowledge solicited	Expected intellectual product
RQ	Both fields	How does the Machtkreislauf model apply to the regional public library system in Pittsburgh?	Description and explanation	Model, theory, narrative, graphical illustration
SQ1	Political science	What does a tested and refined Machtkreislauf model look like?	Description	Concepts, model
SQ2	Library studies	What does the evolution of the library system in Pittsburgh look like?	Description	Narrative, graphical illustration
SQ3	Library studies	How does the public sphere affect public library development?	Explanation, prediction	Causal theory

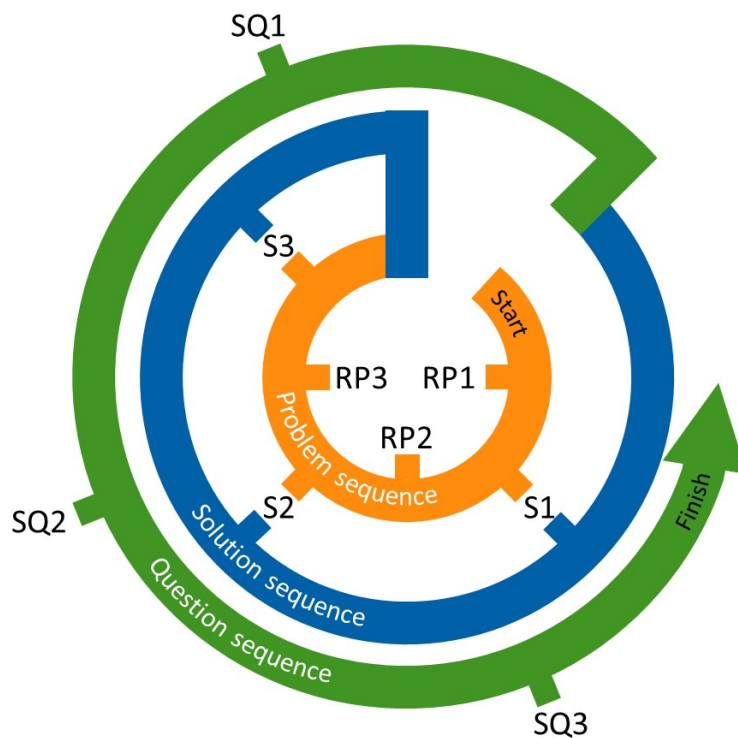
The 3 sub-questions for this study are shown in [Table 5.2](#). SQ1 asked: What does a tested and refined Machtkreislauf model look like? This question called for a new model with new concepts that fit the case and addressed the existing criticisms of the model. This was an appropriate question to ask at the project's outset because it was known from the literature review that a revision of the model that was to serve as the study's framework had to occur as part of the study. It was not known from the outset what this framework would look like once it

had been revised. SQ2 asked: What does the evolution of the library system in Pittsburgh look like? This question also called for a description, one developed by applying the Machtkreislauf model to the case of Pittsburgh. This was an appropriate question to pose at the beginning of the project because in the literature review, while it was found that the case of Pittsburgh might serve as a suitable one for the study, it was also found that the case was not well known. And SQ3 asked: How does the public sphere affect public library development? This question called for an explanation and prediction that was based on data from the case.

Addressing SQ3 was the ultimate goal for this project. This third and final research question was posed in light of existing literature as a way to contribute to it and establish a new research direction. Previous studies such as [Schuhböck \(1994\)](#), [Vestheim \(1997b\)](#), and [Emerek and Ørum \(1997\)](#) already identified and explained historical relationships between public libraries and the public sphere over time, but they did so using a previous public sphere paradigm, one that was problematic. [Kann-Christensen and Pors \(2004\)](#) also claimed that public sphere legitimization contributed to public library developments, and they used examples from case studies as illustrations, but they did not track changes over time. [Widdersheim and Koizumi \(2017\)](#) identified basic elements of a new research framework like one used in this study, and they used that framework to understand an empirical case, but the study did not explain how the public sphere contributed to changes over time. SQ3 therefore called for a study that could overcome these deficiencies of previous literature. An answer to the question required using a new public sphere framework and longitudinal data from a relevant case in order to better understand how the public sphere affected public library developments over time.

Like the solution sequence, the research questions in this study had to be addressed in a specific order: SQ1 had to be answered before addressing SQ2, and SQ2 had to be answered

before addressing SQ3. This order was the study's *question sequence*. The question sequence for this study followed the completion of its problem and solution sequences. Research questions began to be fully addressed once the research problems were solved. [Figure 5.2](#) shows this question sequence in green. What was needed next was a research design that would address the research problems and questions in a logical and systematic way.



**Figure 5.2. Problem sequence, solution sequence, and question sequence of this study.**



### 5.1.3 Research design

This study adopted a case study approach as a general research design. Among the variety of case study designs, the specific research strategy adopted in this study was historical case study. Historical case study is a new type of case study design that was developed specifically for this project. Historical case study is distinctive because it is not just history, and not just case study, but a mixture of both. It is a retrospective longitudinal comparison that blends history and case study in order to examine a case from the distant past into the present (see [Figure 5.3](#)). It does this by collecting and analyzing a diversity of source materials, including archival documents, interview notes and transcripts, and field notes from direct observations. The units of comparison in a historical case study are the case's periods. The periods serve as embedded units that are analyzed by comparing and contrasting in a systematic way their common features.

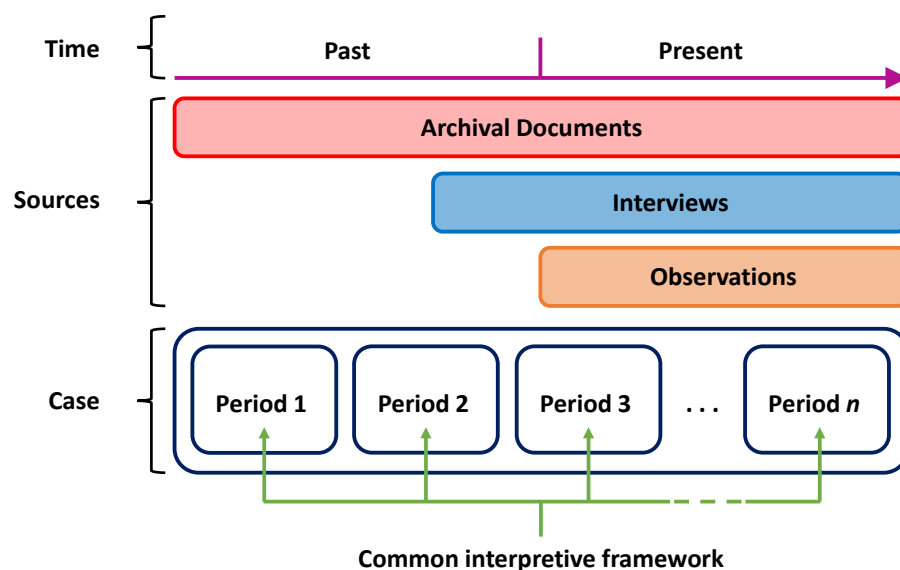
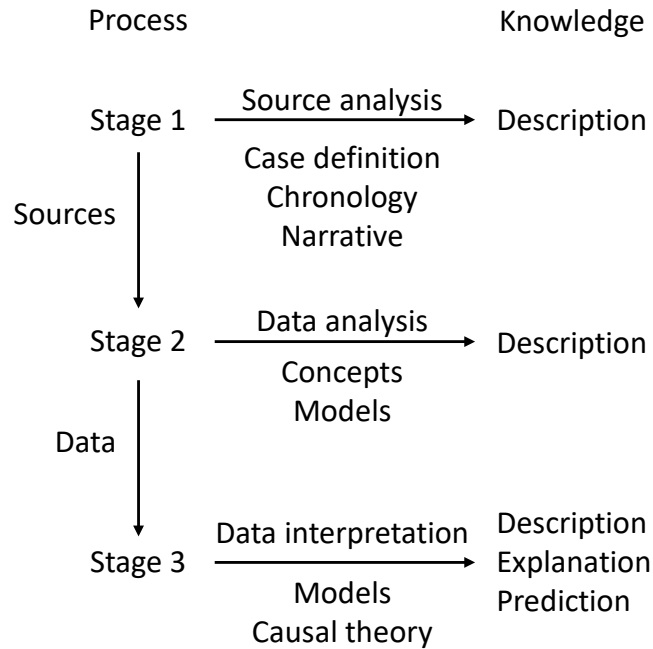


Figure 5.3. Concept of a historical case study.

Historical case study is a new type of case study design that departed from those proposed by [Yin \(2014\)](#) and [Gerring \(2007\)](#). It is true that [Yin \(2014, p. 12\)](#) maintained a distinction between history and case study while also acknowledging overlap between the two. [Yin \(2014, pp. 50, 54-55\)](#) also helpfully described embedded units of analysis and the types of case study designs that might incorporate them. However, [Yin \(2014\)](#) did not propose that a case's periods might serve as embedded units of analysis, nor did he specify or name historical case study as a distinctive type of case study design. Similarly, [Gerring \(2007, p. 28\)](#) constructed a typology of case study designs, but in that typology historical case study was not mentioned as a distinctive approach. Unlike [Yin \(2014\)](#), [Gerring \(2007\)](#) did not distinguish between case study and history. The addition of historical case study to his typology, therefore, required first distinguishing within diachronic studies between histories and case studies, then showing historical case study as a design type that overlapped both history and case study.

Historical case study as a research process consisted of three stages of analysis (see [Figure 5.4](#)). Each stage had its own method, its own tasks, its own results, and addressed different research questions. The stages proceeded cumulatively in such a way that earlier stages informed later ones. Stage 1 produced source materials that were analyzed in stage 2, and stage 2 produced data that were analyzed in stage 3. At the same time, each stage stood alone as a micro-study because each stage produced its own knowledge. Stages 1 and 2 produced descriptions, and stage 3 produced descriptions, explanations, and predictions.



**Figure 5.4. Process and knowledge products of historical case study.**

The stages, methods, tasks, and results of this study are described in [Table 5.3](#). The first stage of historical case study was source collection and analysis. The method for stage 1 was theoretical sampling. The purpose of this stage was to collect source materials about the case in order to develop a preliminary understanding of the case, including the case's periods. A theoretical sampling protocol was developed during this stage to serve as a guide for source collection. Stage 2 of historical case study was data collection and analysis. In this study, the method used for stage 2 was qualitative content analysis. In stage 2, the source materials collected in stage 1 were systematically analyzed. All sources for all periods across the case were analyzed using a common framework. The purpose of stage 2 was to produce data about the case's periods that served as a basis for their comparison. Finally, stage 3 of historical case study was data interpretation. In this study, the method used for stage 3 was qualitative

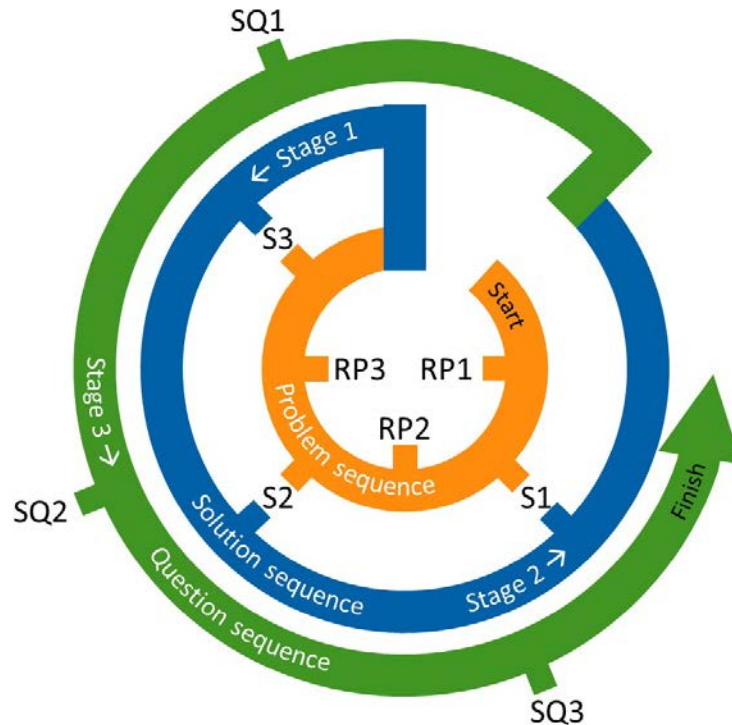
comparative analysis. In this stage, descriptions and explanations were constructed using the data generated in stage 2. The purpose of stage 3 was to interpret how and why the case developed over time. Because the periods of the case were analyzed using a common interpretive framework, historical case study was an effective research strategy not only for *describing* changes or continuity in a case over time, but also for *explaining* why the case evolved as it did and *predicting* under what conditions and in what ways the case or one similar to it can be expected to develop further. Explanations and predictions were constructed by identifying conditions that caused the case's periods to exhibit positive or negative outcomes. Based on the results of this study, historical case study is an effective research design for cases with long lifespans, for cases where little or nothing is known about them, for cases that have distinctive periods of development, and in studies whose purpose is to observe phenomena longitudinally.

**Table 5.3. Stages, methods, tasks, and results of this study.**

Stage		Method	Task	Task description	Result	RQ
1	Source Collection and Analysis	Theoretical Sampling	Define the case	Establish temporal, geographical, and conceptual boundaries for the case.	Definition of the case	SQ2
			Periodize the case	Using sources, divide the case into periods according to actors, events, and cycles.	Chronology and narrative summary of each period	SQ2
			Collect sources	Using descriptions of periods as a guide, collect a variety of relevant source materials.	List of relevant sources to use in stage 2	SQ2
2	Data Collection and Analysis	Qualitative Content Analysis	Develop the instrument	Construct a concept- and data-driven instrument for analyzing the periods.	-A concept- and data-driven instrument -New concepts	SQ1
			Pilot coding	Test and modify the instrument.	A valid and reliable instrument	SQ1
			Main coding	Apply the instrument to all source materials.	Coding matrices and data to use in stage 3	SQ2
3	Data Interpretation	Qualitative Comparative Analysis	Compare periods	Use tables, graphs, and other tools to describe summary data.	Summaries, comparisons, and patterns in data	SQ2
			Explain changes	Use comparative techniques to explain changes in the case's periods.	Outcomes, conditions, configurations	SQ3

The stages of this study followed the course of its underlying problem, solution, and question sequences (see [Figure 5.5](#)). Stage 1 began as S3 was addressed, Stage 2 began as S1 was addressed, and stage 3 began as SQ2 was addressed. For the most part, the research questions for this study were answered in their sequence once the research problems were

solved. A seeming exception to this rule was that some preliminary descriptions of the case of Pittsburgh were generated during stage 1 of this study before it was known what the revised Machtkreislauf model would look like. For this reason, SQ2 was addressed to a degree before SQ1, as shown in [Table 5.3](#). That being said, it was not until after SQ1 was answered and the revised model was applied to the source materials in stage 2 that a fuller account of the case was developed. SQ2 was therefore not fully answered until SQ1 was answered.



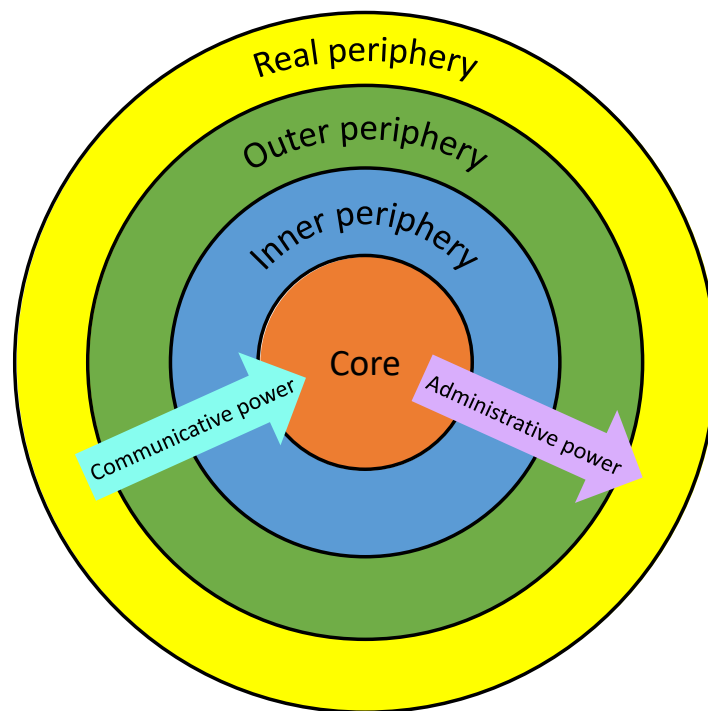
**Figure 5.5. Stages and sequences of this study.**

## 5.2 A REVISED MACHTKREISLAUF MODEL

One objective for this project was to revise the Machtkreislauf model, a general model of the public sphere. Among the various conceptions of the public sphere, the Machtkreislauf model describes politics from a deliberative democratic perspective ([Ferree et al., 2002, pp. 300-306](#)). It was proposed that this model could serve as a new research framework for the study of the public sphere and public libraries, but before this could happen, existing objections to the model had to be addressed. Also, it had to be ensured that the model could accurately describe the case. It was determined that an appropriate way to address the model's outstanding criticisms was to apply the model to an empirical case. Using detailed empirical data, it could be shown what precisely was problematic about the model and in what ways it could be revised. Analysis of empirical data was preferred over speculation. The regional public library system in greater Pittsburgh was selected as the case to use to revise the model. This case was selected for several reasons. First, it was chosen because it is extreme: the Pittsburgh area is well known for its many competing and overlapping governmental units. If the model could be shown to work well when applied to this complex environment, it could potentially work well anywhere. The case was also chosen because it is crucial: if the Machtkreislauf model is to be considered a general model of the public sphere, then it must apply anywhere, including a regional context in the US. The model had not yet been applied to a case on a non-national scale or in a non-European context. Finally, the case was chosen because it is a case of a public library system, and another objective of this study was to understand the historical dynamics of the public sphere and public libraries. This case could be used to accomplish both objectives.

The original Machtkreislauf model described the political system as a set of concentric rings with two forms of power flowing between them (see [Figure 5.6](#)). The innermost ring, or

core, consisted of decision-making bodies such as those in the legislative, executive, and judicial branches of government. The next ring, the inner periphery, consisted of quasi-autonomous agencies that acted as both service providers to the outer periphery and as relays from the outer periphery to the core. The next outer ring, the outer periphery, was the political public sphere, and the outermost ring, the real periphery, consisted of the civil society, media, and economic groups that contributed to the political public sphere. Communicative power originating in the peripheral rings travelled inward through the inner periphery and to the core where it affected formal decisions there. Administrative power traveled outward from the core to periphery. This model is also called the two-track or sluice-gate model. It was developed first by [Peters \(1993, pp. 327-344; 2008\)](#) then elaborated by [Habermas \(1996, pp. 355-356\)](#).



**Figure 5.6. The original Machtkreislauf model.**



The first criticism of this model was by [Forbath \(1998\)](#) who observed that the model failed to incorporate economic power and for that reason could not fully account for political decision making. Examination of the source materials for the case in this study confirmed that economic power was necessary as a type of power in order to account for political decisions. In order to address this flaw, this study added a new form of power—social power—to the revised Machtkreislauf model. Social power was therefore added as a third power type in addition to communicative and administrative power. Social power was divided into two sub-types, and one sub-type was economic power. This addition was made in part to address the objection and also upon examination of source material from the case of Pittsburgh, which showed that economic power was indeed a necessary revision.

The notion that social power and economic power play a role in the public sphere was not new to this study. For example, these forms of power were discussed in the context of the public sphere in [Habermas \(2006\)](#). However, this study was the first to construct a new Machtkreislauf model using social and economic power.

The other sub-type of social power that was added to the revised model in this study was backroom deals. This form of power was not added in response to any previous objection, but because backroom deals was a form of power observed in the source materials of the case. The existing power types of the model could not account for these observations, so backroom deals was added as a second sub-type of social power.

The second objection to the original Machtkreislauf model by [Flynn \(2004\)](#) identified an ambiguity in the concept of communicative power. It was observed that the model did not clearly distinguish between informal and formal types of communicative power. For that reason,

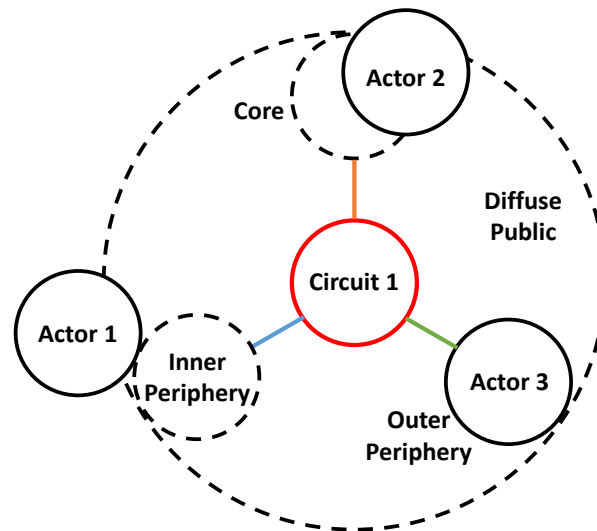
a further distinction was needed. It was also found after examining the source materials from the case of Pittsburgh that a new type of power was necessary in addition to communicative power. A fourth type of power was therefore added: formal decision. Formal decisions refer to votes or legislation that results in a new law or policy. These decisions are made by formal bodies, as in committees, boards, or assemblies. They can also be made by an electorate, as in the case of referenda. Communicative power, by contrast, refers to discursive power generated through discussion that may lead up to and influence decisions. It does not refer to the decision itself. The revised Machtkreislauf model developed in this study therefore incorporated 4 types of power: communicative, administrative, social, and formal decision.

During the development of the coding frame at the beginning of stage 2 of this study, it was found that a more nuanced understanding of these forms of power was necessary. The problem was that some transmissions of power had specific, discernible audiences while the audiences of other transmissions were not altogether clear. In many instances in the source materials, transmissions had a wide class of potential receivers but no specific one. The actor/audience, sender/receiver concepts adopted from [Lasswell \(1948\)](#) and [Shannon \(1948\)](#) that were incorporated into the coding frame as categories could not be effectively applied to the source materials if for each coding segment the audience had to be singular. In order to resolve this dilemma, transmissions were classed into 2 types: narrowcasts and broadcasts. Narrowcasts were transmissions of power whose audiences were single, specific, and identifiable. Broadcasts were transmissions of power whose audiences were identifiable but plural. In cases of broadcasts, the transmissions were cast without full knowledge on the source's part who would receive them. The narrowcast/broadcast distinction was used when coding instances of communicative power and administrative power. The distinction did not apply to formal

decisions because in such instances the details of the decision stated the intended audience. The distinction also did not apply to instances of social power, which included economic power and backroom deals, because no instances were found of social power broadcasts. All instances of social power were therefore narrowcasts.

During the development of coding frame in stage 2, when concept-driven coding categories were developed using the original Machtkreislauf model, another problem was found in addition to those previously identified in existing literature. The problem was that the case did not exhibit a single set of concentric rings with a single core/periphery axis. Instead, the case exhibited multiple cores, multiple inner peripheries, and multiple outer peripheries where actors occupied more than one position. In light of this finding, the single-axis structure of the original model was abandoned, and a new concept was developed to account for the more fluid and complex structure. The new concept that was introduced was a circuit. The circuit concept is similar to the original model because it retains three of the original positions: core, inner periphery, and outer periphery. Like the original model, power flows between these positions, and each of the positions serve the same purposes as in the original. Core actors are the main decision-makers who delegate administrative duties to inner periphery actors and who receive communicative inputs from them. Similarly, outer periphery actors are service receivers who transmit communicative power to the inner periphery and core in order to influence decisions. But the circuit concept also differs from the original model in significant ways. Instead of a real periphery, a circuit has a diffuse public. Diffuse public represents the audience for broadcast transmissions when the receiver is not clearly known. A diffuse public does not send signals, only receive them. Diffuse public contrasts with coalesced public, the type of public that can

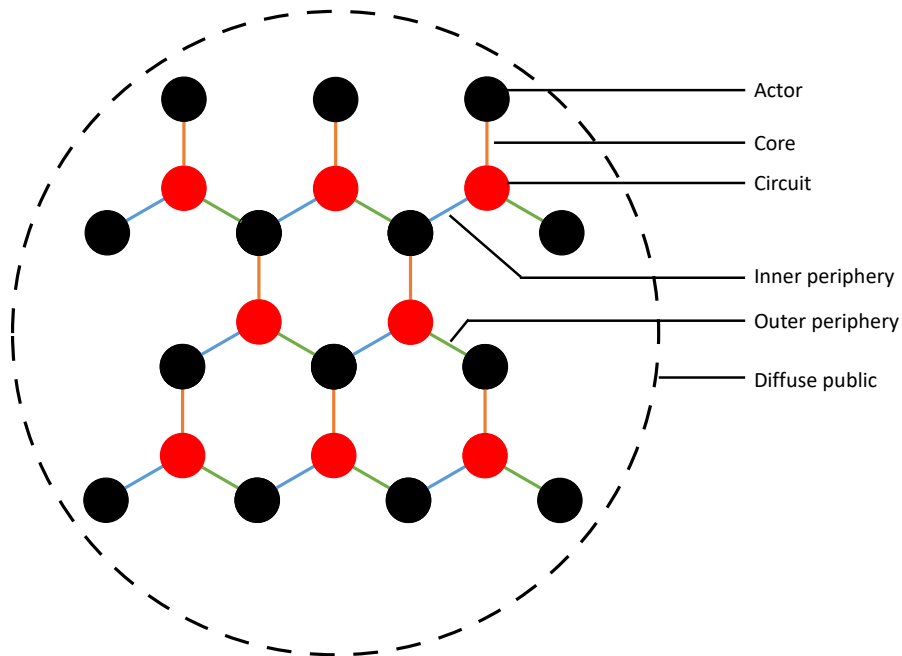
inhabit the outer periphery position and can send and receive signals. This 4-position structure is shown in [Figure 5.7](#).



**Figure 5.7. Circuit concept.**

Besides the new fourth position, the central difference between the original Machtkreislauf model and the circuit concept is that circuits can combine to form larger structures. These larger structures are called tessellations due to the polygonal shapes that are created in the white spaces between them (see [Figure 5.8](#)). In a tessellation, actors can occupy multiple positions in different circuits where they may play different roles. For instance, an actor who occupies the core position in one circuit and receives communicative power there may also occupy the outer periphery position in another circuit where it transmits communicative power. The concepts of circuits and tessellations were developed because it was observed in the case of

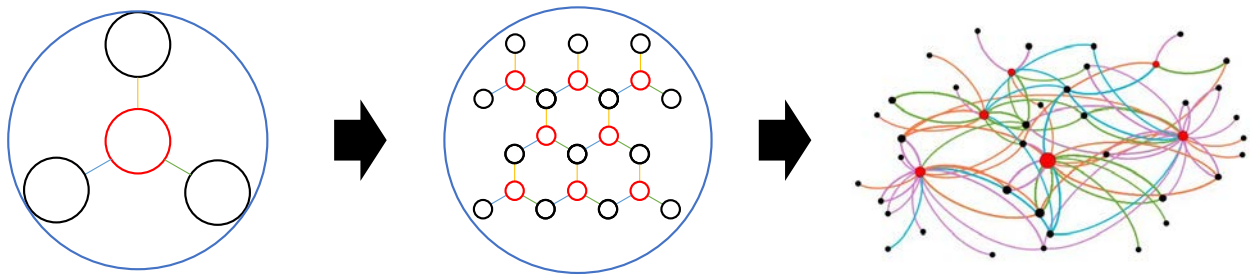
Pittsburgh that more than one set of core/periphery axes existed and that actors occupied different positions and played different roles in these different contexts.



**Figure 5.8. Tessellation concept.**

Using data gathered from the source materials in stage 2, it was possible to construct the tessellations from each period of the case using network visualization tools. The transformation from a single generic circuit structure, to a set of circuits that form a generic tessellation structure, to model of an actual tessellation using data from the case, is shown in [Figure 5.9](#). In these figures, the black nodes represent actors, the red nodes represent circuits, and the edges between actor and circuit nodes represent the positions of a particular circuit. In the data-based

model, the curvature of the edges shows directionality, where power flows between nodes in a clockwise direction.



**Figure 5.9. Transformation from circuit, to tessellation, to model.**

In a further objection to the original Machtkreislauf model, [Baxter \(2011, pp. 177-191\)](#) observed that the distinctions between center and periphery, system and environment were unclear because the terms were not well defined. This objection is accommodated by jettisoning a single center/periphery axis and by adopting the circuit and tessellation concepts. By adopting the 4-position circuit concept in the coding frame of this study, and by imagining that circuits combine to form tessellations, it follows that actors can serve as both system and environment when viewed from different perspectives. According to the revised model, senders and receivers of transmissions occupy positions within a given circuit based on the roles they play and the types of power they transmit. Whether an actor is considered in or out of a system—in or out of a circuit—at a particular moment is determined by that actor's relationship to its audience. The new model was developed in such a way that individual actors can be both system and environment simultaneously. While inhabiting the core position of one circuit, for example, an

actor is part of that circuit's system. While inhabiting the outer periphery of another circuit, the same actor is part of that circuit's environment. According to the new model, whether an actor is inside a system or not is less important than the relationship that actor shares with its audience.

## **5.3 A THEORY OF THE PUBLIC SPHERE AND PUBLIC LIBRARY DEVELOPMENT**

### **5.3.1 Theory overview**

Stage 3 of this study constructed a theory of how the public sphere affected the development of the regional public library system in greater Pittsburgh. The theory offered an explanation for why the case evolved as it did, from its beginnings in the 1920s to the current moment in 2016. The theory was developed to explain the case particular to this study, but it may also apply to other cases beyond that of Pittsburgh. To determine whether the theory applies beyond the case of Pittsburgh, the theory must be tested in other contexts using data from other cases.

The result of stage 3 is considered a theory both because of how it was developed—its process—and because of how it works epistemologically. The explanatory theory is a kind of knowledge that takes the form of a rule. The rule is designed to account for an observed set of facts. Substituting the term *hypothesis* for *theory*, [Peirce \(1934, 189\)](#) explains what a theory is, how it is formed, and the kind of epistemological work it does:

Long before I first classed abduction as an inference it was recognized by logicians that the operation of adopting an explanatory hypothesis — which is just what abduction is — was subject to certain conditions. Namely, the hypothesis cannot be admitted, even as a

hypothesis, unless it be supposed that it would account for the facts or some of them. The form of inference, therefore, is this:

The surprising fact, C, is observed;

But if A were true, C would be a matter of course,

Hence, there is reason to suspect that A is true.

Thus, A cannot be abductively inferred, or if you prefer the expression, cannot be abductively conjectured until its entire content is already present in the premiss [sic], "If A were true, C would be a matter of course."

Following Peirce's definition of a theory, a theory is conjectured through an abductive inference—an inferential leap—from an observed set of facts to a rule that might explain them. If the rule stated by a theory is true, then the facts follow as a matter of course. Just as Peirce notes, the theory in stage 3 was developed just this way, that is, abductively, by imagining what rule might account for the facts of the case of the regional public library system in Pittsburgh. Epistemologically, the theory was designed to explain why the case evolved as it did.

To construct the theory, the method of qualitative comparative analysis was used first to establish either positive or negative outcomes for each period in the case, then to identify the necessary and sufficient conditions in each period that may have caused each outcome. Positive outcomes were established for periods where significant change occurred. Significant change was measured both qualitatively and quantitatively. Quantitatively, change was a function of high implementation ratios. Negative outcomes were established for periods that exhibited continuity and low implementation ratios. The rationale for the threshold to distinguish high from low ratios was explained in stage 3. For the 9 total periods in the case, 6 were found to exhibit positive outcomes, and 3 were found to exhibit negative outcomes. The case of



Pittsburgh was an ideal one for the qualitative comparative method because positive- and negative-outcome periods could be compared. In other words, it was possible to see not only what caused changes but also what did not.

Configurations of 4 conditions were found to explain the outcomes for each period. These conditions were civil activity, responsiveness, legitimacy, and resistance. These conditions were tried and tested based on reasonable assumptions and in light of the case data. The conditions were said to be either present or absent in each period. The presence or absence of each condition was measured qualitatively through case knowledge and quantitatively using data and by establishing reasonable thresholds. Civil activity was selected as a possible causal condition because of the strong presence of pro-change civil society actors in some periods with positive outcomes. Responsiveness was selected as a possible causal condition because it seemed reasonable to conclude that positive outcomes would obtain in periods where successfully legitimated communications were also implemented. Legitimacy was chosen as a possible causal condition because it seemed reasonable that changes would occur during periods where many communications were successfully legitimated. Resistance was selected as a possible causal condition because it was observed that some periods that exhibited no change also exhibited a high rate of objections. Configurations of these conditions, together, were found to adequately explain in a non-contradictory way why some periods exhibited positive outcomes and other negative outcomes.

The resulting theory from stage 3 is as follows: high responsiveness, together with either high civil activity, high legitimacy, or low resistance, was found to be the causal configuration sufficient to explain the positive outcomes in 6 of the periods. High responsiveness was found to be a necessary condition for positive outcomes. Conversely, it was found that either low

responsiveness or low civil activity, low legitimacy, and high resistance were sufficient causal configurations to explain the negative outcomes in 3 of the periods. These two causal laws that constitute the theory of the public sphere and public libraries are written in formal notation in the following way:

$$\text{RESPONSIVENESS} * \left\{ \begin{array}{l} \text{CIVIL ACTIVITY} \\ \text{LEGITIMACY} \\ \text{resistance} \end{array} \right. \rightarrow \text{SYSTEM CHANGE}$$

$$\text{responsiveness} + \text{civil activity} * \text{legitimacy} * \text{RESISTANCE} \rightarrow \text{system change}$$

The various causal configurations and their outcomes can also be visualized using a Venn diagram, as in [Figure 5.10](#). The 9 observed periods in the case are labeled period 1, period 2, etc. Green areas represent positive outcomes, and red areas represent negative outcomes. The areas labeled hypo A, hypo B, etc. represent logical remainders whose causal configurations were not observed in this study. The theory developed in this study therefore makes predictions about the outcomes and causal configurations of these hypothetical scenarios. The theory can be tested by observing whether these hypothetical scenarios actually obtain as predicted.

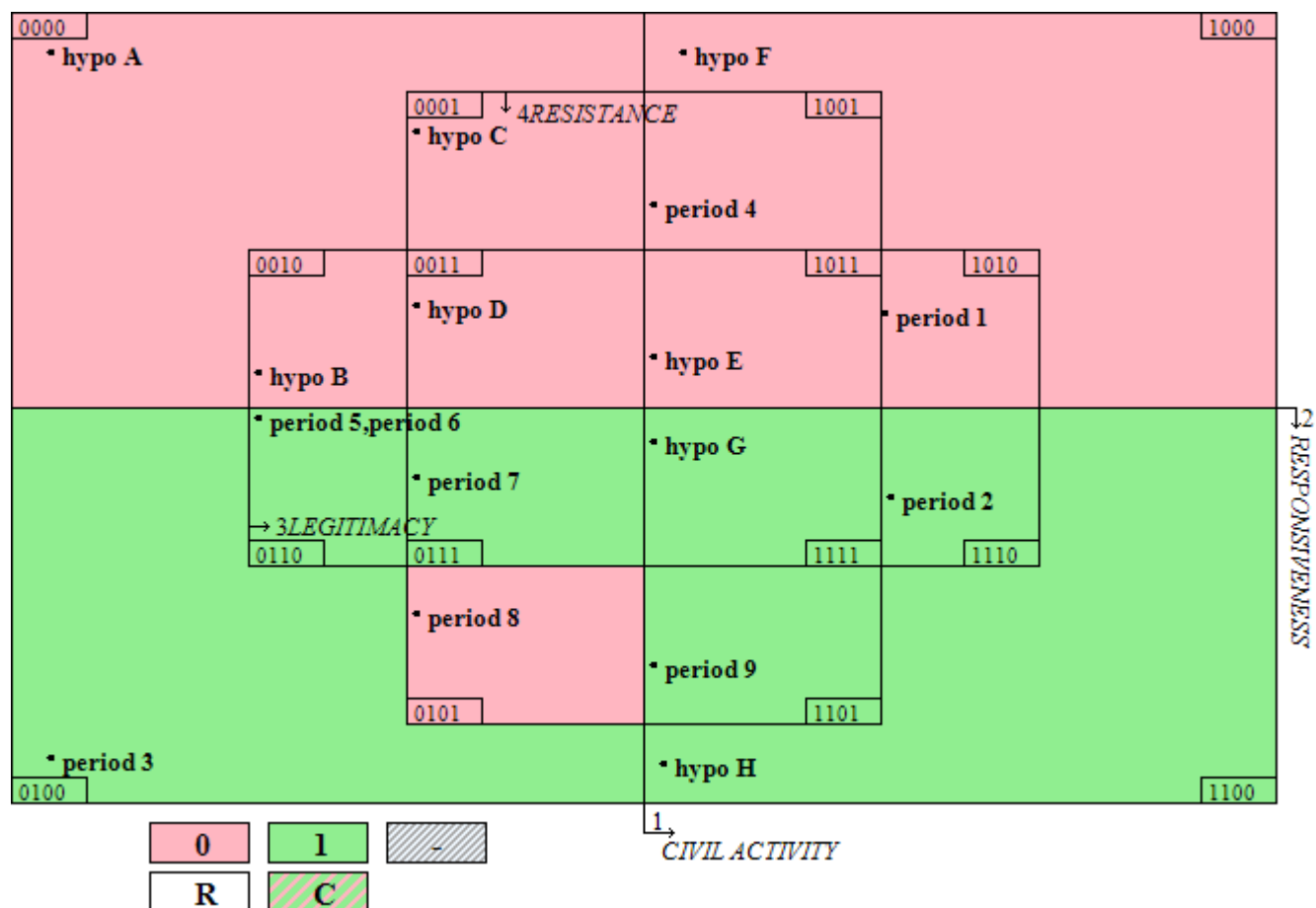


Figure 5.10. Venn visualization of the theory of public sphere and public library development.

### 5.3.2 Situating the theory within relevant literature

The theory of the public sphere and public library development presented in this study relates to existing areas of research within the library studies field. The purpose of this section is to situate the theory presented in this study to this existing literature. The theory is situated within two areas of research: 1) literature related to the public sphere and public libraries, and 2) classical library development theories.

**5.3.2.1 The public sphere and public libraries.** Literature about the public sphere and public libraries is literature that uses the public sphere concept, implicitly or explicitly, to understand public libraries. A partial list of works in this area is found in [Appendix A](#). [Widdersheim and Koizumi \(2016a\)](#) and [Widdersheim \(2015a\)](#) distinguished 3 facets of this literature, each corresponding to an arena of public sphere discourse: *governance*, where the public library is the receiver of communication about library services; *legitimation*, where support for the library is the topic of communication among politicians and citizens; and *commons*, where the library is the medium of communication for its users. The public sphere theory about public library development that was presented in this study relates to the first two arenas, governance and legitimation. Governance and legitimation arenas are interrelated and in some cases overlapping. This is because the reasons stakeholders give for legitimating libraries may be received by libraries, thereby affecting their governance decisions. Studies of legitimation therefore include studies of why and through what processes people support libraries, while studies of governance include studies of how library organizations respond to, or align with, outside signals, including legitimation claims.

Several works have studied the governance arena of public libraries, especially regarding processes of innovation, change, and continuity in library organizations. Core works in this area include [Boyd \(1979\)](#), [Pungitore \(1995\)](#), [Sturges \(1996\)](#), [Audunson \(1996, 1997, 1999\)](#), [Newman \(2007\)](#), and [Audunson and Evjen \(2017\)](#). These studies examined management in libraries that faced external public sphere pressures. This area of research is largely case-specific and idiographic. There is no comparable explanatory and predictive theory like the one presented in this study. The nomothetic, explanatory theory presented here therefore offers future studies related to the governance arena of public libraries a framework to further test and explore. The

theory operates at a sufficient level of abstraction to apply to contexts that may differ in terms of culture or organization. The theory could be used to supplement existing approaches. [Audunson \(1996, 1999\)](#), for example, used cross-case comparison and an institutional perspective to understand change processes in public libraries in Oslo, Budapest, and Gothenburg. The public sphere theory presented here that incorporates the conditions of civil activity, responsiveness, legitimacy, and resistance, as well as outcomes related to implementation, could be used in a rule-like way to potentially explain similarities and differences in the 3 cases. At the same time, concepts from institutionalism could be used to identify and describe causal mechanisms in depth. The theory presented here therefore offers a supplemental view to the study of governance arenas.

Works that have studied the legitimation arena of public libraries include [Usherwood \(1993, 1994\)](#), [Smith and Usherwood \(2003\)](#), [Kann-Christensen and Pors \(2004\)](#), [Audunson \(2005a\)](#), [Evjen and Audunson \(2009\)](#), [Evjen \(2015\)](#), and [Ingraham \(2015\)](#). Like the literature related to the governance arena, this literature also has no comparable nomothetic knowledge. The general explanatory theory presented here can therefore be applied to and tested in studies related to legitimation processes of public libraries. In studies of politicians' perceptions of public library building projects and public library closings, such as those by [Ingraham \(2015\)](#) and [Evjen \(2015\)](#), the theory of the public sphere presented here could be used in conjunction with an institutional perspective to explain why some libraries were built and others were closed.

**5.3.2.2 Classical theories of library development.** The attempt to construct an explanatory theory of public library development is not new to library studies or library history. [Williams \(1981, 1984\)](#), for example, identifies 4 categories of explanatory theories for public library development, where development for him means libraries' establishment or growth. The 4 types

of theories are: social conditions, democratic tradition, social control, and influence of libraries and librarians. For the purposes of this study, these 4 types of theories constitute the *classical* theories of library development because they are found in the classic, central works of library history.

[Williams \(1981, 1984\)](#) associates social conditions theory with [Garrison \(1979\)](#), [Shera \(1965\)](#), [Ditzion \(1947\)](#), [Lee \(1966\)](#), [Murison \(1971\)](#), [Hassenforder \(1968\)](#), [Jackson \(1974\)](#) and [E. D. Johnson and Harris \(1976\)](#). The social conditions theory maintains that public libraries were established and grew as the result of multiple social factors, including economics, literacy, urbanization, education, and industrialization. [Williams \(1986\)](#) tests the social conditions theory using multiple regression, and he finds some correlations between library development, education, and economic ability, as well as between library development, urbanization, industrialization, and literacy. Accounts of the social conditions theory are criticized by [Williams \(1981\)](#) who says they fail to offer a full explanation for why the variables cause library development, the conditions are not distinguished according to importance or order, and empirical evidence in support of social conditions theory is weak.

The next category of classical theories is democratic tradition. [Williams \(1981, 1984\)](#) attributes this theory to [Ditzion \(1947\)](#), [Lee \(1966\)](#), and [Garceau \(1949\)](#). Democratic tradition theory maintains that public libraries were established and grew due to the growth in democracy. Generally, this category of theory supposes that citizens required information resources in order to fully participate in democratic culture, and to fulfill this need, public libraries were formed to provide the resources. Again, [Williams \(1981\)](#) criticizes proponents of democratic tradition theory for failing to offer an adequate definition of what democracy is, and also for confusing the real with an ideal. In other words, it is said that democratic tradition is a creation myth. Some

public sphere literature that was not published at the time of [Williams \(1981\)](#) but that might be said to fall under the category of democratic tradition is [Emerek and Ørum \(1997\)](#), who track the rise of public libraries and the public sphere in Denmark, [Schuhböck \(1983, 1994\)](#), who charts the growth of public libraries and the public sphere in Germany, and perhaps [Vestheim \(1997b\)](#), who notes a relationship between public library development and Enlightenment ideals in Norway.

The third classical theory category is social control. [Williams \(1981, 1984\)](#) associates this theory with [Wellard \(1940\)](#), [Harris \(1973, 1976\)](#), [Harris and Spiegler \(1974\)](#), and [Garrison \(1979\)](#). According to this theory, public libraries were established by wealthy capitalists in order to control the masses, reform them, and maintain class distinctions. As [Williams \(1981\)](#) notes, social control theory has been criticized by [Dain \(1975\)](#) and [McLeod \(1968\)](#) because it is too simple, it is an overgeneralization, and it faces many counterexamples.

The final classical category, the influence of libraries and librarians, is attributed by [Williams \(1981, 1984\)](#) to [McMullen \(1976\)](#), [Downs \(1976\)](#), and [W. L. Williamson \(1963\)](#). This theory is largely conjectural but has some empirical evidence.

Among the 4 classical categories of theories, the theory of the public sphere and public library development that is presented in this study most closely resembles social conditions theory. Like social conditions theory, the theory of the public sphere presented here uses 4 conditions—civil activity, responsiveness, legitimacy, and resistance—to explain why libraries do or do not exhibit changes over time. The theory presented here sidesteps the objections leveled against social conditions theory because the theory in this study was developed using a rigorous, intra-comparative, and empirically-based method where a general causal formula was presented and causal mechanisms were identified and described. In terms of the importance or

order of the 4 conditions, it was found that responsiveness is a necessary condition for system change.

There are also important differences between the social conditions theory presented above and the theory of the public sphere presented in this study. First, the public sphere is a feature of social life that was overlooked in the traditional social condition theories mentioned above. It is therefore a new perspective. It might also be said that a public sphere perspective represents an innovation within the genre of social conditions theory. This is because a public sphere perspective offers expanded explanatory potential. It can be used to understand public library developments beyond just establishment and growth. The public sphere theory presented here is used to understand not just establishment and growth, but also any kind of change in a public library system, including system continuity and system failure. The theory presented here therefore potentially explains more about public library developments than previous social conditions theories. In the case used in this study, for example, existing social conditions theories could not have explained why a new system was established in period 2 but not period 1. This is because conditions like education, industrialization, and urbanization did not significantly change in those periods. Previous social conditions theories also could not have explained why period 3 in the case exhibited a substantive system change but period 4 did not, or why the system witnessed the passage of standards in period 9 when in period 8 the formula revisions failed. This is because these changes were the result of political processes that were not accounted for in previous theories. The public sphere theory presented here therefore offers a more robust explanatory account of public library development because it focuses on a new aspect of libraries—the public sphere—and because it dilates the meaning of development to include any type of substantive change, including but not limited to establishment and growth.



How successful is the theory presented here compared to classical theories? [Williams \(1984, p. 1\)](#) states that “any viable theory of library development should have the potential to explain both the level of library development in a given social system at a particular time and the determinants of change in library development from one period to the next.” Previous theories did not fully meet this standard, for reasons already mentioned. But by this standard, the theory of the public sphere and public library development presented here has been proven successful: it explains what caused changes in library development from one period to the next. It did this by focusing on the public sphere aspects of a given social system. The theory also predicts outcomes and conditions for hypothetical scenarios that were not observed. The theory can therefore be tested and revised. It seems that the *level* of library development must be defined within the context of a specific case or set of cases, but this does not preclude the theory presented in this study from explaining what causes or prevents a library to reach a new level. The theory is itself not tied to a particular context.

#### **5.4 A HISTORICAL ACCOUNT OF THE REGIONAL PUBLIC LIBRARY SYSTEM IN GREATER PITTSBURGH**

The conceptual definition of the case for this study was *discourse related to the regional public library system in the greater Pittsburgh area*. At the beginning of this study, little was known about the case. Though it was known that spatially the case was bounded more or less by Allegheny County, it was not known when the case began, who the main actors were, what the case’s structure was, or in what ways the case developed. Answers to these basic questions had to be clarified during the research process. These preliminary questions about the case were

addressed in stage 1 through source collection and analysis. Several types of sources were gathered from sites in Pittsburgh, including documents and records from local archival collections, interviews with key informants, and first-hand observations of public sphere contexts related to the case. More detailed and quantitative data about the case was later gathered in the second stage of this study when the coding frame was developed using the source materials and the source materials were then systematically analyzed using the frame.

It was found that the case began on June 16, 1924 when members of the Public Library Committee of the Civic Club of Allegheny County first proposed an extension of services from the Carnegie Library of Pittsburgh into communities beyond city limits. Together with the Civic Club, other civil society groups including the Parent-Teachers' Association and the Federation of Women's Clubs pressured the County Commissioners for a county-funded library system to serve rural areas. While this earliest movement toward a countywide system failed, it was clear from the case's beginning that the development of the regional system was intricately connected to public sphere activity. Civil society groups used several public sphere contexts, including mass media outlets, community meetings, and meetings with County decision-makers, to influence the formal decision process. Eventually, in 1956, a county system was established, and it gradually grew and changed during the course of the 92-year span from 1924 to 2016. The case continued nearly throughout the second half of the 20th century and into the 21st century.

Existing literature about Pittsburgh history, regional infrastructure in Pittsburgh, and library history overlooked the case of a regional library system in greater Pittsburgh. [Lubove \(1995, 1996\)](#), for example, provided an in-depth account of Pittsburgh in the 20th century, one that revealed the underlying political themes in Pittsburgh and explained the larger context of the case of the regional public library system, including its impetus and its key actors. That said, the

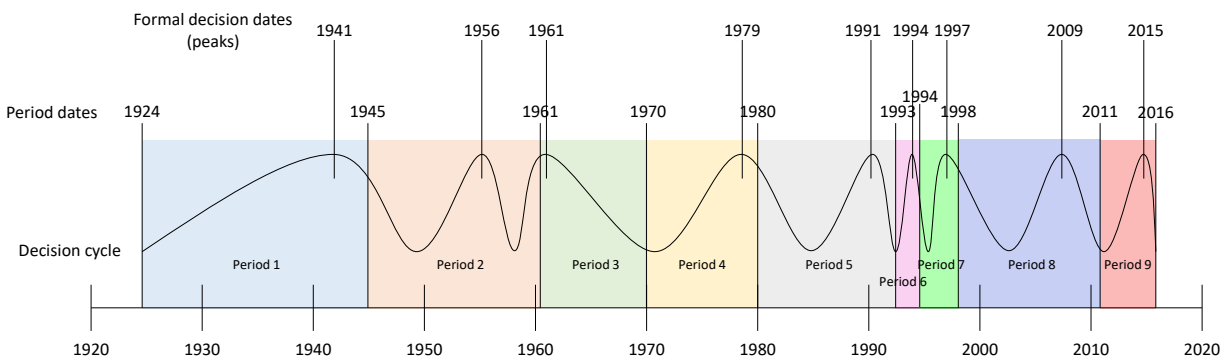
account did not discuss libraries. Similarly, in his account of infrastructural development in the Pittsburgh area in the 19th and 20th centuries, [Tarr \(1989, p. 219\)](#) narrowly confined his analysis to “streets, water, and sewers”—the physical and material infrastructures of the city. For this reason, he overlooked symbolic and cultural infrastructures of city-building such as the regional public library system. Another history of Pittsburgh by [Lorant \(1964, pp. 410-411\)](#) briefly mentioned only the Carnegie Library of Pittsburgh, not the regional system.

There are a number of individual public libraries in the greater Pittsburgh area, and there are of course records at each of these libraries that recount how the individual libraries came to be. In the case of the Carnegie Library of Pittsburgh, for example, [Ralph Munn \(1970\)](#), the library director there from 1928 to 1964, authored an unpublished history of the city libraries. The account offered some details about CLP’s role in the larger county system, but the focus of the history was the city library system. Numerous reports about a federated, regional library system were also published since 1950, but no account offered a coherent history of the system’s development, especially not one from a public sphere perspective. One objective of this study, therefore, was to find and piece together these disparate fragments of the regional public library system in order to create coherent picture of the case.

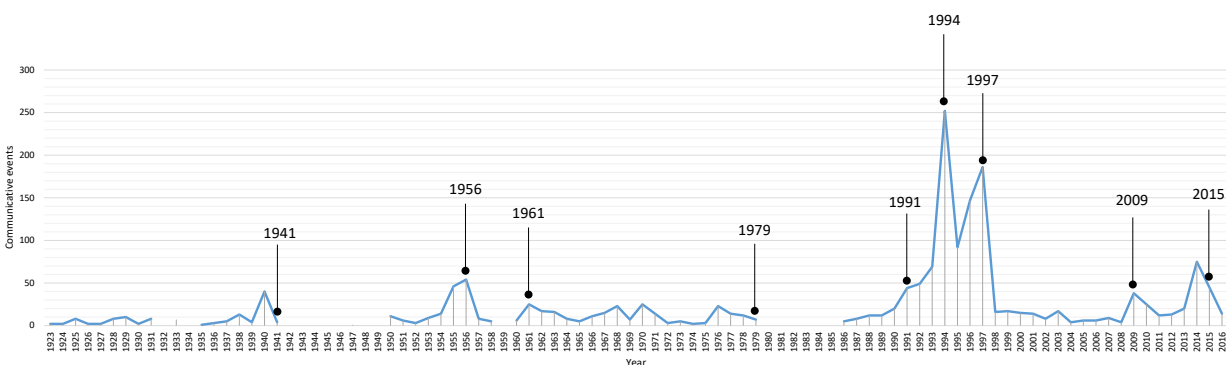
#### **5.4.1 Decision cycles**

This study found that the case of the regional public library system in Pittsburgh exhibited 9 distinctive periods of activity. These periods were identified and distinguished using the concept of a decision cycle: a gradual build-up of public sphere activity leading to a peak or threshold where a key decision was made, and with that key decision a policy or structure was implemented. Sometimes these key decisions resulted in changes to the case; other times the

decision resulted in no significant change. Using the concept of a decision cycle, each iteration of the decision cycle marked a distinctive period. Over time, these cycles combined to form a wavelike pattern. The decision cycles and their corresponding periods and critical decision points are visualized in [Figure 5.11](#). Each period in the case includes a single cycle and its critical decision. In [Figure 5.12](#) it can be seen that critical decisions in each period roughly correspond to peaks of communicative activity.



**Figure 5.11. Decision cycles of the case.**



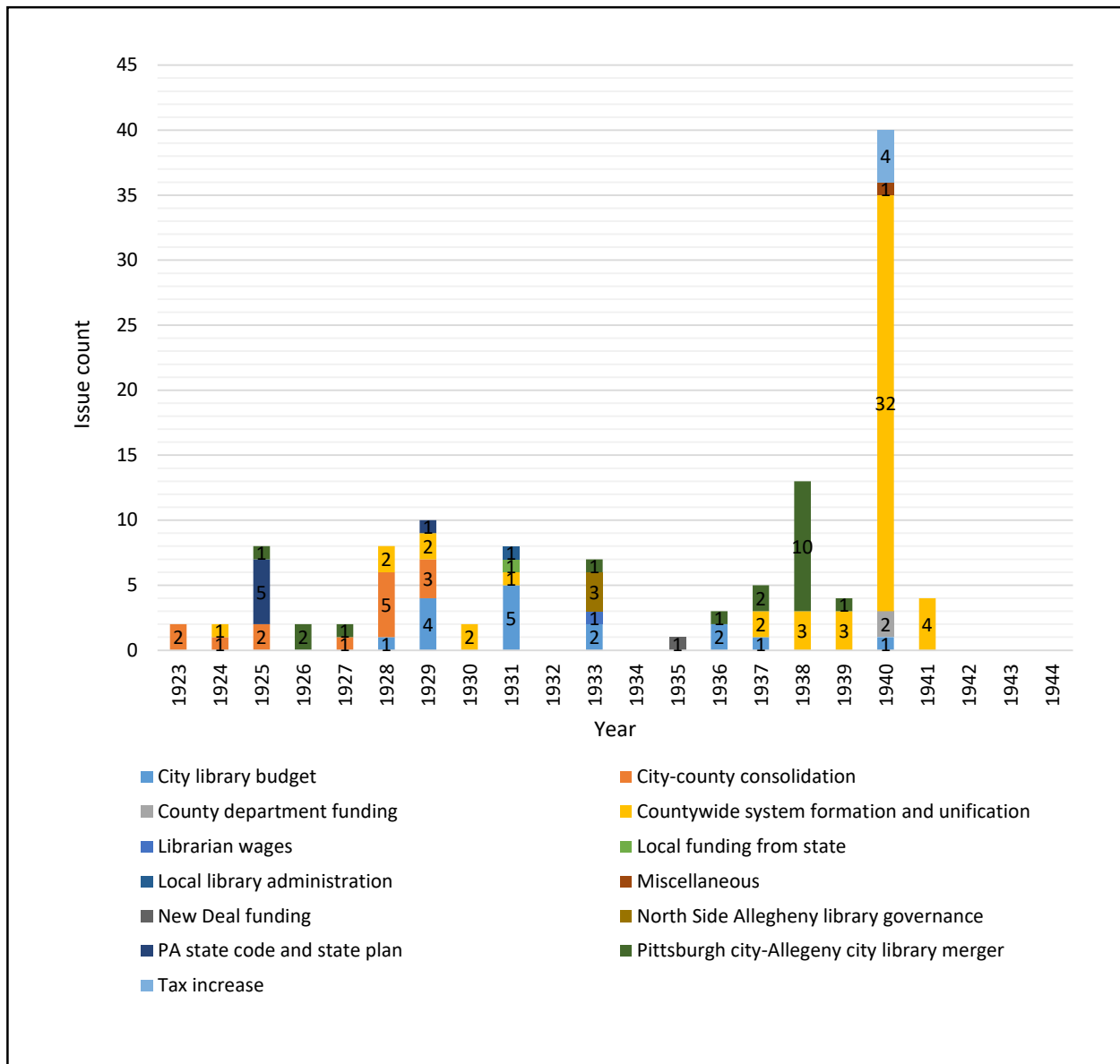
**Figure 5.12. Critical decisions and communicative activity over time.**

### **5.4.2 Periods 1 and 2**

Period 1 began in 1924 when members of the Civic Club's Public Library Committee first proposed that the Carnegie Library of Pittsburgh supply library services to teachers, students, and communities in rural areas outside the city. The Civic Club together with other civil society groups formed a coalition that petitioned the County Commissioners to fund the library system. Though it was not without its detractors, the movement gathered strength throughout the 1920s and 1930s. During this same time, the Civic Club and the director of the Carnegie Library of Pittsburgh, Ralph Munn, petitioned Pittsburgh City Council to merge the then-separate Carnegie Free Library of Allegheny on North Side with the city's Carnegie library system. The Civic Club sponsored community meetings related to the formation of a unified county system, and it also wrote letters and attended County Commissioner meetings to lobby their views.

In the background during this time were discussions at the state and county levels to merge city and county governmental units to form a single metropolitan unit. Proponents of metropolitanism saw the many small and autonomous units of government in the greater Pittsburgh area and sought to combine them to make governance more manageable and more efficient. The Civic Club led this effort just as it did the movement for the regional public library system. In 1929, the local autonomists succeeded and metropolitanism was defeated in a county referendum. Had city and county merged, a regional public library system would have likely been created. Instead, local libraries continued to operate autonomously within their own municipalities. This failure of metropolitanism in period 1 greatly affected government and politics in the region for the rest of the 20th century.

With respect to the case of the regional public library system, the critical, formal decision point of period 1 happened in 1941 when the County Commissioners rejected calls to fund a county system. This critical decision for the period occurred in a denouement following a spike in communicative activity. The overwhelming issue in period 1 was countywide system formation and unification, which was the issue in 52 out of 121 communicative events in this period's sample of documents (see [Figure 5.13](#)). The predominant actor in period 1 was the Civic Club, and the most frequent audiences were broadcasts to Allegheny County residents and narrowcasts to the Board of County Commissioners. The most active circuits during this period were the Civil Society, County, state, and Pittsburgh city. The end of period 1 coincided with the end of the Second World War in 1945 because war spending and the focus on domestic war efforts formed an interlude in political actions related to the development of a regional library system.



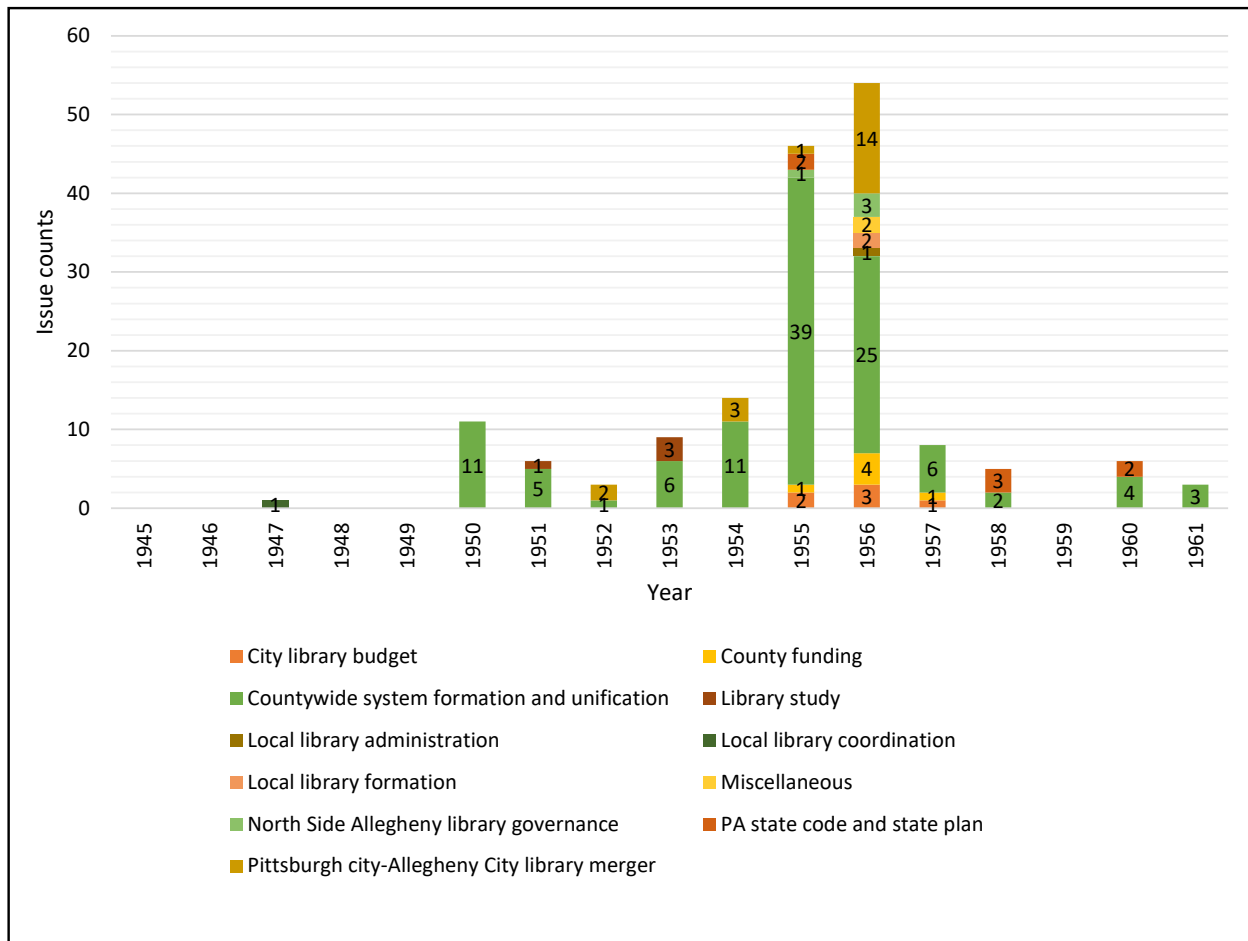
**Figure 5.13. Issues counts for period 1.**

Following the close of World War II, period 2 began in 1945 when local civil society groups and Ralph Munn of the Carnegie Library of Pittsburgh revisited efforts to form a more unified regional public library system. Many of the same actors from period 1 reappeared in period 2. In 1950, the Civic Club worked with Ralph Munn and the Allegheny Conference on

Community Development to carry out a survey of public library services in the county. In 1955, Munn authored another library survey under the auspices of the Metropolitan Study Commission, the second of its kind since the failed efforts in 1929. A new civil society group formed out of the Allegheny County Council of Parent-Teachers' Associations: the Library Planning Committee of Allegheny County. This separate group was dedicated solely to agitating for a county-funded system. In 1956, the Library Planning Committee, together with Munn, met with the County Commissioners to again to propose a county-funded system. This time, the commissioners agreed. In 1956, free lending privileges at the Carnegie Library of Pittsburgh were granted to all county residents, a bookmobile service was initiated for areas outside the city, the Carnegie system began inter-library loan services with other county libraries, and the Carnegie system began to offer centralized cataloging and purchasing services for county libraries. The same year, the Mayor and City Council of Pittsburgh approved the merger between the old Carnegie Free Library of Allegheny on the North Side with the city's Carnegie Library of Pittsburgh system. Period 2 therefore exhibited a positive outcome in terms of system change. The period lasted until 1961 when the new state library code was implemented.

Like period 1, the overwhelming issue in period 2 was countywide system formation and unification (see [Figure 5.14](#)). The Library Planning Committee replaced the Civic Club as the most prevalent actor. The most frequent audiences in period 2 were broadcasts to Allegheny County residents, and narrowcasts to the Metropolitan Study Commission and the Board of County Commissioners. Most activity in period 2 took place within civil society and county circuits.





**Figure 5.14. Issue counts in period 2.**

Period 1 and period 2 shared many of the same conditions but exhibited different outcomes (see [Figure 5.15](#)). The similar conditions were, first, an active pro-change civil society movement. In period 1, this movement was led by the Civic Club, and in period 2 it was led by the Library Planning Committee. Both groups worked closely with Ralph Munn, and both groups targeted the same core bodies, which were the County Commissioners, City Council, and the Mayor. The next shared characteristic was legitimacy. In both periods, a high percentage of communicative events were legitimated either through discussions or consensus. And finally,

both periods were absent high ratios of resistance, meaning that few of the events overall faced objections. Nevertheless, period 1 exhibited low implementation success and period 2 exhibited high implementation success. This meant that many more of the communicative events in period 2 proposed issues that were also implemented. This meant that period 2 had a positive outcome whereas period 1 had a negative outcome.

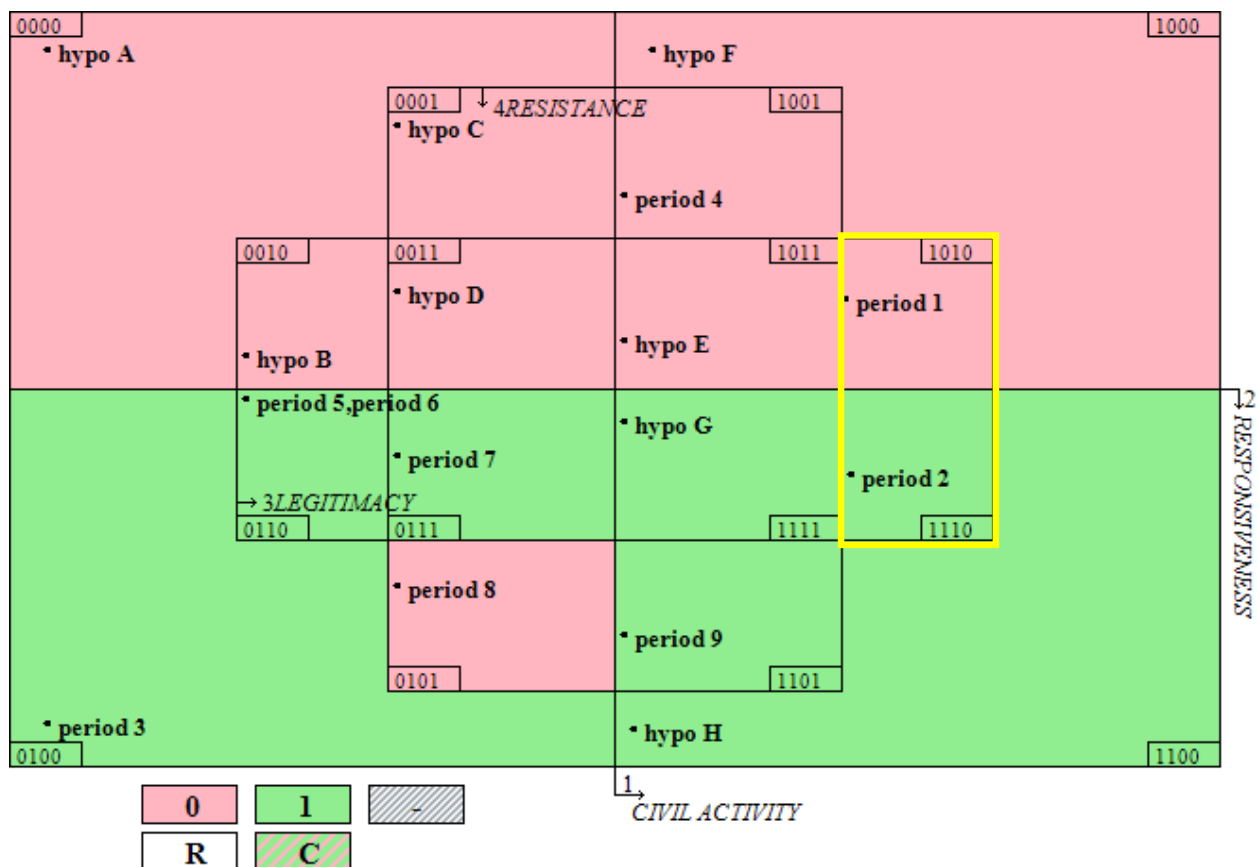


Figure 5.15. Comparison of periods 1 and 2.

Given the abundance of shared conditions of periods 1 and 2, what was the key difference that caused the different outcomes? The central, salient difference between the two periods was responsiveness. Period 2 evidence high responsiveness whereas period 1 did not. The high responsiveness in period 2 meant that during the period more issues that were legitimated either through discussion or consensus were also implemented.

This explanation of the different outcomes of the two periods is based on the rule developed in stage 3 of this study, namely that high responsiveness is a necessary condition for a positive outcome. High responsiveness, together with either high civil activity, high legitimacy, or low resistance, create a configuration of conditions that is sufficient for system change. This general law, however, still needs interpretation. The general causal *law* that responsiveness is necessary for system change does not elucidate a causal *mechanism*. A further description of the causal mechanism in periods 1 and 2 that is responsible for their respective outcomes is therefore required in order to develop a more satisfying explanation for why period 1 failed to produce a positive outcome while period 2 succeeded. What was the nature of high and low responsiveness in these two very similar contexts?

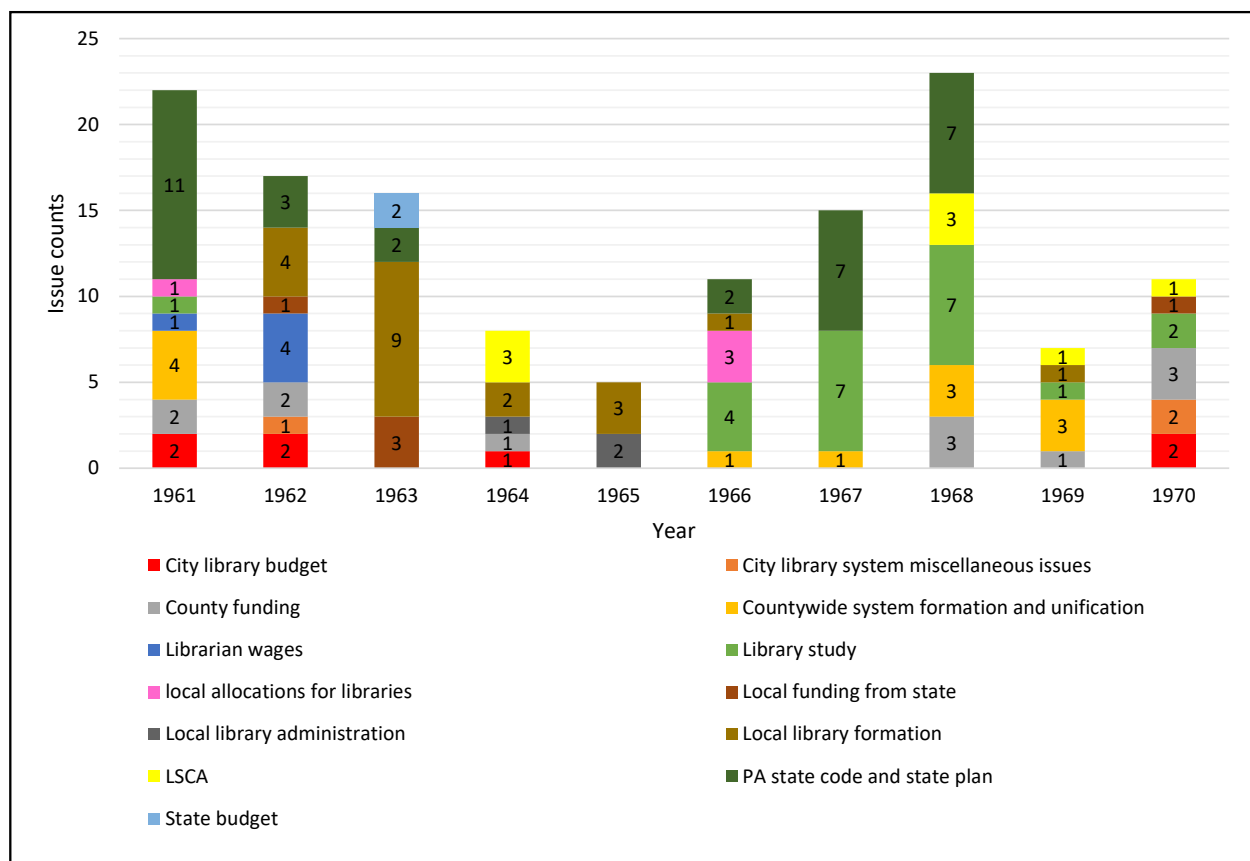
In light of the similar actors, issues, and audiences for periods 1 and 2, and absent other discernible differences in the case, it seems that different *qualities* of either the actors, audiences, or messages may explain the different outcomes. Though this analysis of causal mechanisms can only remain speculative, there were some different qualities in the audiences in period 2 compared to period 1 that may explain the different levels of responsiveness and therefore the different outcomes. Period 2, for example, saw a new mayor, David L. Lawrence, as well as the first woman city council member in Pittsburgh, Irma D'Ascenzo, who proposed to council that the old Allegheny library merge with the Carnegie system. Though the constitution of the

County Commissioners did not change dramatically—periods 1 and 2 both had 2-Democrat 1-Republican makeup, led by the same chairman, John J. Kane—in period 2, commissioners saw a post-war increase in population in the suburbs of Pittsburgh. Perhaps the message of a regional library system more clearly resonated with them in 1956 compared to a Depression-era and pre-war environment in period 1. The precise causal mechanism that led to higher responsiveness in period 2 compared to period 1, and subsequently led to a positive outcome in period 2, is likely to be found in the complex circumstances related to the core decision-makers of the city and county circuits. Further speculation on the mechanisms of high and low responsiveness in periods 1 and 2 are beyond the scope of this case study.

#### **5.4.3 Periods 3 and 4**

Periods 3 and 4 of the case marked a significant change in the case compared to periods 1 and 2 because in periods 3 and 4 local grassroots civil society groups were no longer the driving force of substantive changes. Period 3 was marked by, instead, a shift to implementations from within the state circuit. The movements for these changes began late in period 2 with the Martin study and plans for a new state library code. Period 3 began in 1961 at the point of its critical decision when the new state library code was passed by the Pennsylvania General Assembly and signed by the governor. The code implemented a new library system across the state that included units called library districts. Carnegie Library of Pittsburgh became a district library, and in this new state-funded role, it was responsible for offering consultation and reference services to other local libraries. The district library roles were therefore added to its already existing city and county responsibilities.

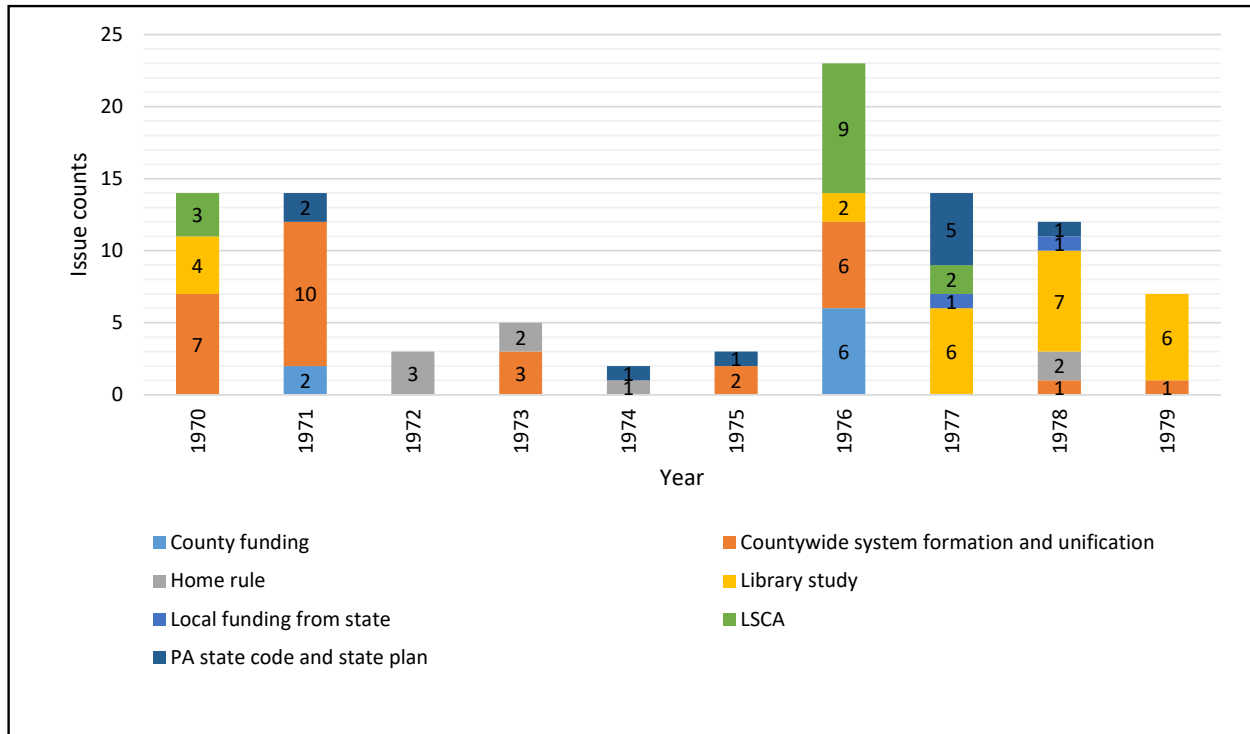
The most prevalent issue in period 3 was the new state code and state plan (see [Figure 5.16](#)). The three predominant actors in period 3 were the Pennsylvania state library, the Board of County Commissioners, and district services of the Carnegie Library of Pittsburgh. The most-targeted audience during period 3 was the Carnegie Library of Pittsburgh, including its district services, county services, and city library services. Communicative activity overwhelmingly occurred within the state circuit as the new district library system materialized.



**Figure 5.16. Issue counts for period 3.**

By the start of period 4 in 1970, the state library system that had been established in period 3 had already taken hold. Some state-driven initiatives, such as the Blasingame study of 1970 and Library Services and Construction Act funding, continued to impact the regional Pittsburgh libraries. Period 4, however, was marked by a return to a concern with restructuring the library system in the Pittsburgh region. A citizen's study on the libraries was carried out from 1976 to 1978 by several actors, including the Carnegie Library of Pittsburgh, the County Commissioners, the state library, and civil society actors related to groups active in period 2. The citizen's study failed to resolve the perceived deficiencies in the existing library system, and instead exacerbated existing tensions that had arisen between the Carnegie Library of Pittsburgh and district libraries since the state plan had been implemented. The multilateral study met with internal divisions and strife. The key decision point for period 4 came in 1979 when the County Commissioners did not act on the findings of the study.

The predominant issue in period 4 was countywide system formation and unification, the same issue that characterized periods 1 and 2 (see [Figure 5.17](#)). The most frequent actors in period 4 were the state library, the Board of County Commissioners, Carnegie Library of Pittsburgh county services, and the senior associate director at Carnegie, Donald C. Potter. The most prevalent audience in period 4 was the Board of County Commissioners. Most activity occurred within the county and state circuits.



**Figure 5.17. Issues counts for period 4.**

Despite the differing levels of civil society activity in period 3 and period 4, in neither period did grassroots civil activity lead to substantive system change (see [Figure 5.18](#)). Neither period 3 nor period 4 had high legitimacy, meaning that in both periods there was a low ratio of communicative transmissions that were legitimated through discussions and consensus. Period 3 proves that high legitimacy is not a necessary condition for system changes so long as what legitimate transmissions are there are also implemented. In period 3, state actors carried out substantive changes instead of civil society actors, which is a departure from period 2.

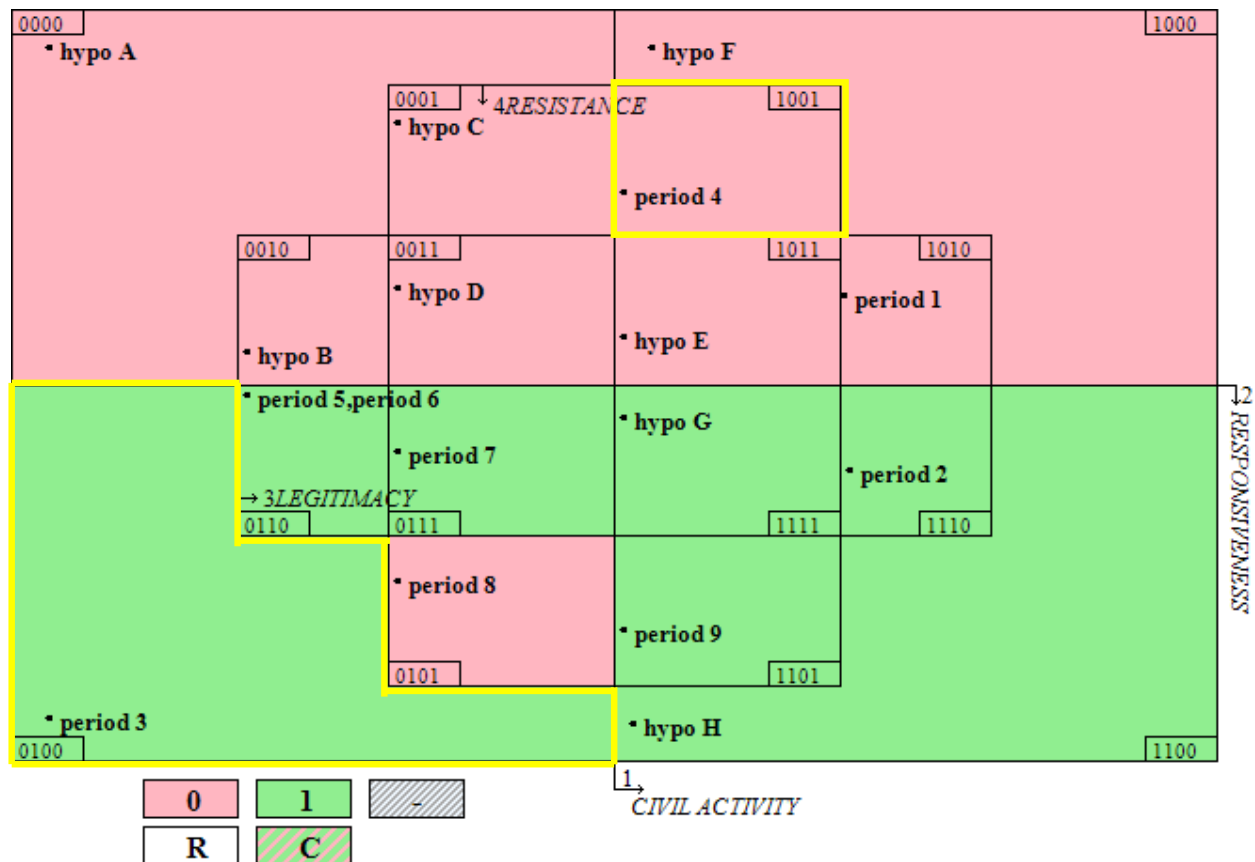


Figure 5.18. Comparison of periods 3 and 4.

Why did period 3 have a positive outcome and period 4 did not? The significant difference between period 3 and period 4 was not the difference in civil activity, but period 4's low responsiveness and high resistance. Period 3 had a positive outcome because it exhibited high responsiveness and low resistance. This low responsiveness alone was sufficient to cause a negative outcome in period 4. Moreover, period 4 also exhibited high resistance, meaning that there were significant objections raised to communicative events during this period. The infighting among the state, county, library, and civil society groups during the citizen's study of period 4 account for the low responsiveness and high resistance seen during this period.



#### 5.4.4 Periods 5, 6, and 7

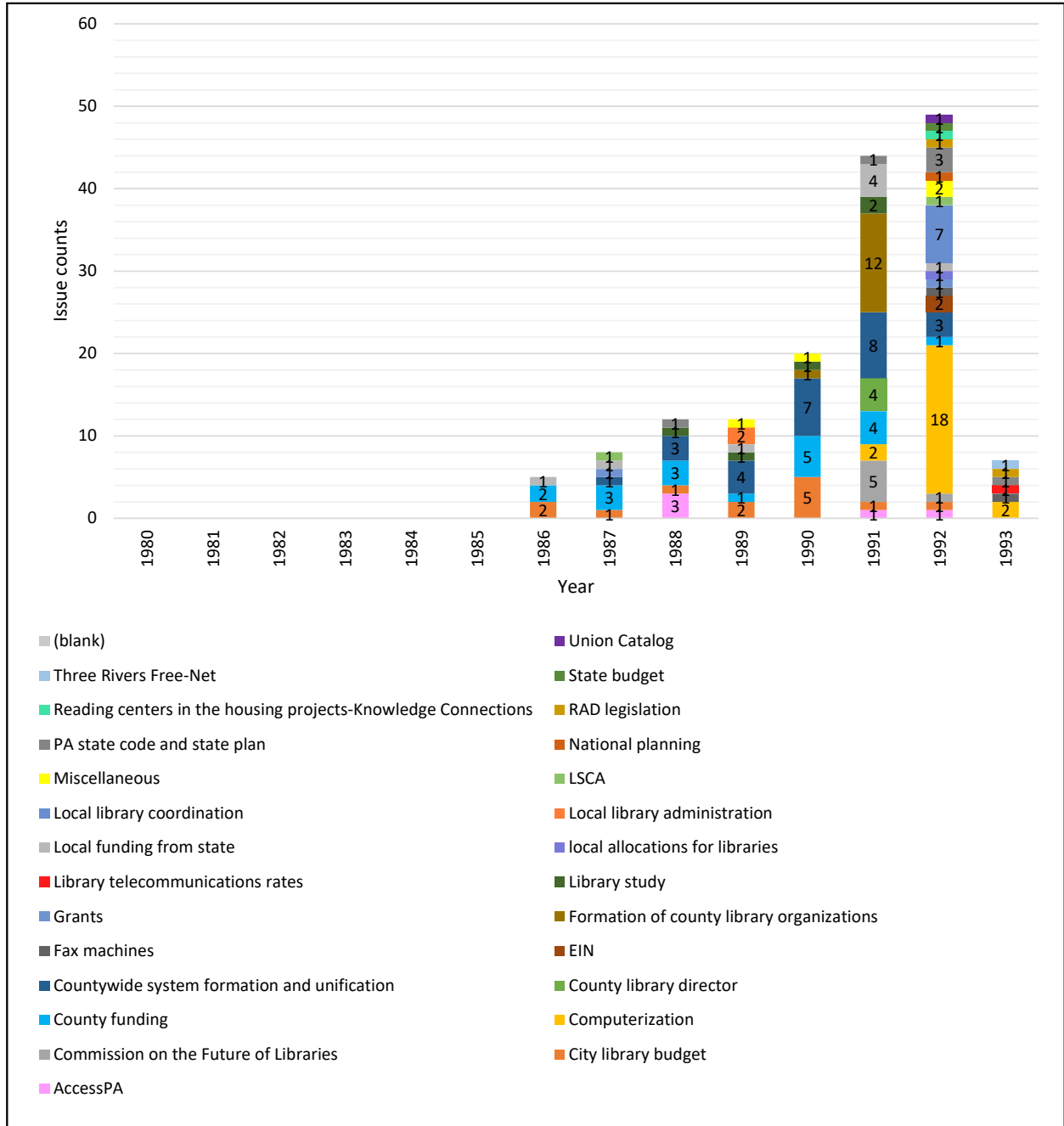
The city of Pittsburgh is said to have experienced two phases of cultural renewal, or two Renaissances ([Lubove, 1995, 1996](#)). The first began following the Second World War in response to the effects of industrialization and fractured governance. During this time, public-private partnerships engaged problems such as smog, water pollution, traffic congestion, and housing. The second Renaissance is said to have begun in the 1980s in response to the collapse of the steel industry. During this time, civic leaders focused on the arts and revitalization as part of a larger strategy for economic development. These two Renaissance phases in greater Pittsburgh, one following the Second World War and the other following the collapse of the steel industry, correspond to substantive changes that occurred in the case of the regional public library system in Pittsburgh. In period 3 of the case, a county library was first established, and two separate city library systems merged. Then, in 1961 of period 4, the Carnegie Library of Pittsburgh took on increasing duties as part of a state-implemented district library. Following a lull during periods 4, periods 5, 6, and 7 represent a second Renaissance phase in the case. During these periods, the case saw significant changes in its technology, structure, governance, and funding.

Period 5 began in 1980 during an economic recession. During the 1980s, the Carnegie Library of Pittsburgh struggled to formulate a funding strategy. In 1990, the President's Advisory Committee on the Library proposed a countywide system as a way to stave off branch library closings. Also in the late 1980s and early 1990s, the Carnegie Library of Pittsburgh developed an online public access catalog, CAROLINE (a portmanteau of Carnegie Online). Bob Croneberger, director of the library from 1986 to 1998, envisioned that the catalog might

someday connect all branch libraries in the city's Carnegie system and perhaps all county libraries.

Period 5 was also the time when a remarkable new actor entered the case: Frank Lucchino. Lucchino, who served as County Controller during this time, had a liberal and progressive vision for greater Pittsburgh that he believed could be accomplished by restructuring smaller, independent governmental units into larger, regional ones. Lucchino saw that independent public libraries throughout the region had incentive to cooperate and coordinate efforts in a regional way; moreover, if independent libraries could better cooperate, then they might serve as a model for other service sectors. In 1991, with Lucchino's leadership, enthusiasm, and political prowess, libraries in greater Pittsburgh formed the first county library organization, County Library Association Serving the People (CLASP). Also in 1991, Lucchino formed a grant-funded special agency within county government, the Commission on the Future of Libraries in Allegheny County (CFLAC). CFLAC hired the first county library director in 1992. The Carnegie Library of Pittsburgh, CLASP, and CFLAC began to coordinate countywide initiatives, starting with the development of a shared online catalog. The critical decision point for period 5 came in 1991 with the decision by libraries to join together to form a countywide library organization.

The predominant issue in period 5 was countywide system formation and unification, followed by computerization (see [Figure 5.19](#)). The three most prevalent actors in period 5 were CFLAC, CLASP, and the Board of County Commissioners. The CLP city libraries, broadcasts to Allegheny County residents, and CFLAC were the most prevalent audiences. Most communicative activity in period 5 occurred within the county circuit.



**Figure 5.19. Issue counts in period 5.**

By the beginning of period 6, the energy from the formation of CLASP and CFLAC had worn off. In mid-1993, the groups were re-energized by news of the creation of a new tax district, the Regional Asset District, which might fund local libraries. Period 6 was therefore characterized by a yearlong effort by library groups to obtain funding from the district. During this time, CLASP restructured to form the Allegheny County Library Association (ACLA), a non-profit association dedicated solely to obtaining and then administering the tax money to the libraries. The creation of the asset district was approved by the county in early 1994; ACLA made its proposal to the district board in September of that year. In the end, the ACLA proposal was successful and the group received 5 million dollars. The Carnegie Library of Pittsburgh made a separate proposal and received on its own 11 million dollars. Also during this time, the plans to connect the county libraries to a shared online catalog continued. The online resource sharing would be known as the Electronic Information Network (EIN). The critical decision point for period 6 came in 1994 when ACLA and CLP became funded assets of the tax district.

The two top issues in period 6 were RAD funding and RAD legislation (see [Figure 5.20](#)). The predominant actors in period 6 were CLASP, then ACLA, then CFLAC. The dominant audiences in period 6 were broadcasts to Allegheny County residents and narrowcasts to CLASP. Most communicative activity in period 6 occurred within the civil society circuit, Regional Asset District circuit, and county circuit.

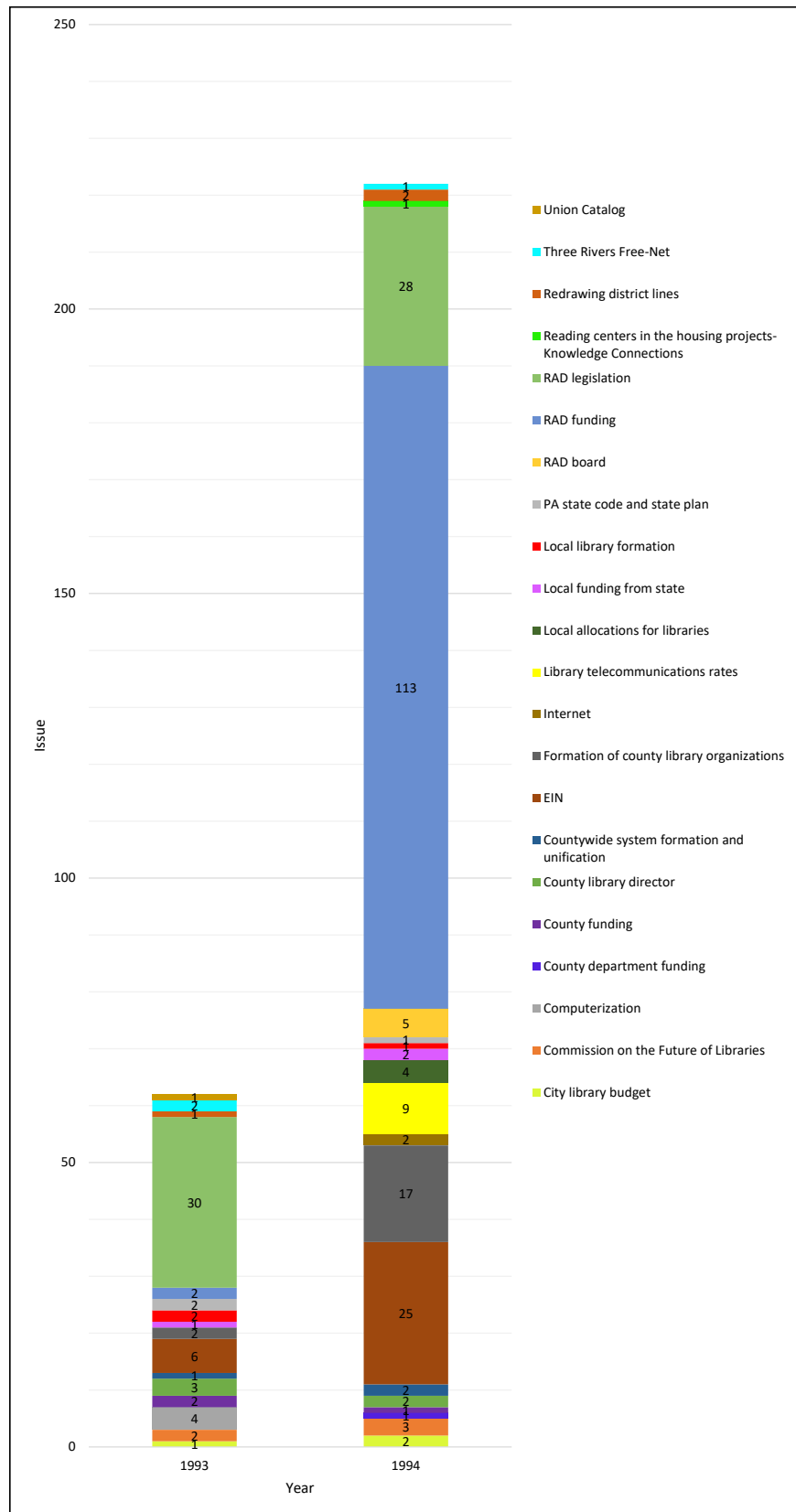


Figure 5.20. Issue counts in period 6.

Following the success in period 6 by library organizations in their bids to receive additional tax funding from the new district, period 7 witnessed a continued restructuring of the regional library system. Lucchino's leadership in 1991, Croneberger's plans for the Electronic Information Network, and the movement to receive RAD funding in 1994 all brought county libraries together. The new arrangements that were formed, however, were not yet recognized under the state code in a way that would provide additional state funding to the county libraries. Leaders of ACLA therefore sought to become recognized by the state library as a federated library system. Debates about whether ACLA should become a federated system began in 1995 and continued through 1997. To some libraries who were members of ACLA, it was not clear how federated status would affect governance and funding from RAD. A number of individuals from multiple libraries raised objections to federation because such a move threatened the autonomy of individual libraries. In 1997, however, the member libraries of ACLA voted to become a federated system, and the application to the state was approved. The critical decision point for period 7 occurred in 1997 with the association's final vote.

The overwhelming issue in period 7 was the federated system (see [Figure 5.21](#)). The prominent actor and audience in period 7 was ACLA. Most communicative activity in period 7 occurred within the ACLA and Regional Asset District circuits.

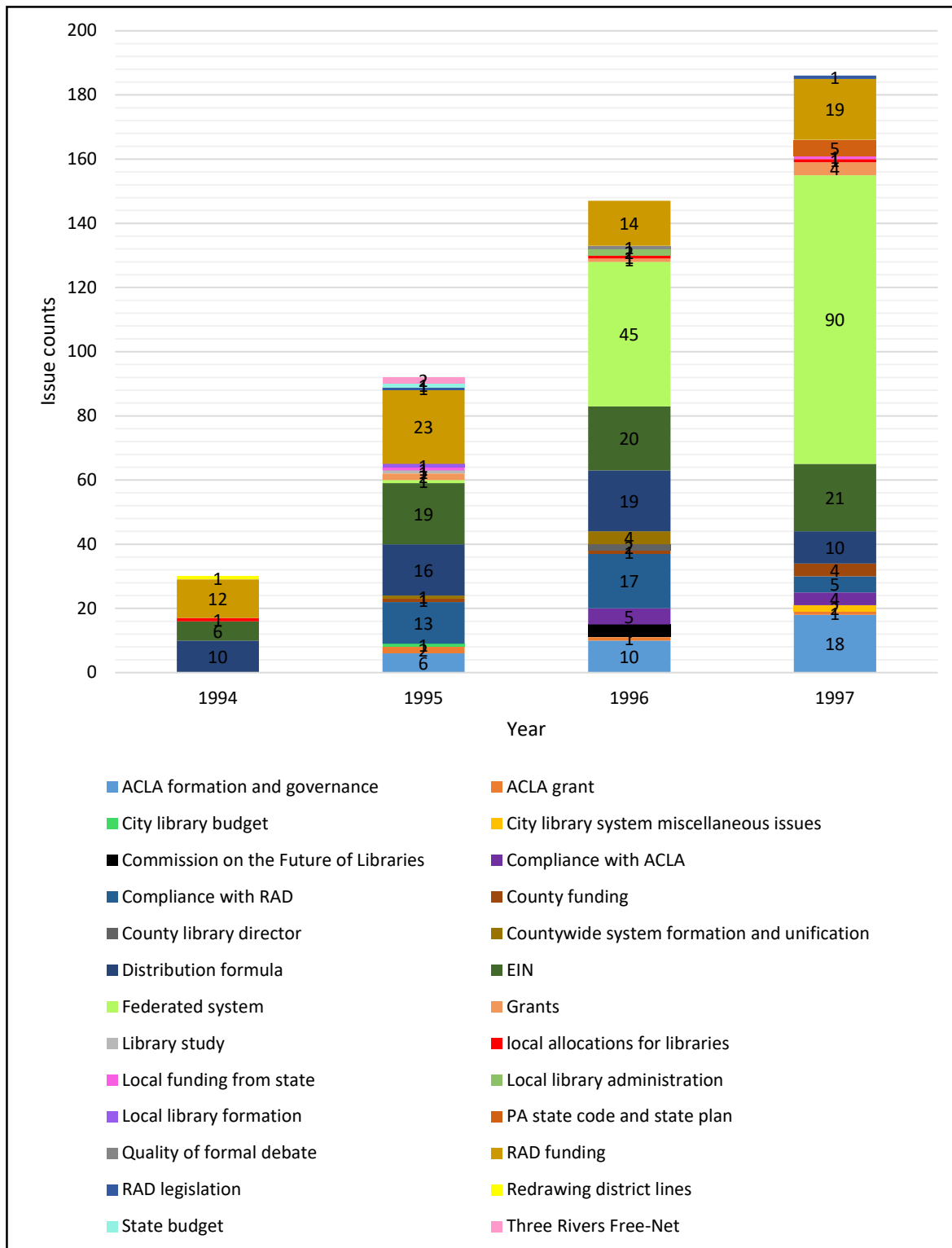


Figure 5.21. Issue counts in period 7.

The conditions of period 5 and 6 were identical (see [Figure 5.22](#)). They had high legitimacy, low civil activity, and low resistance. The actors that brought about changes in the system in periods 5 and 6 were library and county actors, not civil society actors. Period 7 was similar to periods 5 and 6 because like them it had high legitimacy and low civil activity, but it differed from periods 5 and 6 because it exhibited high resistance, meaning that it had a high ratio of transmissions that faced objections. Periods 5, 6, and 7 all had positive outcomes. Period 7 overcame high resistance by high responsiveness and high legitimacy. This suggests that despite a large number of objections to becoming a federated system, the process of becoming one was legitimate, and these legitimate proposals were in fact carried out and implemented.

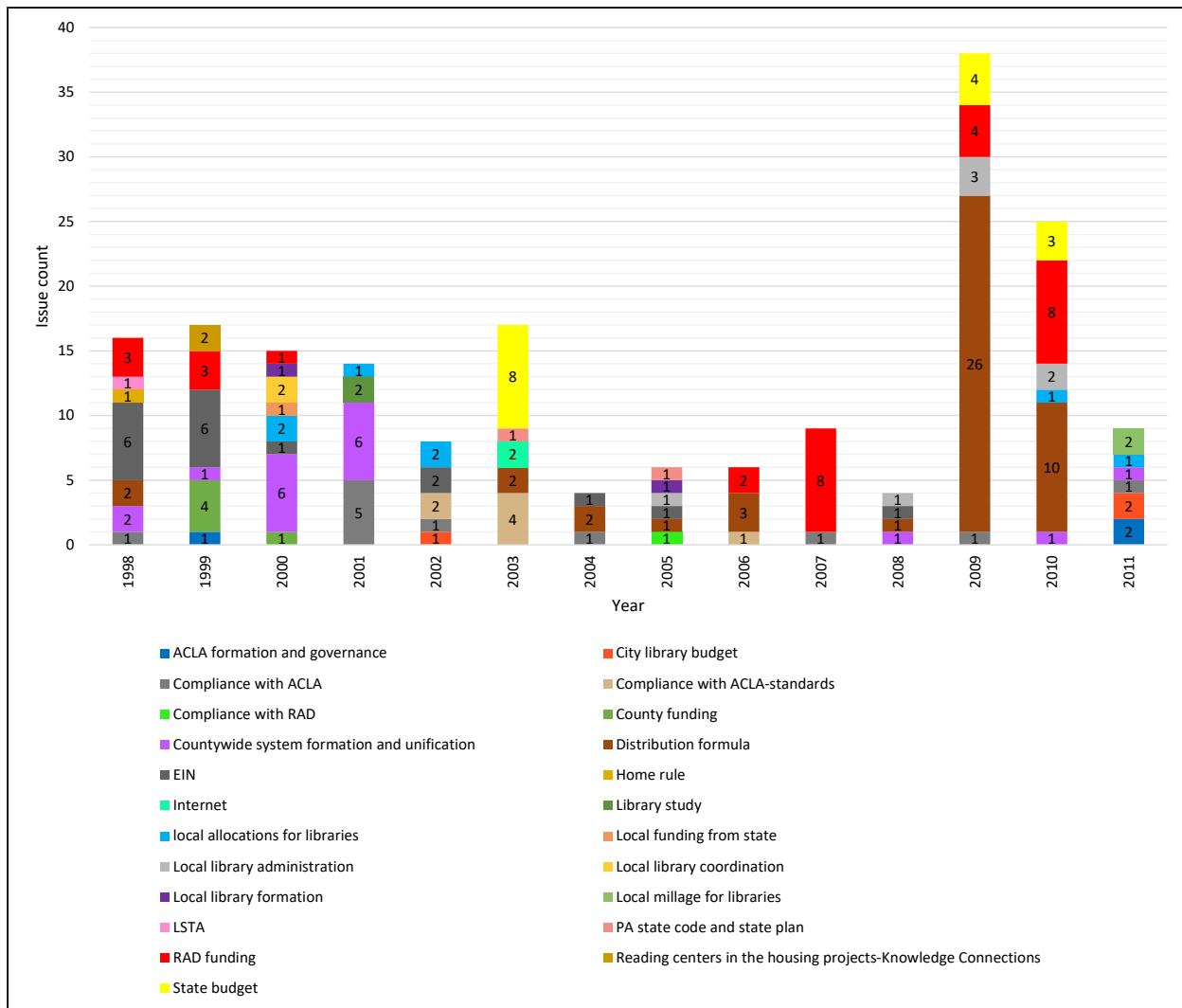




Electronic Information Network. As libraries in the county came to depend more on the resources that EIN offered, ACLA and CLP began to compete for power and control over EIN. EIN became a separate non-profit organization who served two clients: ACLA libraries and CLP. At the turn of the century, CFLAC was phased out during a restructuring of county government and the retirement of Lucchino. Its mission and duties were inherited by ACLA leaders.

Since its successful bid in 1994 to become a recognized cultural asset in the eyes of RAD, an issue that the ACLA member libraries had not fully resolved was the funding formula. ACLA member libraries received over 5 million dollars a year in RAD funding, but how was this money to be distributed? Which libraries should receive more, and which libraries should receive less? During period 8, there was a push by some member libraries to revise the funding formula to make it partly performance-based. Attempts to revise the formula resulted in intense, multi-year discussions. The formula proposals by ACLA were ultimately rejected by the RAD board, who held final decision-making authority for funding distribution changes. The rejection of the proposed formula by the RAD board in 2009 represented the critical decision point in period 8. Attempts to revise the formula were abandoned, and the period ended in 2011.

The dominant issues in period 8 were the distribution formula and RAD funding (see [Figure 5.23](#)). ACLA was the most prevalent actor and audience. Most activity took place within the ACLA circuit.

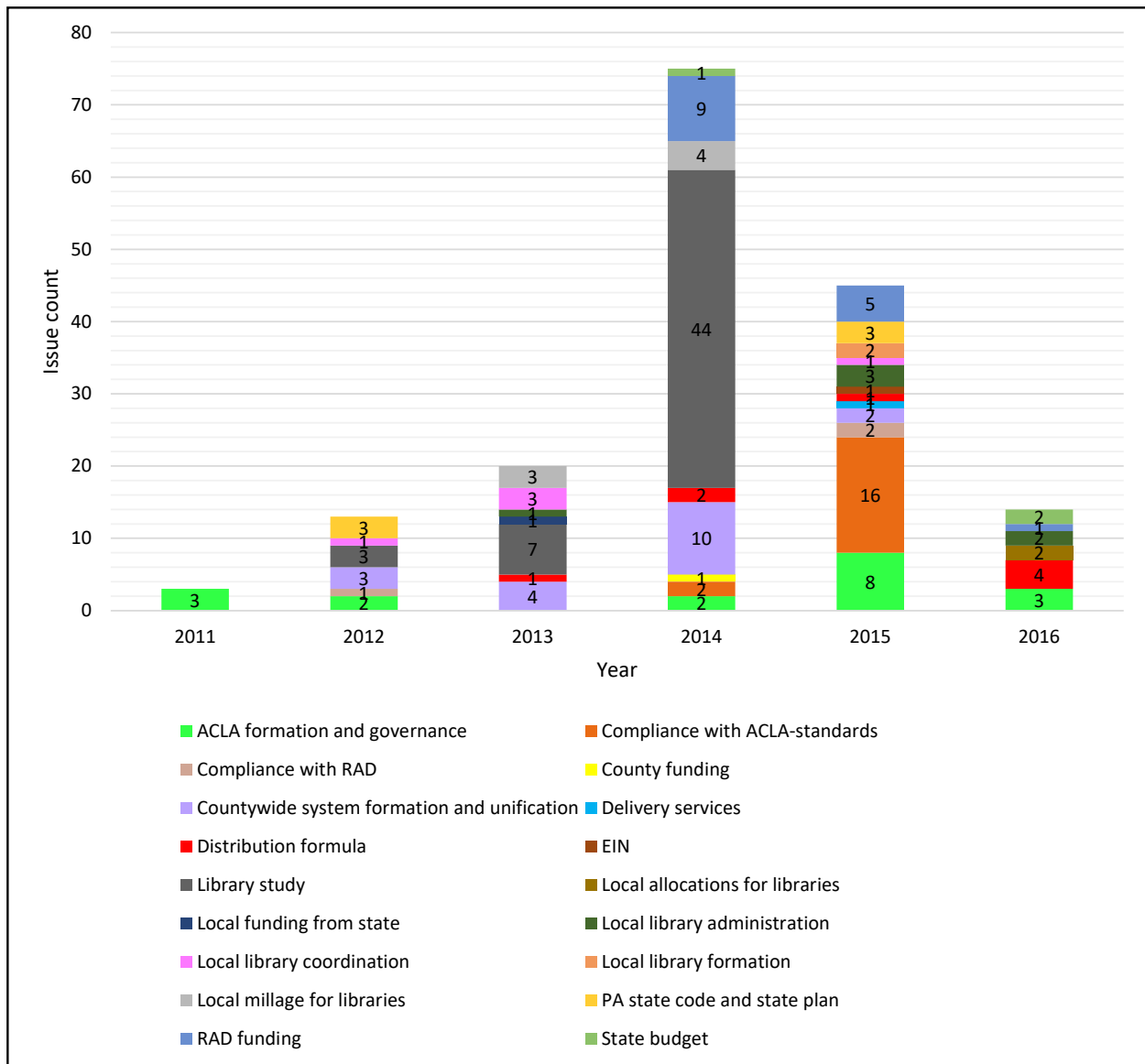


**Figure 5.23. Issue counts in period 8.**

Following the failure of the formula revisions, period 9 began in 2011 with ACLA and CLP agreeing to study options in order to reduce service overlaps and address communication problems. These overlaps were identified by an outside audit, and the RAD board called on ACLA and CLP to address the problems. The two organizations initiated a study that used community meetings to generate ideas for a new vision of the regional public library system. Meanwhile, as part of the same study, a panel of community leaders generated their own

alternative vision for what the regional system might look like. In the end, the organizations did not adopt the panel's recommendation, and the community meetings lost a sense of direction, resulting in a final report whose findings were not clear. Nevertheless, ACLA leadership used the findings as the basis for implementing service standards, an idea that was rejected in period 8. As in period 8, the proposal faced significant objections from member libraries, but this time the ACLA board unilaterally implemented standards without member library support. The critical decision for the period occurred in 2015 when the ACLA board voted to implement the standards.

The predominant issue in period 9 was the library study (see [Figure 5.24](#)). ACLA and the 21st century library study group were the key actors during this period. ACLA was the most prevalent audience. Most communicative activity took place in the ACLA circuit and the civil society circuit. The library study group was considered a civil society actor.



**Figure 5.24. Issue counts in period 9.**

Periods 8 and 9 exhibited similar conditions but different outcomes (see [Figure 5.25](#)). The efforts to revise the formula in period 8 resulted in failure, but despite a similar magnitude of resistance in period 9, the effort to implement standards succeeded. Both periods exhibited high resistance. They also both exhibited low legitimacy. Both periods had high responsiveness. The

key difference between period 8 and period 9, the difference that made a difference in terms of outcome, was that period 9 had high civil activity but period 8 did not. It is important to note that the 21st century library study that was sponsored by ACLA and CLP was construed as its own civil society group: it used community meetings, it had its own independent panel of non-library members, and it was said to be an open-ended exploration of potential options for restructuring. This portrayal of the library study as civil-society-based was what caused a positive outcome in period 9.

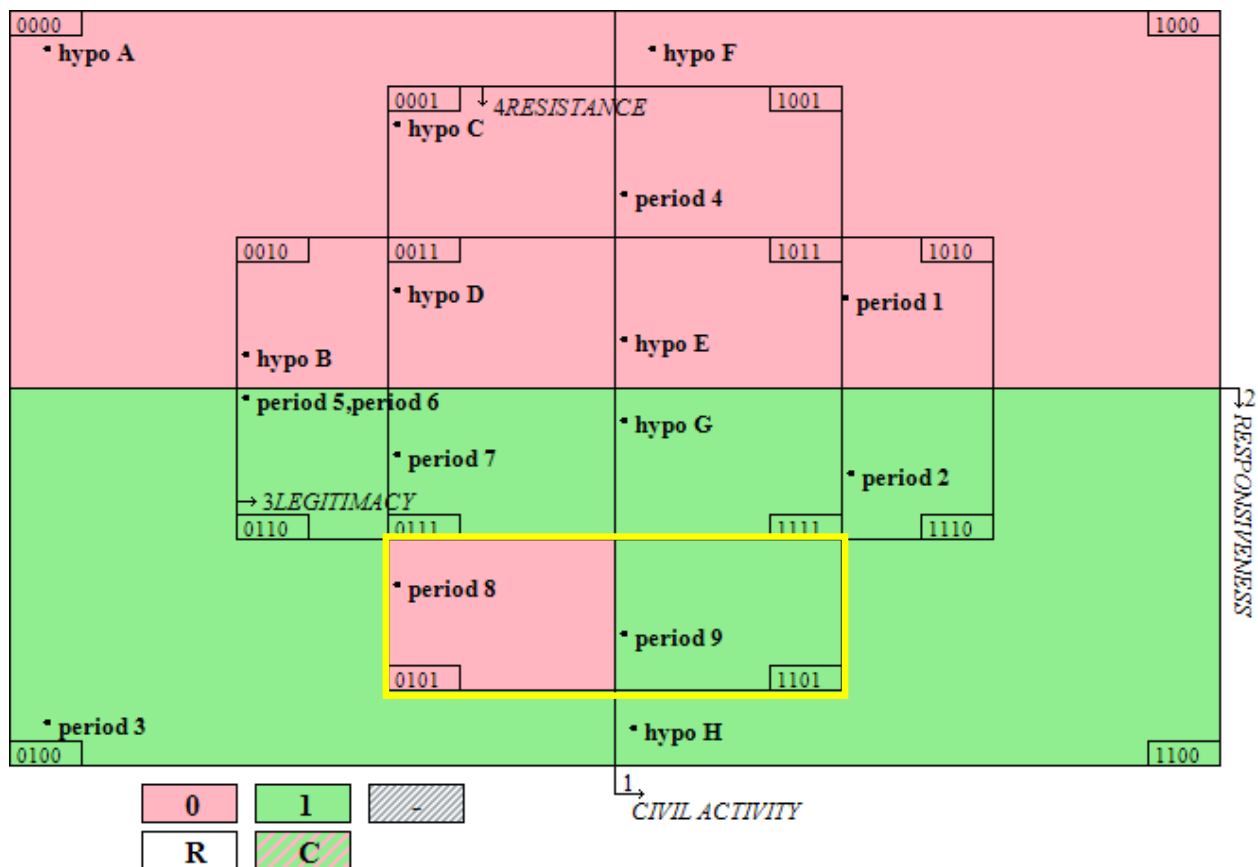


Figure 5.25. Comparison of periods 8 and 9.

Though period 9 had high civil activity, it is important to point out that it did not have high civil activity in the same way that period 1, period 2, or even period 4 had high civil activity. In periods 1, 2, and to some degree period 4, the civil society actors were grassroots—they were outside individuals who desired changes in the library system and agitated for those changes. In period 2, these movements were effective; in periods 1 and 4, they failed. In period 9, by contrast, the civil society actor—the library study—was a *manufactured* actor, a *faux* civil society force designed to serve the interests of ACLA and CLP. ACLA leadership used the community meetings as a basis for implementing an action already on the agenda. Period 9 proves that system changes can result despite low legitimacy and high resistance if there is the perception of approval from civil society. Another possible explanation for the success in period 9 compared to period 8 is a larger ratio of backroom deals.

## 5.5 DISCUSSION SUMMARY

The above sections discussed in depth the design and results for this study. First, the research strategy and approach were discussed, including this study's problem, solution, and question sequences. These sequences formed the basis of the historical case study design, a new research strategy consisting of 3 analysis stages. Following the discussion of the research design, the revised Machtkreislauf model that was developed in stage 2 was discussed. The discussion addressed how the new model accounted for criticisms and problems that faced the old model. Then, the theory of the public sphere and public libraries that was developed in stage 3 was discussed. The theory was related to 2 areas of literature: public sphere literature and classical

theories of public library development. Finally, the section discussed the case of Pittsburgh in depth by synthesizing the descriptive and explanatory knowledge developed in stages 1, 2, and 3. Using the theory of the public sphere and public libraries developed in stage 3, it was shown why the case developed over time as it did.



## **6.0 CONCLUSION**

This concluding section provides a summary of the research project and a reflection on its methodological approach. It reviews the study's key findings and answers the research questions posed at the study's outset. Contributions to the fields of library studies and political science are noted. The section lists some limitations of the study, considers potential social implications of the study, and suggests avenues for future research.

### **6.1 PROJECT SUMMARY**

The purpose of this project was to more fully understand how the public sphere affects public library development. The project was carried out first by developing a new research paradigm based on the Machtkreislauf model, then by applying this paradigm to a single case, the case of the regional public library system in greater Pittsburgh, United States, from 1924 to 2016. Several different data sources were used, including archival materials, interviews, and fieldwork. The research proceeded in a 3-stage process, and each stage produced its own descriptive or explanatory knowledge. The project resulted in a new research strategy called historical case study, a new research framework for the study of the public sphere, the first historical account of the regional public library system in greater Pittsburgh, and a general explanatory theory of how the public sphere affects public library development.

## **6.2 RESEARCH QUESTIONS**

This project was guided by one central research question (RQ) and 3 sub-questions (SQs). The central research question for this study was: How does the Machtkreislauf model apply to the regional public library system in Pittsburgh? This question called for descriptive and explanatory knowledge in the form of a model, theory, narrative, and graphical illustrations. The first sub-question of this study, SQ1, was: What does a tested and refined Machtkreislauf model look like? This question called for a description using new concepts and a new model. SQ2 asked: What does the evolution of the library system in Pittsburgh look like? This question asked for descriptive knowledge in the form of a narrative and graphical illustrations. SQ3 asked: How does the public sphere affect public library development? This question called for a causal theory that could explain and predict.

## **6.3 METHODOLOGICAL APPROACH**

This study adopted case study design as a methodological approach. A new type of case study design was created for this project: historical case study. Historical case study refers both to a concept and to a process. As a concept, historical case study is defined as a retrospective longitudinal comparison of a single case that blends history and case study by examining a case from the distant past into the current moment. It does this by using a variety of source materials, including archival documents, interviews, and fieldwork, to compare a case's periods over time. The periods of the case serve as embedded units of analysis. These embedded units are compared using a common interpretive lens.

As a process, historical case study consists of 3 stages of analysis: source collection and analysis, data collection and analysis, and data interpretation. Each stage uses its own method and produces its own knowledge. Each stage can stand alone as its own micro-study, but the stages are also part of a greater structure. The stages proceed cumulatively in the sense that earlier stages inform later ones. In this study, the method used in stage 1 was theoretical sampling, in stage 2 it was qualitative content analysis, and in stage 3 it was qualitative comparative analysis.

## **6.4 KEY FINDINGS**

This study made several findings related to the Machtkreislauf model, the history of the regional public library system in greater Pittsburgh, and the effects of the public sphere on public library development. These findings are based on a collection of 988 source items and 7,553 pages of source material that were gathered during stage 1. Archival documents were collected from several sites in the Pittsburgh area, including the William R. Oliver Special Collections room at the Carnegie Library of Pittsburgh, the University of Pittsburgh Archives Service Center, the Heinz History Center Detre Library and Archives, historical files at the Allegheny County Library Association office, and other Web- and print-based sites. Twenty-five interviews were conducted with 15 individuals related to the case for a total of over 34 interview hours. Nine public meetings were attended in order to create fieldnotes based on direct observations. During the coding and analysis process in stage 2, a total of 1,773 segments of coding were analyzed from the source materials, creating data matrices with a total of 19,503 data points.

In stage 2 of the study, a new Machtkreislauf model was developed using new concepts, including formal decision, narrowcast/broadcast, circuits, diffuse public, and tessellations. These concepts and the resulting new model address previous criticisms of the original model and fit the case of Pittsburgh, United States.

Stages 1 and 3 resulted in a new historical account of the regional public library system in greater Pittsburgh. The case was found to have 9 periods. These periods were distinguished using the concept of a decision cycle. The case began in 1924 due to civil society movements. In 1956, the first county system was formed, then in 1961 the case was affected by a new state library code. Starting in 1991, the system significantly changed due to the emergence of new actors, new technologies, and economic pressure. The first countywide organization was formed. The years 1994 and 1997 were significant milestones in the case's development: in 1994, the regional system became a funded cultural asset, and in 1997 member libraries voted to become a federated library system. The system continued to struggle with the development of internal policies during its latest two periods, from 1998 to 2016.

In stage 3 of this study, a theory was developed to explain why some periods of the case exhibited changes and others did not. The theory identified 4 conditions of the public sphere whose configurations explained change and continuity in the case. These conditions are civil activity, responsiveness, legitimacy, and resistance. The theory states that high responsiveness, together with either high civil activity, high legitimacy, or low resistance, causes changes in the library system. Conversely, the theory states that either low responsiveness or low civil activity, low legitimacy, and high resistance cause continuity. This theory of the public sphere and public library development can also be used to predict unobserved scenarios, and it may also apply to cases in other contexts.

## 6.5 CONTRIBUTIONS

This study contributes to the fields of library studies, political science, and research methodology. To library studies, it presents a new framework for the study of the public sphere and public libraries. The framework is a revised Machtkreislauf model that incorporates new concepts, including circuits, tessellations, and narrowcasts/broadcasts. An application of the model to this area of research was modelled by this study.

This study also introduces a new concept, decision cycle, to library studies. This concept can be used in the future to study library organizations over time. The concept works well when combined with a historical case study approach because the concept can be used to identify and distinguish the periods of a case.

To the area of library history, this study offers the first historical account of the regional public library system in greater Pittsburgh. Historical accounts of Pittsburgh have either overlooked public libraries altogether, or they have focused exclusively on Carnegie libraries and Carnegie's philanthropic legacy. This study views the public libraries in greater Pittsburgh as a regional infrastructure.

The study also presents a new theory of library development, one with a public sphere perspective. The theory was developed using qualitative comparative analysis, representing the first application of the method within the field of library studies. This theory represents the first nomothetic knowledge developed within the area of the public sphere and public libraries. It also offers more robust explanatory potential than classical theories of library development, like social conditions theory.

To political science, this study contributes a revised Machtkreislauf model that was modified in light of several criticisms to the original. The new, revised model was also

developed in light of data from the case of Pittsburgh, United States. This study represents the first rigorous empirical application of the Machtkreislauf model to a non-European and non-national-scale case. The new Machtkreislauf model may serve as a general, macrosociological description of discursive democracy.

To the area of research methodology, this study contributes a new variation of case study design, historical case study. Historical case study is a 3-stage case study design that examines a case longitudinally from the distant past to the present. It does this by describing and comparing the periods of a case over time. Historical case study is an effective research strategy where the object of study is to understand change processes in a case.

## **6.6 LIMITATIONS**

This study faces two main limitations. The first limitation regards the generalizability of its findings, particularly the generalizability of the revised circulation of power model and the theory of the public sphere and public libraries. This study was a single-case study of a public library system in the United States from 1924 to 2016. The model and theory that were developed in this study therefore require further testing in other contexts in order to assess their generalizability. The second limitation of this study concerns the availability of source materials and the number and types of source materials that were analyzed. The data and findings of this study were based on several types of source materials, including archival documents, interviews, and field observations. These materials represent or describe only a sample of all the communicative events in the public sphere of the case. It was not possible to observe and

analyze all communicative events relative to the case. Many in-person meetings, telephone calls, email messages, and personal correspondences were not analyzed.

## **6.7 IMPLICATIONS**

This study was designed to undertake basic research in an effort to more fully understand how the public sphere affects public library development. The outcomes of this study were therefore intended to be intellectual contributions to the library studies related to the public sphere. That being said, the findings of this study may also suggest implications for practice within the field of professional librarianship. First, the results of this study offer practicing librarians and library administrators who work in the regional public library system in greater Pittsburgh a fuller understanding of how the library system developed. A fuller historical understanding of the system and its evolution may enable library leaders to reflect on how to design the library system moving forward.

A second implication for practice may apply to the area of library management, particularly change management. The concept of a decision cycle that was presented in this study offers managers a new way to consider the process of how organizations evolve and potentially change. The theory of the public sphere and public libraries presented in this study proposes 4 causal conditions and 2 formulas that explain change and continuity. Managers can use this theory as a guide to strategically implement change. For example, given that high responsiveness is a necessary condition for an outcome of substantive change, it follows that change proponents should target responsive audiences—those decision-makers who accept and implement legitimate proposals. Given also that high responsiveness alone is not a sufficient

condition for change, and given how high responsiveness must be combined with either high legitimacy, high civil activity, or low resistance to result in a positive outcome, it follows that change advocates should ensure both a legitimate process of deliberation during the decision cycle and incorporate civil society groups into the process. Periods 7 and 9 of this study demonstrate that high legitimacy or high civil activity can overcome high resistance when high responsiveness is present.

## **6.8 FUTURE RESEARCH DIRECTIONS**

This work examined the “metasphere” of the public library ([Ingraham, 2015](#)), the sphere of discourse concerning how the library is governed and legitimated. Future work could apply a similar approach to the study of how the public library acts as a public sphere platform, an infrastructure that supports public sphere discourse, thus examining the *commons* component of the governance-legitimation-commons framework ([Widdersheim, 2015a](#); [Widdersheim & Koizumi, 2016a](#)). This could be done by utilizing the same framework used in this study, but by examining a new case, perhaps an issue-driven group that uses the library for the purposes of public sphere participation. The purpose of the study could be to determine what role the library plays in this process.

This project can also be continued by trying to falsify or extend the theory in an inductive way ([Popper, 1959, 1962](#)). This can be done by identifying cases whose configurations were not observed in this study, or by comparing the results from new cases to those from this study. Such cross-case comparisons could lead to a refined theory and further generalizability. Cases could be studied using the same or similar methodology, historical case study. Each future study



could examine 2 or more periods and decision cycles, then compare their outcomes and conditions. The cases need not be confined to library systems.

## APPENDIX A: LITERATURE ABOUT THE PUBLIC SPHERE AND PUBLIC LIBRARIES

**Table A.1. Works that associate the public sphere with public libraries.**

#	Author(s) and year	Nation of focus	Type	Methods/Approach
1	<a href="#">Thauer and Vodosek (1978)</a>	Germany	Book	History
2	<a href="#">Schuhböck (1983)</a>	Germany	Article	Multiple case study
3	<a href="#">Greenhalgh, Landry, and Worpole (1993)</a>	UK	Book	Survey/Interview/ Observation
4	<a href="#">Schuhböck (1994)</a>	Germany	Article	History
5	<a href="#">Greenhalgh, Worpole, and Landry (1995)</a>	UK	Book	Cultural criticism
6	<a href="#">Webster (1995)</a>	UK	Book	Cultural criticism
7	<a href="#">Vestheim (1997a)</a>	Norway	Thesis	History
8	<a href="#">Vestheim (1997b)</a>	Norway	Article	Cultural criticism
9	<a href="#">Emerek and Ørum (1997)</a>	Denmark	Article	History
10	<a href="#">M. J. Williamson (1998)</a>	UK	Thesis	Interviews
11	<a href="#">M. J. Williamson (2000)</a>	UK	Article	Cultural criticism
12	<a href="#">Ventura (2001)</a>	Portugal	Thesis	Ethnography
13	<a href="#">Ventura (2002)</a>	Portugal	Book	Ethnography
14	<a href="#">Leckie and Hopkins (2002)</a>	Canada	Article	Ethnography
15	<a href="#">McCook (2003)</a>	US	Article	Cultural criticism
16	<a href="#">Wiegand (2003a)</a>	US	Article	Editorial
17	<a href="#">Wiegand and Bertot (2003)</a>	US	Article	Editorial
18	<a href="#">Wiegand (2003b)</a>	US	Article	Editorial

19	<a href="#">Buschman (2003)</a>	US	Book	Cultural criticism
20	<a href="#">Alstad and Curry (2003)</a>	Non-specific	Article	Cultural criticism
21	<a href="#">Buschman (2004)</a>	US	Article	Cultural criticism
22	<a href="#">Leckie (2004)</a>	Canada	Article	Conceptual
23	<a href="#">Kranich (2004)</a>	US	Chapter	Cultural criticism
24	<a href="#">McCook (2004)</a>	US	Chapter	Textbook
25	<a href="#">Frohmann (2004)</a>	Canada, US, UK	Review	Cultural criticism
26	<a href="#">Audunson (2005b)</a>	Non-specific	Article	Conceptual
27	<a href="#">Aabø (2005)</a>	Non-specific	Article	Conceptual
28	<a href="#">Andersen (2005)</a>	Non-specific	Article	Cultural criticism
29	<a href="#">Buschman (2005a)</a>	US	Article	Cultural criticism
30	<a href="#">Buschman (2005b)</a>	US	Article	Cultural criticism
31	<a href="#">Ljødal (2005)</a>	Norway	Report	Interviews
32	<a href="#">Black and Hoare (2006)</a>	UK	Book	History
33	<a href="#">Buschman (2006)</a>	US	Article	Cultural criticism
34	<a href="#">Taipale (2006)</a>	Finland	Paper	Conceptual
35	<a href="#">Andersen and Skouvig (2006)</a>	Denmark	Article	Conceptual
36	<a href="#">Leckie and Buschman (2007)</a>	US and Canada	Chapter	Conceptual
37	<a href="#">Rothbauer (2007)</a>	Non-specific	Chapter	Cultural criticism
38	<a href="#">Newman (2007)</a>	UK	Article	Interviews
39	<a href="#">Buschman (2007)</a>	US	Article	Cultural criticism
40	<a href="#">Audunson et al. (2007)</a>	Norway	Paper	Survey
41	<a href="#">Vårheim, Steinmo, and Ide (2008)</a>	OECD countries	Article	Survey/Interview
42	<a href="#">Burnett and Jaeger (2008)</a>	US	Article	Conceptual
43	<a href="#">Braman (2009)</a>	US	Chapter	Conceptual
44	<a href="#">Taipale (2009)</a>	Finland	Thesis	Multiple case study
45	<a href="#">Jaeger and Burnett (2010)</a>	US	Chapter	Conceptual
46	<a href="#">Aabø et al. (2010)</a>	Norway	Article	Survey
47	<a href="#">Burnett and Jaeger (2011)</a>	US	Article	Conceptual

48	<a href="#">Buschman (2012)</a>	US	Book	Cultural criticism
49	<a href="#">Aabø and Audunson (2012)</a>	Norway	Article	Ethnography
50	<a href="#">Buschman (2013)</a>	US	Article	Cultural criticism
51	<a href="#">Kranich (2013)</a>	US	Article	Cultural criticism
52	<a href="#">Jaeger et al. (2014)</a>	US	Article	Conceptual
53	<a href="#">Frota (2014)</a>	Brazil	Article	Cultural criticism
54	<a href="#">Machado et al. (2014)</a>	Brazil	Article	Cultural criticism
55	<a href="#">Trosow (2014/2015)</a>	Non-specific	Article	Cultural criticism
56	<a href="#">McNally (2014/2015)</a>	Non-specific	Article	Cultural criticism
57	<a href="#">Richards et al. (2015)</a>	Non-specific	Book	History
58	<a href="#">Evjen (2015)</a>	UK, Denmark, Norway	Article	Interviews
59	<a href="#">Ingraham (2015)</a>	UK	Article	Discourse analysis
60	<a href="#">Widdersheim and Koizumi (2015a)</a>	US	Paper	Content analysis
61	<a href="#">Widdersheim (2015b)</a>	US	Poster	Content analysis
62	<a href="#">Widdersheim and Koizumi (2015b)</a>	US	Paper	Content analysis
63	<a href="#">Widdersheim (2015a)</a>	Non-specific	Article	Conceptual
64	<a href="#">Widdersheim and Koizumi (2016a)</a>	US	Article	Content analysis
65	<a href="#">Audunson and Evjen (2016)</a>	Norway	Paper	Survey, SPSS
66	<a href="#">Widdersheim and Koizumi (2016b)</a>	Non-specific	Paper	Conceptual
67	<a href="#">Widdersheim (2016)</a>	Non-specific	Paper	Conceptual
68	<a href="#">Widdersheim and Koizumi (2016c)</a>	US	Paper	Content analysis
69	<a href="#">Koizumi and Widdersheim (2016)</a>	Non-specific	Article	Conceptual
70	<a href="#">Widdersheim and Koizumi (2017)</a>	US	Article	Content analysis
71	<a href="#">Audunson et al. (2017)</a>	Non-specific	Session	Conceptual

## **APPENDIX B: ACLA LIBRARIES**

**Table B.1. ACLA member libraries, 2016.**

1	Andrew Bayne Memorial Library
2	Andrew Carnegie Free Library
3	Avalon Public Library
4	Baldwin Borough Library
5	Bethel Park Public Library
6	Braddock Carnegie Library
7	Brentwood Library
8	Bridgeville Public Library
9	C. C. Mellor Memorial Library
10	Carnegie Free Library of Swissvale
11	Carnegie Library of Homestead
12	Carnegie Library of McKeesport
13	Carnegie Library of Pittsburgh
14	Clairton Public Library
15	Community Library of Allegheny Valley
16	Community Library of Castle Shannon
17	Cooper-Siegel Community Library
18	Coraopolis Memorial Library
19	Crafton Public Library
20	Dormont Public Library
21	F.O.R. Sto-Rox Library

22	Green Tree Public Library
23	Hampton Community Library
24	Jefferson Hills Public Library
25	Millvale Community Library
26	Monroeville Public Library
27	Moon Township Public Library
28	Mt. Lebanon Public Library
29	North Versailles Public Library
30	Northern Tier Regional Library
31	Northland Public Library
32	Oakmont Carnegie Library
33	Penn Hills Public Library
34	Pleasant Hills Public Library
35	Plum Community Library
36	Robinson Township Library
37	Scott Township Library
38	Sewickley Public Library
39	Shaler North Hills Library
40	South Fayette Township Library
41	South Park Township Library
42	Springdale Free Public Library
43	Upper St. Clair Township Library
44	Western Allegheny Community Library
45	Whitehall Public Library
46	Wilkinsburg Public Library

## APPENDIX C: IRB APPROVAL LETTER



### University of Pittsburgh *Institutional Review Board*

3500 Fifth Avenue  
Pittsburgh, PA 15213  
(412) 383-1480  
(412) 383-1508 (fax)  
<http://www.irb.pitt.edu>

#### Memorandum

To: Michael Widdersheim

From: IRB Office

Date: 2/4/2016

IRB#: PRO16010055

Subject: Legitimation, the public sphere, and regional public library infrastructure: A case study using qualitative content analysis

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The above-referenced project has been reviewed by the Institutional Review Board. Based on the information provided, this project meets all the necessary criteria for an exemption, and is hereby designated as "exempt" under section

45 CFR 46.101(b)(2)

Please note the following information:

- Investigators should consult with the IRB whenever questions arise about whether planned changes to an exempt study might alter the exempt status. Use the "**Send Comments to IRB Staff**" link displayed on study workspace to request a review to ensure it continues to meet the exempt category.
- It is important to close your study when finished by using the "**Study Completed**" link displayed on the study workspace.
- Exempt studies will be archived after 3 years unless you choose to extend the study. If your study is archived, you can continue conducting research activities as the IRB has made the determination that your project met one of the required exempt categories. The only caveat is that no changes can be made to the application. If a change is needed, you will need to submit a NEW Exempt application.

**Please be advised that your research study may be audited periodically by the University of Pittsburgh Research Conduct and Compliance Office.**



## **APPENDIX D: INFORMED CONSENT FORM**

### **Legitimation, the Public Sphere, and Regional Public Library Infrastructure: A Case Study using Qualitative Content Analysis**

This research study is an investigation of how the Allegheny County Library Association is legitimated in public communication. The study will draw from a variety of data sources in order to develop a theory of the public sphere related to libraries. One source of data is interviews. As an interviewee, there are no foreseeable risks or discomforts associated with participation in this study, nor are there any direct benefits. This interview will be recorded, and a transcript of the interview will be produced. The researcher will also take notes during the interview process. The information provided by you in this interview may be used in published research. Your identity will be kept confidential by following several steps:

- In the event that portions of this interview are used in a published report, your name will be replaced with a pseudonym, and only a generic descriptor of your position will be used. No personally-identifying characteristics will be used in published research;
- The paper notes taken during this interview will not be distributed to anyone, and they will be kept in a locked file cabinet in the researcher's office;
- The electronic copies of the interview recording, transcript, and accompanying notes will not be distributed to anyone, and they will be stored on a password-protected device;

- The interview recording as well as accompanying notes and transcript will be destroyed seven (7) years after the research is complete.

Your participation in this study is completely voluntary. Refusal to participate will involve no penalty. You may discontinue participation at any time without penalty.

By signing below, I certify that I understand the nature of this research and I agree to participate.

Signature \_\_\_\_\_ Date \_\_\_\_\_

## **APPENDIX E: DEFINITIONS OF KEY TERMS**

### **DATA**

*Data* are finite descriptions of the world that are created using the language and tools of a particular research context. Patterns and relationships among collections of data can be analyzed as a way to infer about larger processes or general phenomena. Data can be qualitative (beliefs, values) or quantitative (measurements). Though data by themselves are facts, taken alone they are meaningless. Data are inherently created *by* and *for* particular contexts: data are created *by* certain vocabularies and practices, and they are created *for* particular research purposes.

### **CONCEPT**

A *concept* is an idea that is put to paper: it is well-described and fixed in a tangible form. Concepts are categories, sets of categories, and their relations that are used to describe the world. A concept is general and abstract, and it applies broadly to a plurality of particular instances.

### **MODEL**

A *model* is a simplified description of observable phenomena. It shows in an abstract way how something works. It resembles a concept in that it usually takes the form of an image or

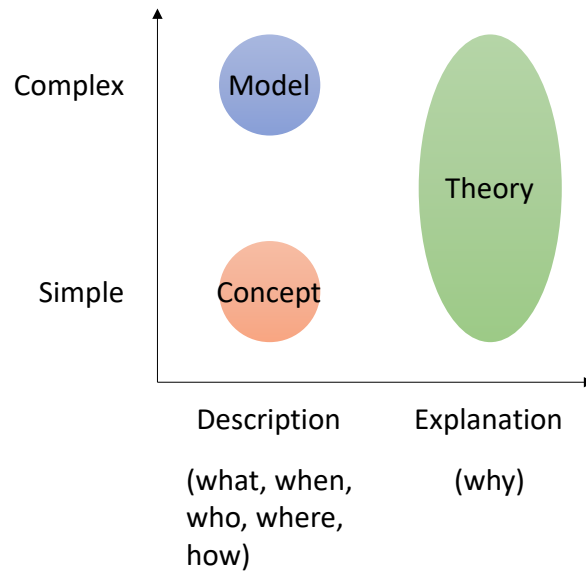
drawing, but it may be more sophisticated than a concept, or it may be composed of multiple concepts. The purpose of a model is to show what the parts of a process are and how they work together. In other words, a model shows the components of a process and their relationships. A model answers *what* questions—it shows who, what, where, and when things happen, and in what order. It does not answer *why* questions. Models are created through a research process where observations are sorted into abstract categories and those categories are then arranged together in order. Like a good concept, a good model is one that is generalizable—it can be applied to any setting where the phenomena are observed. [Figure 2.10](#) of the Machtkreislauf is an example of a *general* model, one that does not include empirical data. The actor-power networks and tessellation visualizations in [Appendix L](#) are examples of *empirical* models because the models are infused with data from the case's source materials.

## FRAMEWORK

A *framework* is a theory or model that is used to orient a research project. The main categories or relationships of the theory or model inform the research problems, research questions, and data collection of the project. All research projects, the data they generate, and the conclusions they draw work within a framework. It is therefore important for researchers to make explicit whatever framework informs their studies. The framework for this study is the coding frame whose concepts are described in section [4.2.1](#).

## THEORY

The term *theory* is more difficult to define than concept, model, or framework. This is because theory is used in different ways in different fields. The biggest split in usages generally aligns with the suture between arts and sciences. In the arts and humanities, such as in literary theory, a theory can be a metaphor or a set of central ideas that is used to interpret a text. In the sciences or in law, by contrast, while a theory can be described in metaphorical terms, a theory is not just a metaphor. In science, a theory is tied to empiricism: assumptions about observations, testing, and fallibility. In science, criminal law, and everyday life, a theory is the product of an abductive leap from surprising facts in an effort to make sense of them. Theories can be explanatory or descriptive. This sense of the word theory—as provisional knowledge—is the sense that is used in this study. A theory is a rule that, if true, accounts for observable facts. A theory has both epistemological and methodological features. Epistemologically, it describes or explains phenomena, and in doing so it satisfies the natural urge to understand the world. Methodologically, a theory is part of a mundane research process, one that includes modes of inference called abduction, deduction, and induction ([Reichert, 2014](#)). This process of inquiry is used by ordinary folks every day, but it is also one that has been institutionalized in the form of science. The distinctions between theory, concept, and model are visualized in [Figure E.1](#). The differences are a matter of degree.



**Figure E.1. Distinctions between concept, model, and theory.**

One way to explain the meaning of theory is through an example. The process of theory development begins with a problem or contradiction that arises in light of observations. Suppose someone has a bird feeder in their yard. Every day, the bird feeder is filled. By nightfall, it is observed that the feeder is still full. In the mornings, however, it is observed that the birdseed from the feeder is gone. This observation is puzzling because it contradicts other knowledge. Most birds can't see at night, they don't fly during that time, and because of that they are not able to feed. Even if they could fly, it is unlikely that birds could consume all the birdseed in a birdfeeder in a single day. In this example, the mystery of the disappearing bird seed represents the research problem and calls out for an explanation.

The next step of theory development requires curiosity, questioning, and determination. The observer might ask *why* the bird seed disappears at night and resolve to find the solution. The question demands some explanation, some explanatory theory. A theory is a rule in the

form of a statement that accounts for the observations. The observer considers some theories that could explain why the bird seed is missing. One theory that explains the disappearing bird seed is this: *A hungry neighbor sleepwalks outside at night and eats all the bird seed from the feeder.* This theory, if true, explains why the bird seed is missing every morning. The mode of inference that leaps from an observed case to an explanatory theory is *abduction*.

The next step of theory development is to put the theory to work. An important feature of a theory is its testability. Suppose the theory is: *The sleepwalking neighbor eats all the birdseed at night.* Certain *hypotheses* follow from this theory. Hypotheses are logical implications that follow from the theory. The mode of inference that derives hypotheses from a theory is *deduction*. For example, if the theory were true, then it would follow that footprints would be found around the feeder that match the shoe size of the neighbor. Perhaps the neighbor left a slipper there. If the somnambulant visits the feeder at night, then auditory or visual evidence during the visits would prove it. These hypotheses are predictions that can be tested to confirm or disconfirm the theory.

The next stage of theory development is testing. Based on the hypotheses derived from the theory, a test is carried out. In the case of the birdfeeder, a wildlife camera (game cam) with a motion sensor is installed. The hypothesis is that, supposing the neighbor visits the feeder every night, then the game cam will document the visit.

Based on the results of the test, the theory is confirmed or disconfirmed. In the case of the bird feeder mystery, the theory of the sleepwalking neighbor is falsified, but in light of the results, a new theory is proposed to explain the missing bird seed (see [Figure E.2](#)). This theory is then used to explain future cases. The application and extension of the existing theory to cases in the future or to cases more generally uses *induction* as a mode of inference. As a theory is used

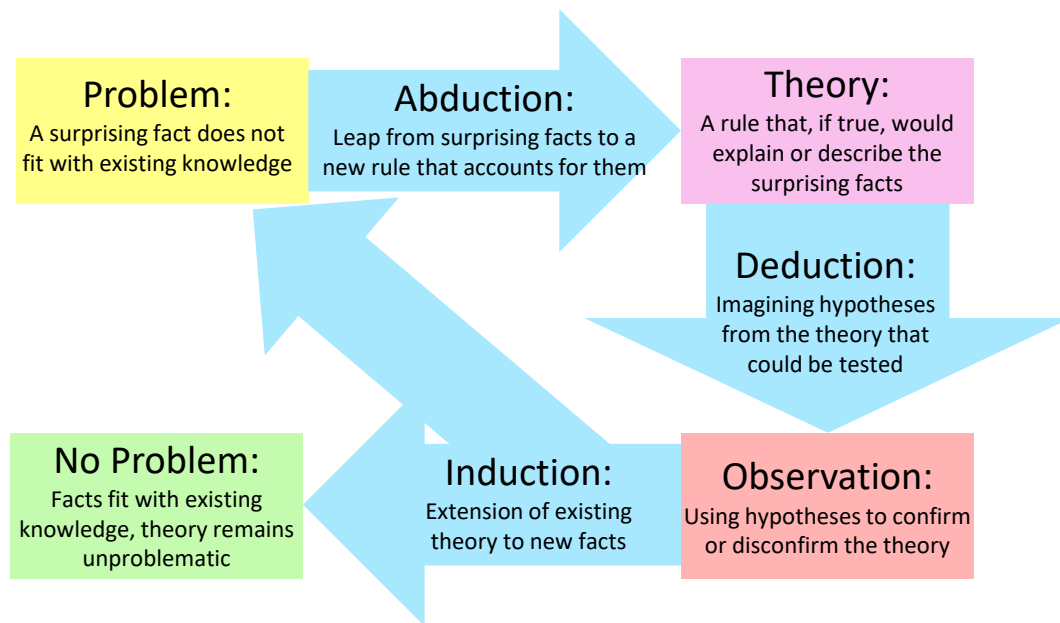
in more and more cases, it gradually fades into the background as just another unproblematic piece of knowledge. It is no longer provisional, but dependable.



**Figure E.2. Results of theory-testing in the bird feeder mystery.**

The process of theory development that is used in everyday life to solve mundane problems is the same one that is used in research projects such as this one. Like the mundane theory development described in the example of the bird feeder mystery, in this project a problem is stated, a question is posed, observations are gathered to answer the question, and a theory is offered as a way to answer the question (see [Figure E.3](#)). The only difference between the bird feeder example and this project is that the problems and questions in this project are more abstract, and the data collection and analysis tools are more sophisticated.





**Figure E.3. Problem-solving research cycle.**

## CAUSE

A *cause* is a condition, factor, or variable that produces an observable event. In the case of the bird feeder mystery, hungry deer ate the bird seed and *caused* it to disappear overnight. Asking a *why* question often means asking for a cause, or reason, to explain observable phenomena.

## MECHANISM

A causal *mechanism* is a link between a cause and its effect. Identifying and describing a causal mechanism means providing a detailed account of the process that leads from a cause to an

effect. There is a substantial body of literature in philosophy of science and the social sciences about what causal mechanisms are and why they are important (see [Gerring \(2010\)](#) for a critical overview of this literature). For the purposes of this project, it is enough to say that positing a causal mechanism requires unpacking that link between cause and effect and clarifying how it works.

## APPENDIX F: PERIOD CHRONOLOGIES

### PERIOD 1

**Table F.1. Chronology of key events of period 1.**

Year	Description of event
1923	Metropolitan Plan Commission authorized by the legislature and governor of Pennsylvania to study municipal consolidation in the Pittsburgh area.
1924	Public Library Committee of the Civic Club of Allegheny County proposed extending the services of Carnegie Library of Pittsburgh to schools in North Side.
1925	Act No. 196 passed state legislature and approved by the governor; granted counties the power to build and maintain libraries.
1926	Civic Club petitioned City Council to transfer control of the Carnegie Free Library of Allegheny to the trustees of the Carnegie Library of Pittsburgh.
1928	Amendment to the constitution of Pennsylvania passed by the legislature that would allow for city-county federation.
1929	A regional government charter failed to pass special election in Allegheny County; city and county are not consolidated.
1929	Civic Club appeared before Pittsburgh City Council to support increased funding to the Carnegie Library of Pittsburgh
1931	Act No. 329 approved state aid to county libraries.
1931	Civic Club worked with Ralph Munn to petition Pittsburgh Mayor and Council to restore funding to Carnegie Library of Pittsburgh.
1933	Civic Club petitioned City Council for a larger appropriation and higher salaries for the Carnegie Library of Pittsburgh.
1937	Article published in <i>The Federator</i> by Mildred Stahl Fletcher on library service in Allegheny County and outside the city.

1937	The Civic Club coordinated with the Pennsylvania Economy League to meet with the Mayor and Council to consolidate the Carnegie Free Library of Allegheny with the Carnegie Library of Pittsburgh.
1938	Civic Club, Public Library Committee, continued to review the advantages of merging Carnegie Free Library of Allegheny with Carnegie Library of Pittsburgh. Endorsements for the merger from residents and public figures were gathered. The plea was sent to City Council.
1938	Allegheny Parent-Teacher Council proposed that Carnegie Library of Pittsburgh become a county library.
1939	Mayor failed to follow through on merger of North Side library with the city's Carnegie system.
1939	Civic Club coordinated with Allegheny County Parent-Teachers' Association to advocate to County Commissioners for an extension of library services in the county.
1940	The County Commissioners requested that the Civic Club reconcile the proposals of the Federation of Women's Clubs of Allegheny County and the Parent-Teachers' Group.
1940	Representatives from the Civic Club, Allegheny County Council of the Parent-Teachers' Association, Allegheny County Federation of Women's Clubs, the Council on Adult Education, the League of Women Voters, Ralph Munn of Carnegie Library, and the principal of Aspinwall School District met to discuss county library service.
1941	County Commissioners decided that no appropriations could be made for county library services.
1942	Efforts toward county library services were abandoned because funding could not be obtained during the war.

## PERIOD 2

**Table F.2. Chronology of key events of period 2.**

Year	Description of event
1948	The Civic Club and Ralph Munn investigated the possibility for a county library survey. They approached the Allegheny Conference on Community Development.

1950	Allegheny Conference on Community Development sponsored a library survey conducted by Brahm and Sandoe from the State Library of Ohio. It was the first study of county library services. It found a quality difference between city and county libraries and called for a county library system. The survey was funded by the Pittsburgh Foundation and the Arbuckel-Jamison Foundation.
1951	The Metropolitan Study Commission was created by state legislature to investigate issues related to city-county consolidation. The Commission was administered by representatives of the Allegheny Conference on Community Development and the Pennsylvania Economy League, and it was financed by the Buhl Foundation.
1954	Pittsburgh City Council proposed transferring the library and zoo to the county in an effort to avoid instituting new taxes. The effort to transfer library management failed, and a wage tax was implemented.
1954	Civic Club of Allegheny County solicited letters in support of a merger between the Carnegie Free Library of Allegheny and the Carnegie Library of Pittsburgh.
1954	Central North Side Neighborhood Council supported an Allegheny-Pittsburgh library merger after a series of community meetings.
1955	The Metropolitan Study Commission published a home rule charter report, and in it described library services in the county. The report on libraries was designed in part by Ralph Munn. It recommended a county system with the Carnegie Library of Pittsburgh as the nucleus and suggested that county libraries elect to join.
1955	The County Boroughs Association and other municipal leaders publicly opposed any transfer of local power to city or county government.
1955	Mrs. Howard EnDean of the Allegheny County Council of Parent-Teachers' Associations formed a citizens group for the promotion of county library services.
1955	The first meeting was held for the civil society group The Committee for Promotion of County Library Service at Carnegie Library School. Mrs. Howard (Dorothea) EnDean and Mrs. Charles (Dorothy) Strang were leaders. Mrs. George (Florence) Karnofsky was elected chairman. This group became the Library Planning Committee of Allegheny County.
1955	The Library Planning Committee worked with the Carnegie Library of Pittsburgh to promote the idea of county library services. Bookmarks were distributed and a bookmobile displayed at the County Fair.
1955	Representatives from the Library Planning Committee of Allegheny County, Allegheny Conference on Community Development, Civic Club of Allegheny County, and Ralph Munn met with County Commissioners to propose a county system.
1956	County Commissioners agreed to fund the "Munn plan" and contract with the Carnegie Library of Pittsburgh. The plan initiated 1) free borrowing privileges in Carnegie Library of Pittsburgh for all residents of Allegheny County, 2) bookmobile service to some areas lacking library service, 3) inter-library loans from the Carnegie system to other libraries, and 4) centralized purchasing and cataloging services by the Carnegie

	for other libraries.
1956	Carnegie Free Library of Allegheny and its Woods Run branch were merged with the Carnegie Library of Pittsburgh system. The merger was approved by Mayor David L. Lawrence.
1956	The Library Services Act (LSA) was passed by the US Congress to provide funding for the construction of rural libraries. Funding was administered by the Library Services Branch of the US Department of Education.
1956-57	Following the implementation of county services, the Library Planning Committee worked toward strengthening existing services and fostering new ones, including the development of service standards.
1957	County bookmobile service began.
1957	Pennsylvania State Library commissioned a state library survey and hired Lowell A. Martin, Dean at Rutgers University, as lead surveyor. The survey was funded by federal LSA money.
1958	Ralph Munn proposed a plan for the federation of libraries in the county. Librarians and trustees from around the county met to discuss the plan. The plan was ultimately abandoned in light of the Martin plan and other proposals at the state level.
1958	Lowell Martin published results and recommendations from the Pennsylvania Library Survey. Recommendations for a state-wide plan based on the survey were known as “the Martin Plan.”
1958	Hearings were held by the State Library, the Pennsylvania Library Association, and the Governor’s Commission on Public Library Development to develop a state-wide plan for libraries to propose as state legislation.
1960	Members of the Library Planning Committee of Allegheny County, now called the Citizens Committee for County Library Service, met with County Commissioners to discuss a federated system.
1960	Pennsylvania Library Association Legislative Committee attempted to pass a bill in the state legislature to establish a library code.
1961	Ralph Munn formulated another plan that recommended a regional reference center and funding of libraries by local school districts.

### PERIOD 3

**Table F.3. Chronology of key events of period 3.**

Year	Description of event
1961	Act 188 was approved by the state General Assembly and signed by now-Governor Lawrence. The act established a library code for the state. It also instituted state aid to libraries, district library units, a Governor's Advisory Council, and standards for public library services.
1962	Preliminary steps were taken for a district services program in Pittsburgh.
1963	Pennsylvania state plan became effective; district services began.
1963	The Graduate School of Library and Information Sciences of the University of Pittsburgh admitted its first class.
1964	The Library Services Act was renewed as the Library Services and Construction Act; the bill was signed into law by President Lyndon B. Johnson.
1965	A book storage and bookmobile parking facility was established behind the West End Branch of the Carnegie Library of Pittsburgh.
1966	Keith Doms re-proposed Ralph Munn's idea of a regional reference center to the County Commissioners.
1967	A pilot facility for a regional reference center was approved by the County Commissioners. Funding was allocated by the State Library from federal Library Services and Construction Act (LSCA) monies.
1967	Lowell Martin made a study of the Pennsylvania plan in operation.
1967	Pennsylvania Library Association initiated discussions about the Martin re-survey.
1968	District libraries in Butler County were transferred from the Pittsburgh District to the New Castle District
1969	The Allegheny County Regional Reference Library opened its first-year demonstration period. The library was funded by the county and an LSCA grant.

## **PERIOD 4**

**Table F.4. Chronology of key events of period 4.**

Year	Description of event
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1970	Board of County Commissioners of Allegheny County commissioned former state librarian Ralph Blasingame to conduct a study of libraries in the county. The study suggested increased county support and a new countywide library system centralized in Oakland and led by the Carnegie Library of Pittsburgh,
1970	Donald C. Potter, Associate Director of Carnegie Library of Pittsburgh, initiated discussion about the Blasingame study with librarians and trustees throughout the county.
1971	The Pennsylvania Library Association Trustee Division and Governor's Advisory Committee continued legislative efforts toward county library mandation, a key finding of the Martin re-survey.
1972	The State Library released a statewide plan for Library Services and Construction Act funds.
1972	Allegheny County Government Study Commission was instituted to study options for restructuring county government.
1973	Regional library system proponents presented their case before the Allegheny County Government Study Commission.
1974	The Government Study Commission published a Home Rule Charter. This charter was rejected in a county referendum.
1974	Pennsylvania State Library issued a Master Plan report.
1976	The Carnegie Library of Pittsburgh developed a plan for county library services to present to the County Commissioners.
1976	The board of trustees of the Carnegie Library of Pittsburgh reorganized to include representation from the County
1976	The County Commissioners, with the help of the Carnegie Library of Pittsburgh, applied to the State Library for LSCA funding to initiate a study on libraries in the county. The project became known as the Allegheny County Citizens Study Committee on Libraries.
1977	Pennsylvania State Library released a new library development plan.
1977	The League of Women's Voters Library Resource Committee met to discuss a county plan.
1978	A home rule charter was again rejected by voters in Allegheny County.
1978	The Allegheny County Citizens Study Committee on Libraries issued its final report.
1979	Comments were solicited and collected about the citizens' study from librarians and trustees around the county.



## PERIOD 5

**Table F.5. Chronology of key events of period 5.**

Year	Description of event
1985	Access Pennsylvania, a resource sharing network funded by the state, began in Pennsylvania.
1988	Allegheny County libraries joined Access Pennsylvania.
1989	Carnegie Library of Pittsburgh initiated a President's Advisory Committee on the Library.
1989	Carnegie Library of Pittsburgh unveiled an online public access catalog, CAROLINE (Carnegie Online) at the main library. Barcodes replaced bookslips.
1990	The President's Advisory Committee reported that the Carnegie Library of Pittsburgh was underfunded. The study also recommended a tiered countywide library system managed by a central authority.
1990	Frank J. Lucchino, County Controller for Allegheny County, published a special report that advocated for fiscal regionalism and home rule. The study identified libraries as an area of inter-municipal cooperation.
1991	Lucchino visited a meeting of the Library Association of the South Hills (LASH) and Northland library. He advocated for political action and inter-library cooperation.
1991	Lucchino issued a second report that focused on libraries. The report called for a special county commission on libraries, funding for a county library director, and it urged local library cooperation.
1991	County Library Association Serving the People (CLASP) was formed. It was a group of librarians and trustees concerned for library advocacy and cooperation. It was the first countywide association of libraries.
1991	The Commission on the Future of Libraries in Allegheny County (CFLAC) was formed as a special commission of the county. Lucchino served as chair.
1991	The Buhl Foundation decided to fund a county library director.
1991	Carnegie Library of Pittsburgh began to connect branch libraries with a telecommunications system and computer hardware.
1992	The Commission on the Future of Libraries in Allegheny County hired a new

	county director, DeeAnna Cavinee
1992	The Commission on the Future of Libraries in Allegheny County, the Carnegie Library of Pittsburgh, and CLASP, with funding from LSCA and the County, purchased computers and modems for branch libraries and some county libraries to connect with CAROLINE and the Internet. Known as Project Link-Up, it was the beginning of a digital automated circulation and catalog system in the county.
1992	Allegheny Conference on Community Development began to study a new means for funding cultural assets in the Pittsburgh area.
1993	Reading rooms, known as Knowledge Connections, began to be established by CFLAC in housing projects around the county.
1993	Assisted by CFLAC, fax machines were donated to county libraries.

## PERIOD 6

**Table F.6. Chronology of key events of period 6.**

Year	Description of event
1993, June–July	Susan Parker of the Pennsylvania Economy League contacted CLASP and the Carnegie Library of Pittsburgh about plans for a Regional Asset District. The special district would fund things like the zoo, aviary, conservatory, stadium, and libraries.
1993, September	Bob Croneberger hired RMG Consultants to help develop plans for electronic delivery in all public libraries and branches.
1993, September	CLP received a 2-year LSCA grant from the State Library to fund Three Rivers Free-Net, an electronic community information network.
1993, December	Lobbyists in Harrisburg pushed for the Regional Asset District. Proponents included the Allegheny Conference on Community Development, Pennsylvania Economy League, Mayor Tom Murphy, Pirates President Mark Sauer, and Steelers President Dan Rooney.
1993, December	Act 77 passed the State General Assembly and it was signed by Governor Casey to authorize a Regional Asset District in Allegheny County. A governing board would distribute one-half of a 1 percent sales tax increase to regional assets in the county.

1993, December	Lucchino and Doreen Boyce of the Buhl Foundation met with librarians and trustees to announce a proposed Project Link-Up expansion. They called it the Electronic Information Strategy. Boyce pledged to help obtain capital funding.
1994, February	CLASP, CLP, and CFLAC worked with RMG consultants to further develop the Electronic Information Strategy.
1994, March	CLASP met with Jim Turner of the Allegheny Conference on Community Development to develop plans for obtaining RAD funding.
1994, April	The County Commissioners approved the 1 percent sales tax increase and the Regional Asset District.
1994, May	The Electronic Information Strategy became the Electronic Information Network.
1994, May	CLASP began to work with the consultant Bill Dodge to craft a RAD proposal.
1994, June	Pittsburgh District libraries in Westmoreland County were transferred to Monessen District.
1994, July	CLASP governance was split into representation from 5 regions: North, South, East, West, and Central.
1994, July	CFLAC and other libraries petitioned the Pennsylvania Public Utilities Commission for reduce telecommunications rates for libraries.
1994, August	CLASP restructured to become the Allegheny County Library Association (ACLA) in order to petition for RAD funds. JoEllen Kenney was elected President, Marilyn Jenkins was elected Vice-President
1994, September	ACLA held a petition drive and solicited letters in support of county library funding from RAD
1994, July	The extra 1 percent sales tax from RAD took effect.
1994, July	Lucchino and Croneberger pitched the EIN to local foundations for capital funding.
1994, September	ACLA and CLP submitted funding proposals to the RAD board. Monroeville Library submitted a separate proposal.
1994, October	ACLA was awarded 5 million dollars by the RAD board; CLP was awarded over 11 million dollars. Both were approved as statutory assets, meaning that their funding was guaranteed for 10 years.

## PERIOD 7

**Table F.7. Chronology of key events of period 7.**

Year	Description of event
1994, October	ACLA leaders began to discuss with the RAD board how to allocate the 5 million dollars to 40 libraries.
1994, October	Croneberger received funding for Electronic Information Network. The group began transition from planning to implementation.
1994, November– December	ACLA submitted a preliminary budget and distribution formula to RAD. The 3 formula factors were: population, local government support, and distress. Money was also budgeted for EIN and administration. The budget was based largely on recommendations from Jim Turner, a consultant for the Allegheny Conference for Community Development and Pennsylvania Economy League.
1994, December	DeeAnna Cavinee resigned as Allegheny County Library Director. A search for a new Allegheny County Library Administrator was undertaken by CFLAC.
1994, December	The RAD board adopted a 53 million dollar budget for 1995.
1995, January	Marilyn Jenkins was hired as the Allegheny County Library Administrator.
1995, January	Northland and Monroeville libraries decided not to receive RAD money and not to act as county libraries due to perceived financial losses. Because they were not county libraries, they became ineligible to join EIN.
1995, March	The RAD board approved the ACLA distribution formula.
1995, April–July	Director and staff were hired for EIN.
1995, May	ACLA hired Library Planning Associates to help create a 5-year plan for the RAD board.
1995, July	The EIN board approved eligibility criteria for participation in the network. The criteria were: libraries must be ACLA members, they must qualify for state aid, and they must offer open-access services countywide.
1995, July	Northland Library applied for RAD funding independently.
1995, November	EIN computers were installed in libraries.

1995, December	ACLA and CLP received RAD funding budget for 1996.
1996, January	Marilyn Jenkins was appointed interim executive director of ACLA.
1996, January	EIN equipment continued to be installed in libraries.
1996, March	EIN system training for librarians began.
1996, March	Library Planning Associates completed a 5-year planning report for ACLA. The plan addressed overlap between ACLA and CLP district services. The plan also recommended that ACLA pursue federated system status.
1996, April	Jenkins and Kamper led a discussion with ACLA directors about a federated library system.
1996, May	Northland and Green Tree decided not to participate in EIN.
1996, July	Marilyn Jenkins was hired as ACLA executive director. She also continued to work as Allegheny County Library Administrator.
1996, August	The ACLA membership passed a budget with a narrow margin. Some libraries openly expressed concerns that the approval process did not leave ample time for discussion. These concerns were relayed to the RAD board.
1996, August	ACLA's long-term plan was approved by the RAD board.
1996, August	Legal requirements for becoming a federated system were worked out by ACLA counsel. ACLA membership voted to continue to work toward federation.
1996, September	EIN implementation continued with the distribution of peripheral equipment.
1996, September	ACLA member libraries began to submit letters of intent to form a federated system.
1996, October	Anti-ACLA publications were faxed to county officials, including the RAD board.
1996, October	Not all libraries chose to fully participate in EIN. Those that connected but did not fully participate were called "linked libraries."
1996, December	Northland Public Library decided not to participate in the ACLA funding from RAD.
1997, March	Member libraries questioned whether non-participation in a federated system also disqualified them from receiving RAD funding.
1997, June	ACLA membership voted to change ACLA into a federated system. The changes

	included a reconstitution of the board, 4 classes of membership, and the start of a Librarians Advisory Council.
1997, July	Allegheny County League of Municipalities expressed concern about the proposed change to a federated system.
1997, August	Some libraries protested to the RAD board the change in ACLA bylaws that called for a citizen-led board, not one filled by librarians.
1997, September	ACLA received notice from the State Library that it qualified as a federated system and its bylaws were approved.
1997, October	Northland Public Library received a special grant from the RAD board even though Northland did not offer open-access services to the county.
1998, November	Independent and county-led audits revealed that over 100,000 dollars of EIN equipment was missing.

## PERIOD 8

**Table F.8. Chronology of key events of period 8.**

Year	Description of event
1998	EIN board and libraries discussed Internet filtering software.
1998	A new ACLA board was seated. There were 7 members: 4 at-large members, 1 representative from CFLAC, one from the regions, and 1 from the Librarians Advisory Council.
1998	Petitions continued regarding the ACLA distribution formula.
1999	Conflict arose between CLP and ACLA over control of EIN.
1999	ACLA contracted with Allegheny County to oversee Knowledge Connection sites.
2000	Allegheny County adopted home rule. The 3-commissioner system was replaced by a County Executive position and a 15-member council.
2001	Library Planning Associates released a long-range planning report for ACLA. Suggestions in the report included: revise the governance of EIN to become a 501(c)3 organization, dissolve the Commission on the Future of Libraries, develop a tiered model of library service, move bookmobile services from CLP to ACLA, and consider moving district services to ACLA.

2001	ACLA proposed service standards for libraries. Performance measures were new to the funding formula.
2002	ACLA overtook county bookmobile administration from CLP.
2002	ACLA proposed more concrete service standards.
2002	The Electronic Information Network became a 501(c)3 and was renamed eiNetwork. The organization had two members: Carnegie Library of Pittsburgh and Allegheny County Library Association.
2003	ACLA considered point-based funding with multiple levels.
2003	The state public library subsidy was reduced and the State Library no longer enforced state standards.
2004	The Standards/Funding Task Force failed to develop a workable formula that incorporated performance measures and incentive funding.
2005	The ACLA board reconvened the Standards/Funding Task Force.
2006	Several libraries criticized ACLA's performance-based funding formula.
2007	Olszak Management Consulting assisted with the formula revision process.
2007	Service standards were adopted for ACLA member libraries.
2008	The economic recession led to increases in library usage.
2008	CLP became the fiscal agent of eiNetwork.
2009	ACLA revised the distribution formula and presented it to the RAD board for approval. The RAD board rejected the initial proposal because it failed to account for local community support.
2009	ACLA approved a new formula and presented it to the RAD board. The RAD board approved the revised formula.
2009	State basic aid was reduced by 20 percent and AccessPA was eliminated for 2010.
2010	ACLA revisited formula revisions.
2011	A dedicated millage for Carnegie Library of Pittsburgh was approved through a city referendum.

## PERIOD 9

**Table F.9. Chronology of key events of period 9.**

Year	Description of event
2011	David Donahoe, Executive Director of RAD, requested a review of ACLA by ParenteBeard.
2012	ParenteBeard issued its report. The reports found service duplication between ACLA and CLP's District Library Services Office. The report recommended streamlining district services, centralizing purchasing and data collection tasks, and placing eiNetwork under the control of one organization. The report further found that ACLA headquarters must improve transparency and communication with member libraries. A final recommendation for ACLA headquarters was to separate into two functional units, one for administration of services, and the other for funding and data collection.
2012	The RAD board urged ACLA and CLP to consider the findings of the ParenteBeard report in their strategic planning processes.
2012	The Hill Group completed a report for ACLA on new potential services and programs for the county. The report offered little informative value.
2013	ACLA and CLP hosted discussions with county libraries about new potential service models.
2013	ACLA and CLP leaders decided to hire a consultant to lead a county study called Library Service in the 21st Century.
2013	ACLA and CLP hired Nicole Swerhun to facilitate a countywide study.
2013	The 21st Century process began. From the start, there was a mismatch between the problems identified in the ParenteBeard report and the approach adopted by Swerhun.
2013	Libraries in Homestead and McKeesport received dedicated millage as a result of municipal referenda.
2013–2014	The 21st Century process continued in libraries throughout the county.
2014	The County-City Library Service Panel issued a final report from the 21st Century process led by Swerhun. The report recommended that ACLA establish mandatory standards for county libraries, monitor compliance with those standards, and establish centralized services through a single, combined entity.
2014–2015	ACLA member libraries offered feedback on proposed library standards.
2015	Despite protests, the ACLA board adopted mandatory standards for ACLA member libraries.



## APPENDIX G: SOURCES

### SOURCES FOR PERIOD 1

**Table G.1. Sources for period 1.**

No.	Citation
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10	Civic Club of Allegheny County. (1924-1925). [Board Minutes May 1924 to 1925]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.
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**Table G.7. Sources for period 7.**

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**Table G.9. Sources for period 9.**

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39	Library Administrator 7. (2015, February 17). [Interview]. Interviewed by Michael M. Widdersheim.
40	Trustee 1. (2015, August 6). [Interview notes]. Interviewed by Michael M. Widdersheim.
41	Trustee 1. (2015, August 6). [Interview]. Interviewed by Michael M. Widdersheim.
42	Trustee 2. (2015, July 2). [Interview]. Interviewed by Michael M. Widdersheim.
43	Librarian 1. (2016, March 3). [Interview]. Interviewed by Michael M. Widdersheim.
44	Trustee 2. (2016, January 26). [Interview]. Interviewed by Michael M. Widdersheim.
45	Trustee 3. (2015, July 1). [Interview]. Interviewed by Michael M. Widdersheim.
46	Librarian 2. (2015, May 27). [Interview]. Interviewed by Michael M. Widdersheim.
47	Library Administrator 1. (2015, August 10). [Interview]. Interviewed by Michael M. Widdersheim.
48	Library Administrator 1. (2015, July 28). [Interview]. Interviewed by Michael M. Widdersheim.
49	Library Administrator 2. (2015, July 8). [Interview]. Interviewed by Michael M. Widdersheim.
50	Library Administrator 2. (2016, January 26). [Interview]. Interviewed by Michael M. Widdersheim.
51	Library Administrator 3. (2015, July 21). [Interview]. Interviewed by Michael M. Widdersheim.

52	Library Administrator 3. (2016, January 25). [Interview]. Interviewed by Michael M. Widdersheim.
53	Swerhun. (2014, January). January engagement training follow-up. Retrieved from acla.pbworks.com
54	Swerhun. (2013, November 14). LAC update #2: LS21. Retrieved from acla.pbworks.com
55	Swerhun. (2013, October 10). LAC update: LS21. Retrieved from acla.pbworks.com
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58	ACLA. (2014, February 13). Library service in the 21st century: A county-wide conversation about public libraries (Part 1 of 3). Retrieved from acla.pbworks.com
59	Visit Monroeville. (2014). Library service in the 21st century: A county-wide conversation about public libraries (part 1). Retrieved from <a href="http://www.visitmonroeville.com/event/library-service-21st-century-county-wide-conversation-public-libraries-part-1/">http://www.visitmonroeville.com/event/library-service-21st-century-county-wide-conversation-public-libraries-part-1/</a>
60	ACLA. (2014, March, April). Library service in the 21st century: A county-wide conversation about public libraries March/April 2014 (Part 2 of 3). Retrieved from acla.pbworks.com
61	Swerhun. (2014). Library service in the 21st century: Discussion guide 2. Retrieved from acla.pbworks.com
62	Swerhun. (2014, May 8 & 9). LS21: Draft discussion summary from meetings with library directors. Retrieved from acla.pbworks.com.
63	Swerhun. (2014, March 6 & 7). LS21: March engagement training follow-up. Retrieved from acla.pbworks.com
64	Swerhun. (2013, October 31). LS21: October engagement training follow-up. Retrieved from acla.pbworks.com
65	Swerhun. (2014, July). LS21: Overall conversation summary. Retrieved from acla.pbworks.com
66	Swerhun. (2014, February 13). LS21: Part 1 consultation with ACLA general membership. Retrieved from acla.pbworks.com
67	Swerhun. (2014, April 3). LS21: Part two consultation with ACLA general membership. Retrieved from acla.pbworks.com
68	ACLA. (2014, May). LS21: Progress report. Retrieved from acla.pbworks.com

69	Swerhun. (2014, June 5). LS21: Working session #3 with ACLA general membership. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
70	DiVittorio, M. (2014, September 9). Mid-Mon Valley libraries weigh in on Allegheny County recommendations. <i>TribLIVE</i> .
71	Borough of Edgewood. (2014). Minutes of January 21, 2014. Retrieved from <a href="http://www.edgewood.pgh.pa.us">www.edgewood.pgh.pa.us</a>
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73	Plaskon, D., & Sullivan, R. (2014). North Boroughs' libraries to be focus on collaborative community meetings: County-wide library services initiative seeks input from residents, leaders. Retrieved from <a href="http://northgate.k12.pa.us">northgate.k12.pa.us</a>
74	County-City Library Service Panel. (2014, May 21). On behalf of the County-City Library Service Panel. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
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79	Allegheny Regional Asset District. (2012, February 8). Report on consulting services regarding the Allegheny County Library Association (ParenteBeard report). Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
80	Sisterson. (2014, June 10). Report on review of projections prepared by Carnegie Library of Pittsburgh, Electronic Information Network and Allegheny County Library Association. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
81	Jenkins, M. A. (2012, February 27). [Response to Parente Beard report].
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83	ACLA. (2014). State requirements of ACLA & CLP. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
84	ACLA. (2015). Strategic plan 2016-2018. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
85	ACLA. (2013, March 8). Summary input from meetings with library directors. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>
86	CCLS panel. (2014, May 21). Summary of meeting. Retrieved from <a href="http://acla.pbworks.com">acla.pbworks.com</a>

87	CCLS panel. (2014, February 21). Summary of meeting. Retrieved from acla.pbworks.com
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89	CCLS panel. (2014, June 11). Summary of meeting. Retrieved from acla.pbworks.com
90	CCLS panel. (2014, March 21). Summary of meeting. Retrieved from acla.pbworks.com
91	CCLS panel. (2014, May 19). Summary of meeting. Retrieved from acla.pbworks.com
92	South Park Library. (2014, February 12). Support our library: Participate in the conversation. Retrieved from www.southparklibrary.org
93	Riely, K. (2014, May 25). Tax dedicated to library gets mixed voter results. <i>Pittsburgh Post-Gazette</i> .
94	ACLA. (2010, January 1). Registered cardholders among Allegheny County Municipalities. Retrieved from acla.pbworks.com

## TYPES OF SOURCES COLLECTED

**Table G.10. Names and definitions of source types.**

Source type	Description
Meeting minutes	Notes from meetings, including attendance, agendas, motions, votes, and discussions.
News article	Article published in a newspaper, magazine, or journal.
Letter	A formal communication with a distinct sender and receiver. Includes typewritten and handwritten letters, memos, notes; faxes; and emails.
Report	An in-depth study of a focused topic that uses a discernible methodology to reach conclusions.
Announcement	A broadcast about news or an event. Shorter than a news article. Includes a bulletin, newsletter, flyer, advertisement, or poster.
Statute	Binding and enforceable agreement between parties. Includes bylaws, contracts, acts of legislation, and policies.
Interview transcript	Transcript from an in-person conversation with an interviewee.



Interview notes	Notes from non-recorded sections of an interview, observations not included in a transcript, or notes from a phone interview that is not recorded.
Field notes	Observations from public meetings.
Speech	An oral presentation by an individual at a public event, such as a hearing.
Discussion board	An online thread of messages with several participants.

**Table G.11. Types of sources by period.**

Period	1	2	3	4	5	6	7	8	9	Totals	Ratio
Meeting minutes	11	2	3	4	22	25	43	12	13	135	.137
News articles	15	12		2	11	25	37	44	6	152	.154
Letters	8	19	21	36	10	62	168	13	3	340	.344
Reports	16	23	22	19	22	39	51	26	36	254	.257
Announcements	2	1			4	2	21	6	5	41	.041
Statutes	3				1	2	3	4	1	14	.014
Interview transcripts					2	3	3	2	2	12	.012
Interview notes					2	1		3	19	25	.025
Fieldnotes									9	9	.009
Speeches						5				5	.005
Discussion board							1			1	.001
Totals	55	57	46	61	74	164	327	110	94	988	1

**Table G.12. Source origins for the 9 periods.**

Period	1	2	3	4	5	6	7	8	9	Totals	Ratio
CLP Oliver Room – Director’s Office Collection	14	3		1	1					19	.019

CLP Oliver Room – District Services Collection Series 2		26	35	54	22		1			138	.140
Pitt archives – Civic Club Collection	24	4								28	.028
Allegheny County Law Library	5					1				6	.006
Heinz Center – Detre Archives		4								4	.004
CLP open stacks	9	20	10	6	17	24	39	49		174	.176
Pitt open stacks			1							1	.001
ACLA office – history file					30	134	253	42		459	.465
ACLA wiki								10	52	62	.063
EIN archives							2	2		4	.004
World Wide Web	3						29		12	44	.045
Interviews					4	4	3	5	21	37	.037
Fieldwork						1		2	9	12	.012
Total	55	57	46	61	74	164	327	110	94	988	1

## **APPENDIX H: THE PILOT PHASE**

### **THE SECOND CODER**

The second coder chosen for this study was an advanced-level doctoral candidate in the information sciences at the University of Pittsburgh. This individual was selected for several reasons:

- General subject area expertise in the information sciences;
- Methodological training and knowledge of qualitative content analysis;
- Ability to think abstractly and to express ideas clearly;
- Insightfulness;
- Rapport;
- Availability for regular research meetings;
- Critical distance from the research topic.

The situation in this study's pilot phase was distinctive because, by pure chance, the second coder also selected qualitative content analysis as a research method for their own dissertation study and was in need of a second coder for that project. This coincidence created a *quid pro quo*, mutually-beneficial situation where each researcher served as the second coder for the other's project. The dissertation projects shared identical timelines at that point, so the pilot phases for both projects were conducted concurrently.

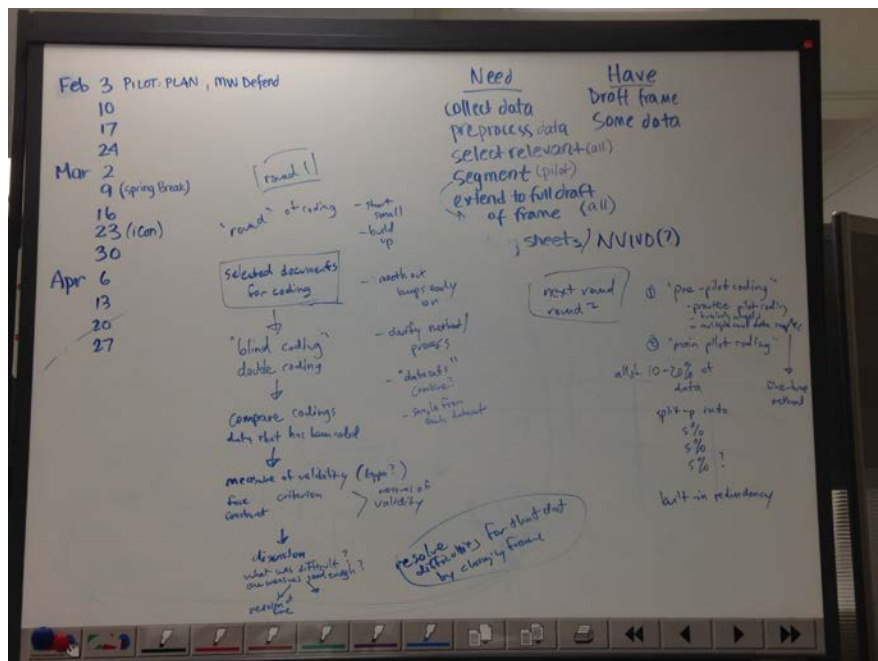
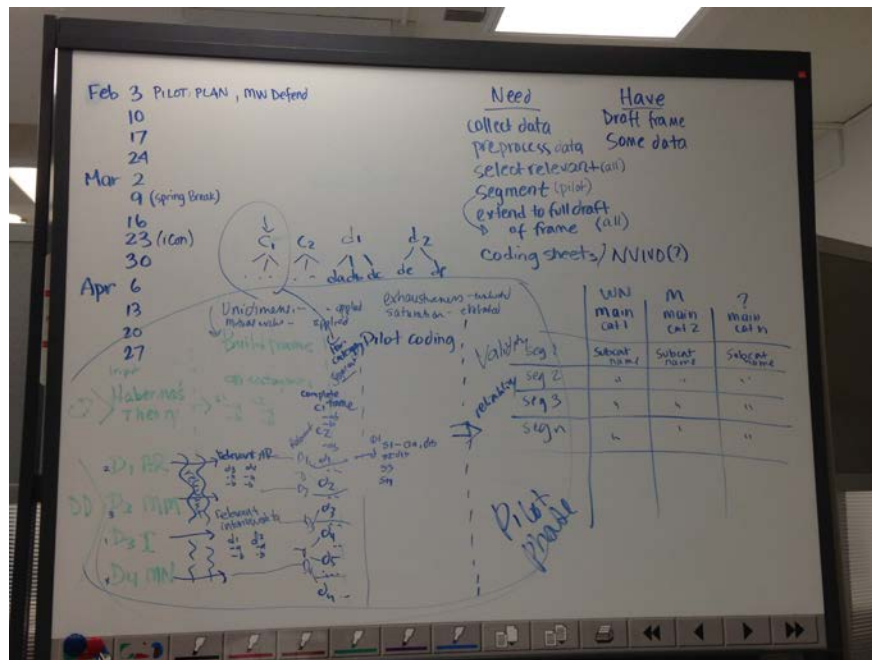
## THE PILOT CODING TIMELINE AND SETTING

The pilot phase for this project began in January 2016 and continued into June 2016 (see [Table H.1](#)). Meetings were held in person. With few exceptions, meetings were held at least once weekly. The setting for the meetings was the University of Pittsburgh campus. The meeting objectives progressed from 1) brainstorming and planning the pilot phase process, to 2) providing the second coder a general background and introduction to the project, including key concepts, to 3) exchanging codings, discussing them, measuring consistency, and revising the coding frame. During the coding process, blind coding was conducted between meeting sessions. Meetings were held to exchange materials and compare coding results. Materials were exchanged in hard copy form and shared online.

**Table H.1. Meeting dates and topics with the second coder during the pilot phase.**

Meeting	Date	Topic
1	1-27-16	Process planning; draft plan
2	2-3-16	Discussion of coding frame structure; how to segment; using NVivo to code and generate reports (see <a href="#">Figure H.1</a> and <a href="#">Figure H.2</a> ).
3	2-10-16	Introduction to preliminary coding frame; planning the stages of the pilot phase (see <a href="#">Figure H.3</a> ).
4	2-17-16	Discussion of coding frame categories, definitions, sub-categories, and examples.
5	2-19-16	Discussion of key concepts and coding frame sub-categories (see <a href="#">Figure H.4</a> ).
6	2-24-16	Discussion and revision of coding frame.
7	3-2-16	Exchange of coding frame with categories and definitions; discussion of contextual units (see <a href="#">Figure H.5</a> ).
8	3-4-16	Exchange of segmented source materials for coding, provided

		background materials on circulation of power model.
9	3-7-16	Discussion of coded materials and coding problems; exchange of new segmented materials for coding.
10	3-11-16	Discussion of coded materials.
11	3-14-16	Discussion of coded materials; revision of coding frame; exchange of new segmented source materials.
12	4-4-16	Exchange of segmented source materials for coding.
13	4-11-16	Exchange of coded materials.
14	4-12-16	Comparison of codings; discussion of coding frame; development of data-driven concepts.
15	4-18-16	Determine total sources to be included in pilot phase.
16	4-19-16	Comparison of codings; discussion and refinement of key concepts.
17	4-26-16	Comparison of codings; discussion of coding frame.
18	5-4-16	Discussion of codings, coding frame, and key concepts.
19	5-10-16	Wrap-up planning session; exchange codings.
20	5-24-16	Exchange codings; plan for pilot phase conclusion.
21	6-8-16	Reflection on pilot coding process.



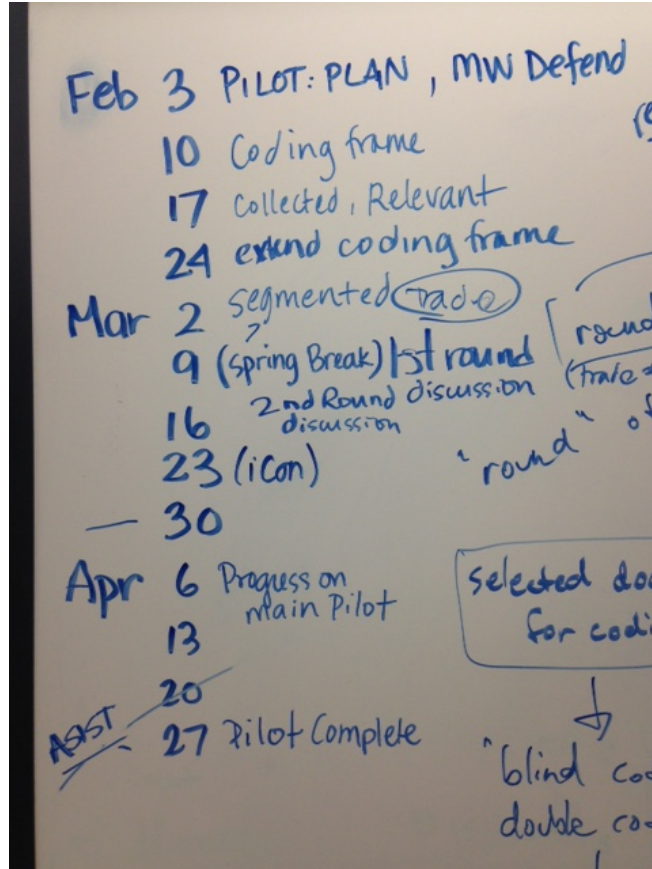


Figure H.3. A preliminary timeline for the pilot phase (2-10-16).

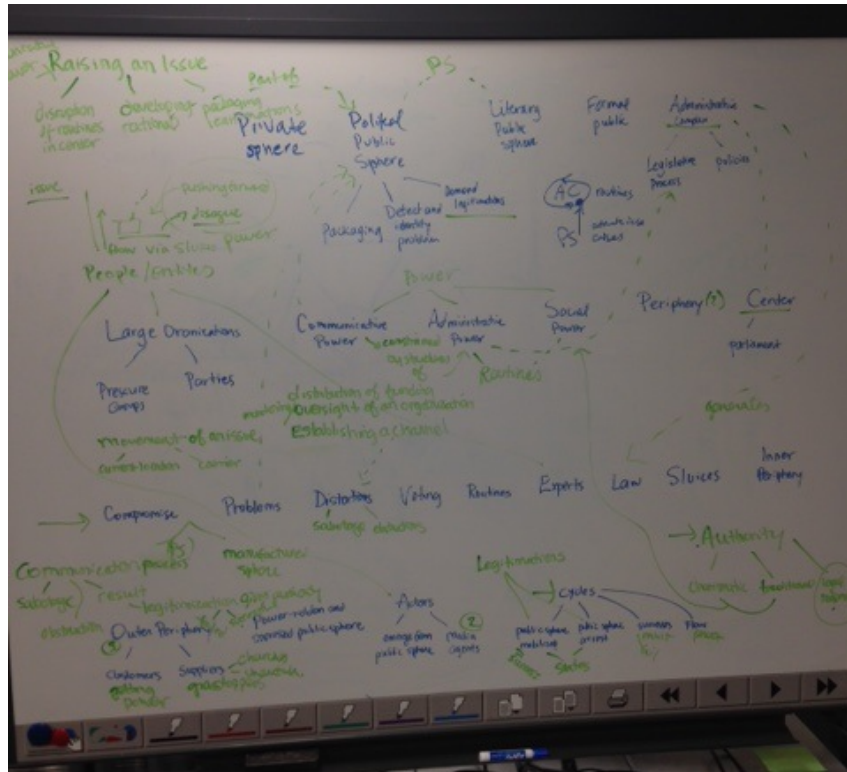


Figure H.4. Coding frame and key concept discussion (2-19-16).

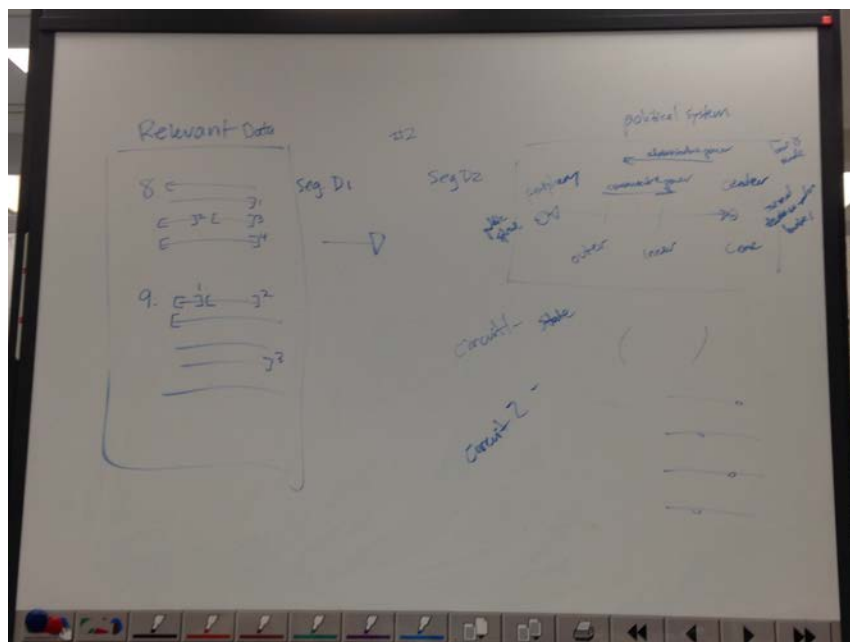


Figure H.5. Coding segments and coding categories (3-2-16).



## STAGES OF THE PILOT PHASE

The pilot phase was conducted in 3 stages (see [Table H.2](#)). In the first stage, planning, coders considered how to carry out the process. A schedule and timeline were outlined in this stage. It was also decided to use a mix of hard copy materials and qualitative data analysis software for the trial coding. NVivo was used for coding because in the end coders would use it to calculate inter-coder reliability. But codings were also copied onto paper matrices for use during discussion meetings.

**Table H.2. Stages of the pilot phase.**

Stage	1	2	3
Name	Planning	Introduction	Trial coding
Actions	<ul style="list-style-type: none"> <li>-Discuss how to conduct the pilot phase</li> <li>-Decide on coding timeline</li> <li>-Decide on coding software</li> </ul>	<ul style="list-style-type: none"> <li>-Present key concepts and preliminary coding frame to second coder</li> </ul>	<ul style="list-style-type: none"> <li>-Exchange segmented source materials</li> <li>-Code source materials according to coding frame</li> <li>-Discuss inter-coder consistency</li> <li>-Revise coding frame as necessary</li> </ul>
Products	<ul style="list-style-type: none"> <li>Timeline</li> <li>Coding software</li> </ul>	<ul style="list-style-type: none"> <li>Preliminary coding frame</li> </ul>	<ul style="list-style-type: none"> <li>Inter-coder reliability scores</li> <li>Valid and reliable coding instrument</li> </ul>

NVivo is a popular qualitative data analysis software package that is used to organize and manage source material files, create coding nodes and a coding frame, perform coding on source materials, share and exchange materials and codings, and calculate inter-coder reliability scores.

It was decided that managing sources, segmenting them, sharing files, coding materials, and measuring inter-coder consistency might be better facilitated using NVivo as compared to doing so using hard copies. One researcher already owned a license for the software, and a Mac version could be provided to the second coder at no additional cost. At the same time, NVivo is not so conducive for use in discussions because coding stripes are not easy to see. Paper-copy matrices also therefore supplemented coding discussions (see [Figure H.6](#)). NVivo was used to display the highlighted segments in the source materials (see [Figure H.7](#)).

PILLOT 9 "more generic"									
POWER	TIME	ACTOR	ACTOR P/R	AUDIENCE	AUDIENCE P/R	ISSUE	LEGITIMATION	IMPLEMENTATION	
1 Admin narrow	1976	co comm	supplier	state lib	state (P)	National Funding	?	?	
2 COMM narrow	1976	CLP President	supplier	CLP	state whole circuit	Local Funding	?	?	
3 COMM narrow	1978	critren co	supplier	co comm	co (core)	county system	?	✓	
4 COMM narrow	1979	SHUA	member	co comm	co (IP)	county system	objects	✓	
5 COMM narrow	1993	CLASP	supplier	co comm	co (core)	CFIAC	PS	✓	
6 COMM narrow	1993	PARSON LEAGUE	CLASP	CLASP	CS (core)	RAD	?	✓	
7 COMM narrow	1993	senator	state	local library	local IP	RAD funding	?	?	
8 Decision	1998	co comm	co (core)	co (core)	co (core)	county system	objects	✓	
9 ?	1999	EIN	EIN (core)	ACLA	ACLA (core)	EIN	?	✓	
10 COMM	2000	EIN	EIN	Buhl	private	EIN	?	?	
11 COMM	2002	ACLA	joint committee	ACLA	member	local lib coordination	object	?	
12 COMM	2006	ACLA	custom	RAD	RAD	RAD funding	?	?	
13 Decision	2010	ACLA	core	RAD	core	RAD funding	PS	?	
14 COMM	2012	ACLA	core	RAD	core	RAD funding	?	?	
15 COMM	2012	co admin	supplier	RAD	RAD	RAD funding	?	✓	
16 ADMIN	2012	RAD	core	co lib	co lib	RAD funding	?	?	
17 COMM	2013	ACLA	core	ACLA	member	MISC	discussion	?	
18 Decision	2013	co admin	core	ACLA	committee	MISC	?	?	
19 COMM	2013	II	II	II	member	MISC	discuss	✓	
20 COMM	2014	SS Admin	supplier	no JFS	inter core	local lib coord.	?	?	
21 COMM	2016	ACLA	Board	ACLA	propos	II	?	?	
22									
23									
24									
25									

Figure H.6. Example of a coding matrix sheet from trial coding round 9.

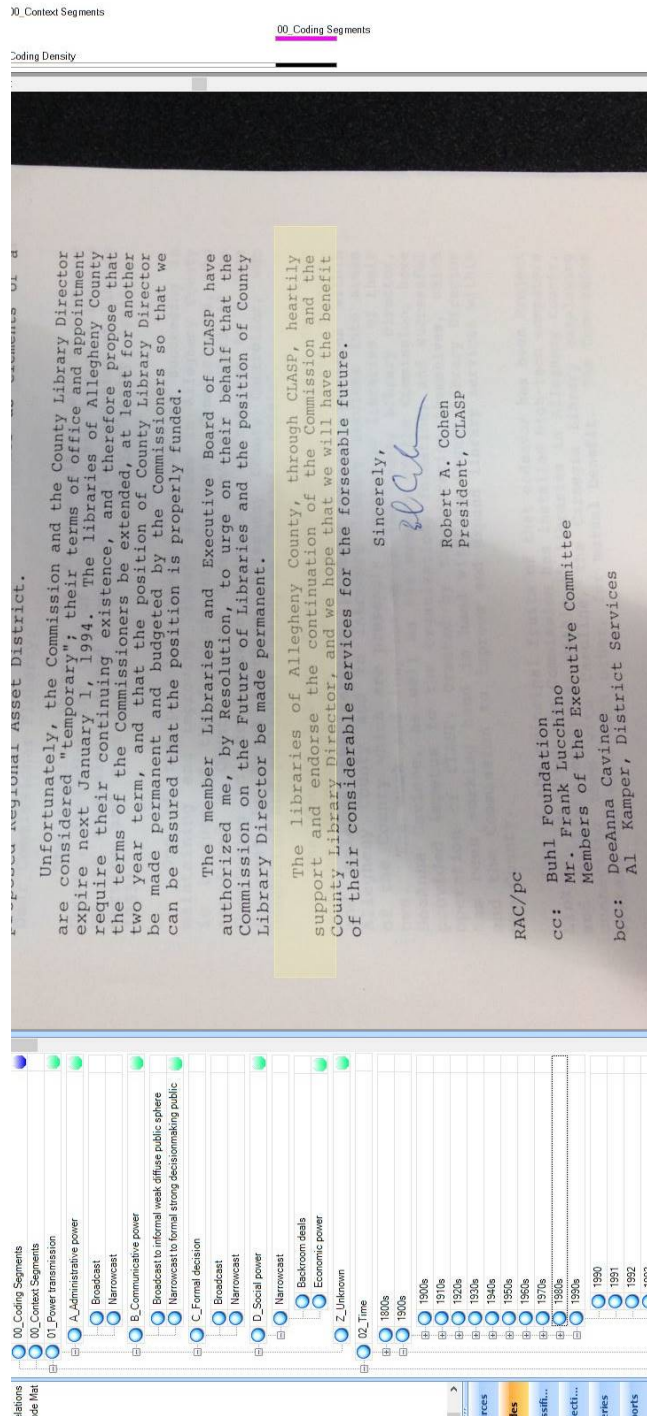


Figure H.7. View of a coding segment in NVivo during a trial coding.

In the second stage of the pilot phase, introduction, the second coder was presented a general background of the research project and an overview of key concepts of the model that would form the basis of the coding frame. The introduction stage was important to familiarize the second coder to the types of source materials to be coded, the research perspective, and the purpose of the study. A preliminary coding frame was also created and introduced at this time.

The third stage of the pilot phase was the trial codings. This stage was the primary focus of the pilot phase. During this stage, coders read and analyzed source materials and coded them according to the coding frame. Source materials were exchanged during meetings or online, and blind coding was conducted between meetings. Coders then met to compare codings, discuss their coding decisions, and propose modifications to the coding frame. Trial codings progressed until 4 conditions were met: 1) inter-coder reliability scores showed that coders were consistent, 2) the coding frame was determined to be valid and reliable through discussions, 3) sufficient numbers and types of sources had been coded from each period, 4) the entire frame had been used.

In the introduction stage, coders decided to carry out the trial codings incrementally. This means that instead of exchanging and coding a large volume of sources at one time, several trial codings would be carried out where source materials were exchanged, coded, and discussed a little at a time. There were several reasons for this decision. First, potentially big problems in the coding frame could be fixed early on without wasting coding labor time. It made more sense to code a little and gain a lot than to code a lot and gain relatively little. Second, the weekly turnover provided more opportunities to think more deeply about the coding frame. New

insights could be gained steadily over the course of several rounds of trial coding. The coding frame was still in development during the pilot phase. Third, the structured chunking of the exchanges and codings would make the coding process more manageable and less overwhelming. Feedback about the coding frame could be obtained quickly and revisions could be made immediately, making progress more visible. Coders would have room between weekly meetings to code and prepare materials. Finally, coding the source materials and discussing the coding frame over numerous meetings and several months established a paced routine where coders could maintain otherwise busy schedules. In the end, 9 rounds of trial coding were conducted during the pilot phase.

### **SOURCES CODED IN EACH TRIAL CODING ROUND**

The trial coding progressed over a course of 9 coding rounds (see [Table H.3](#)). Different sources were exchanged and coded in each round. Citations for the sources coded in each round can be found in [Appendix H](#).

**Table H.3. Number of sources coded in each trial coding round.**

Trial coding round	1	2	3	4	5	6	7	8	9	Total
Number of sources coded	1	6	22	4	11	10	20	21	21	116

## **INTER-CODER RELIABILITY DURING THE PILOT PHASE**

Inter-coder reliability was measured both qualitatively and quantitatively. Qualitatively, researchers discussed their codings in person, compared results, and raised issues regarding the coding frame. When mutual understanding about the coding frame was reached, the instrument was revised to reflect the new understandings and applied in the next round of trial coding. The coding frame was said to be validated in a qualitative sense when both coders agreed that coding categories were clearly understood.

Besides qualitative measurement through open-ended discussion, the coding frame was also measured quantitatively by calculating Cohen's kappa and percent agreement scores. These values were calculated by importing both coders' results from the blind codings into NVivo software, then generating a coding comparison report that included Cohen's kappa and percent agreement scores for each node in the coding frame. This table of scores was then exported to Excel where the Cohen's kappa and percent agreement scores were averaged. These averages were used as the inter-coder reliability scores for each round of trial coding ([Table H.4](#)).

**Table H.4. Inter-coder reliability scores.**

Trial coding round	Date measured	Cohen's kappa	Percent agreement
1	3/7/2016	0.869	99.942
2	3/16/2016	0.9782	99.909
3	4/12/2016	0.943	99.925
4	4/19/2016	0.968	99.911
5	4/26/2016	0.982	99.924
6	5/4/2016	0.983	99.980
7	5/10/2016	0.995	99.995
8	5/25/2016	0.993	99.991
9	6/1/2016	0.993	99.988
	Average	0.967	99.952

It should be noted that while the reliability scores appear relatively high throughout all rounds of trial codings, the coding frame was modified little by little over the course of the codings. This means that even if consistency appears high in a quantitative sense, it was still essential to discuss the frame qualitatively. Quantitative measures alone were therefore insufficient criteria for assessing the frame.

### **SOURCES CODED FROM EACH PERIOD**

In order to better validate the coding frame, it was important to test the frame on source materials from all periods of the study. This was done by tracking how many sources were used from each period in each of the trial coding rounds. The goal was to code around 10 percent of the total



number of sources from each period. This goal was achieved in 6 out of the 10 periods. Overall, 11.7 percent of the total sources were coded during the pilot phase ([Table H.5](#)). This fulfilled the general rule to code between 10 and 20 percent of the total source material during the pilot phase. Citations for the sources used in the pilot phase from each period can be found in [Appendix H](#).

**Table H.5. Percent of sources coded in the pilot phase.**

Period	Year range	Number of sources coded in the pilot phase	Total number of sources	Ratio of sources coded in the pilot phase
1	1923–1945	17	55	0.309
2	1945–1960	13	57	0.228
3	1961–1970	8	46	0.174
4	1970–1979	9	61	0.148
5	1980–1992	11	74	0.149
6	1993–1994	17	164	0.104
7	1994–1997	24	327	0.073
8	1998–2011	8	110	0.073
9	2012–2016	9	94	0.096
	Total	116	988	0.117

## **TYPES OF SOURCES CODED IN THE PILOT PHASE**

It was also important to code a variety of types of source materials during the trial codings in order to ensure that the coding frame could handle all types of sources. The number and types of sources coded in each round are shown in [Table H.6](#).

**Table H.6. Types of sources coded in trial coding rounds.**

Round	1	2	3	4	5	6	7	8	9	Total
Interview transcripts	1					2				3
Meeting minutes		6	2		1	2	1			12
News articles			6	1	1	3	3	3	2	19
Letters			9		5		5	11	8	38
Reports			4	3	3	3	8	7	8	36
Announcements			1		1		3		2	7
Fieldnotes									1	1
Total	1	6	22	4	11	10	20	21	21	116

## **USE OF THE CODING FRAME DURING THE PILOT PHASE**

All categories of the frame were used during the trial codings.

## **RESIDUAL SUB-CATEGORIES AND OVER-CODED SUB-CATEGORIES**

There were no over-coded sub-categories during the trial codings.

## SOURCES CODED IN EACH TRIAL CODING ROUND

**Table H.7. Sources coded in each trial coding round.**

Trial Coding Round	Source Citation
1	Librarian 1. (2016, January 7). [Interview]. Interviewed by Michael M. Widdersheim.
2	Civic Club of Allegheny County. (1925-1927). [Board minutes May 1925 to May 1927]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.
	Civic Club of Allegheny County. (1927-1929). [Board minutes May 1927 to May 1929]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.
	Civic Club of Allegheny County. (1929-1931). [Board minutes May 1929 to April 1931]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.
	Civic Club of Allegheny County. (1931-1932). [Board minutes June 1931 to June 1933]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.
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## SOURCES TRIAL-CODED BY PERIOD

**Table H.8. Sources trial-coded by period.**

Period	Year range	Source citation
1	1923–1945	<p>Civic Club of Allegheny County. (1925-1927). [Board minutes May 1925 to May 1927]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1927-1929). [Board minutes May 1927 to May 1929]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1929-1931). [Board minutes May 1929 to April 1931]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1931-1932). [Board minutes June 1931 to June 1933]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1933-1935). [Board minutes June 1933 to May 1935]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1937-1939). [Board minutes from May 1, 1937 to April 30, 1939]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1940, January/February). [Bulletin]. Director's Office Collection (Box 21, Folder 4). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Civic Club of Allegheny County. (1941-1943). [Board minutes from May 8, 1941 to March 17, 1943]. Civic Club of Allegheny County Records Collection (Box 30). University of Pittsburgh Archives Service Center, Pittsburgh, PA.</p> <p>[County fund sought for school libraries - Pittsburgh Press]. (1940). Director's Office Collection (Box 21, Folder 4). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Grondahl, L. O. (1939, December 18). [Letter from L. O. Grondahl to John J. Kane.]. Director's Office Collection (Box 21, Folder 4). William</p>

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2	1945–1960	<p>County-wide library plan advocated. (1955, November 17). Pittsburgh Post-Gazette.</p> <p>County Commissioners. (1956). [Minutes: Jan. 2, 1956 to Dec. 27, 1956 inc., Vol. 37]. Detre Library &amp; Archives, Heinz History Center, Pittsburgh, PA.</p> <p>County Controller's Office. (1956). [Controller's annual report for the fiscal affairs of Allegheny County: For the year ending December 31, 1955]. Detre Library &amp; Archives, Heinz History Center, Pittsburgh, PA.</p> <p>County Controller's Office. (1957). [Controller's 96th Annual Report of the Fiscal Affairs of Allegheny County: For the year ending December 31, 1956]. Detre Library &amp; Archives, Heinz History Center, Pittsburgh, PA.</p> <p>EnDean, D. S. (1955, December 1). [Letter from Mrs. Howard EnDean to the Library planning committee]. District Services Collection, Series 2 (Box 4, Folder 6). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Karnofsky, M. G. (1955, July 12). [Letter from Mrs. George Karnofsky to</p>

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3	1961–1970	<p>Bowen, H. (1967, August). The Township of Shaler, North Hills Library, a brief history. PLA Bulletin, 57-58.</p> <p>Carnegie Library of Pittsburgh. (1962). <i>Annual report</i>.</p> <p>Carnegie Library of Pittsburgh. (1965). [District Library Center, Carnegie Library of Pittsburgh: A brief history, 1963-1965]. District Services Collection, Series 2 (Box 4, Folder 5). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Doms, K. (1966, October 10). [Regional reference center proposal]. District Services Collection, Series 2 (Box 4, Folder 7). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Doms, K. (1968, January 8). [Letter from Keith Doms to district libraries]. District Services Collection, Series 2 (Box 4, Folder 1). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Doms, K. (1968, November 29). [Letter from Keith Doms to Donald C. Potter]. District Services Collection, Series 2 (Box 4, Folder 7). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p>

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4	1970–1979	<p>Allegheny County Citizens Study Committee on Libraries. (1978, September 30). [Public libraries in Allegheny County...A Plan of Action]. District Services Collection, Series 2 (Box 1, Manual 10). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Blasingame, R., DeProspero, E. R., &amp; Goldberg, R. L. (1970, February). [Organization for public library services in an urban field: Plan for establishment of a county public library service system for Allegheny County, Pennsylvania]. District Services Collection, Series 2 (Box 2, Manual 1). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Board of Commissioners of Allegheny County. (1976, August 26). [Project Application, LSCA Title I: Citizens' Commission for Library Service]. District Services Collection, Series 2 (Box 4, Folder 5). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>A county library system? (1973, August 10). <i>Pittsburgh Post-Gazette</i>.</p> <p>Potter, D. C. (1971, February 26). [Letter from Donald C. Potter to Dorothea M. Strang]. District Services Collection, Series 2 (Box 2, Folder 4). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>[Report from hearing before Allegheny County Gov't. Study Commission on county library system]. (1973, May 23). District Services Collection, Series 2 (Box 5, Folder 5). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Schlesinger, D. (1979, January 3). [Letter from Deborah Schlesinger to Keith Gilbert]. District Services Collection, Series 2 (Box 5, Folder 1). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Strang, D. M. (1971, January 5). [Toward a county library system]. District Services Collection, Series 2 (Box 2, Folder 2). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Walton, J. M. (1976, March 5). [Letter from James M. Walton to trustees, staff, and friends of Carnegie Library of Pittsburgh]. District Services Collection, Series 2 (Box 5, Folder 8). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh,</p>

		Pittsburgh, PA.
5	1980–1992	<p>Cavinee, D. R. (1989, March 13). [Letter from DeeAnna Cavinee to Al Kamper]. District Services Collection, Series 2 (Box 5, Folder 6). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Hoover, B. (1990, May 3). Countywide library system urged. <i>Pittsburgh Post-Gazette</i>.</p> <p>Kamper, A. F. (1989, March 17). [Future outlets: Response to Dee Cavinee]. District Services Collection, Series 2 (Box 5, Folder 6). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Kamper, A. F. (1991, February 7). [Letter from Al Kamper to Cabinet]. District Services Collection, Series 2 (Box 3, Folder 2). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Kamper, A. F. (1991, February 27). [Letter from Albert F. Kamper to Cabinet]. District Services Collection, Series 2 (Box 3, Folder 2). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Leonard, P. (1991, April 15). [C.L.A.S.P. flyer]. District Services Collection, Series 2 (Box 3, Folder 2). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Leonard, P. (1991, March 11). [Letter from Peter Leonard to Albert F. Kamper]. District Services Collection, Series 2 (Box 3, Folder 2). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Lucchino, F. J. (1990, June 12). [Looking beyond our past]. District Services Collection, Series 2 (Box 3, Manual 2). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Lucchino, F. J. (1991). [A quiet crisis: Libraries in Allegheny County]. District Services Collection, Series 2 (Box 3, Manual 4). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>President's Advisory Committee on the Library. (1990, April). [Report of the President's Advisory Committee on the Library]. Director's Office Collection (Box 44, Folder 9). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p> <p>Presidential Advisory Committee for the Library. (1989, February 21). [The Carnegie: Presidential Advisory Committee for the Library Meeting]. District Services Collection, Series 2 (Box 5, Folder 7). William R. Oliver Special Collections Room, Carnegie Library of Pittsburgh, Pittsburgh, PA.</p>
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9	2012–2016	<p>ACLA general membership meeting. (2016, March 31). [Fieldnotes]. Recorded by Michael M. Widdersheim.</p> <p>Allegheny County Library Association. (2013, July 24). Board resolution.</p> <p>Allegheny Regional Asset District. (2012, February 8). Report on consulting services regarding the Allegheny County Library Association (ParenteBeard report). Retrieved from acla.pbworks.com</p> <p>County-City Library Service Panel. (2014, May 21). On behalf of the County-City Library Service Panel. Retrieved from acla.pbworks.com</p> <p>Donahoe, D. (2012, March 28). Library Committee audit and report. Retrieved from acla.pbworks.com</p> <p>Jenkins, M. A. (2012, February 27). [Response to Parente Beard report].</p> <p>Librarian 1. (2016, January 7). [Interview]. Interviewed by Michael M. Widdersheim.</p> <p>Swerhun. (2013, December 2). ACLA board update: LS21. Retrieved from acla.pbworks.com</p> <p>Swerhun. (2013, October 31). LS21: October engagement training follow-up. Retrieved from acla.pbworks.com</p>

## APPENDIX I: THE CODING FRAME

### CATEGORIES AND SUB-CATEGORIES

**Table I.1. Coding frame category and sub-category names, organized hierarchically.**

00_Coding Segments
00_Context Segments
01_Power transmission
A_Administrative power
POWER_Administrative Broadcast
POWER_Administrative Narrowcast
B_Communicative power
POWER_Communicative Broadcast
POWER_Communicative Narrowcast
C_Formal decision
POWER_Formal Decision
D_Social power
Narrowcast
POWER_Social Backroom deals
POWER_Social Economic power
POWER_Z_Unknown
02_Time
1900s
1920s

1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930s
1930
1931
1932
1933
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2000s
2000



2001
2002
2003
2004
2005
2006
2007
2008
2009
2010s
2010
2011
2012
2013
2014
2015
2016
undefined
03_Actor
A_Federal government
SOURCE_1_cwa lwd
SOURCE_107_US supreme court
SOURCE_2_Library agencies
SOURCE_3_US Congress
B_State government
SOURCE_4_Governor
SOURCE_5_Pennsylvania state assembly
SOURCE_6_Pennsylvania state library
SOURCE_7_Secretary of Labor and Industry
SOURCE_8_voters

SOURCE_9_constitution of pa
SOURCE_97_Department of Revenue
SOURCE_98_Public Utility Commission
C_County government
SOURCE_10_Allegheny County Housing Authority
SOURCE_11_Board of County Commissioners
SOURCE_12_Citizen Study Committee on Libraries
SOURCE_13_Commission on the Future of Libraries
SOURCE_14_County controller
SOURCE_15_County court
SOURCE_16_County departments
SOURCE_17_Voters of Allegheny County
SOURCE_18_Allegheny County government study commission
SOURCE_99_Solicitor
D_Municipal and city government
SOURCE_19_City of Allegheny
SOURCE_20_City of Pittsburgh
SOURCE_21_both mayor and council
SOURCE_22_city council
SOURCE_23_Mayor
SOURCE_24_courts
SOURCE_25_unknown
SOURCE_26_County municipalities outside the city
SOURCE_27_local board
SOURCE_28_multiple municipalities
E_SOURCE_29_School districts
SOURCE_30_School boards
F_SOURCE_31_Regional Asset District
G_Library groups
ACLA and CLP directors

Allegheny County groups
SOURCE_32_ACLA
SOURCE_33_CLASP County Library Association Serving the People
SOURCE_34_LASH
SOURCE_35_SHLA
CLP
SOURCE_111_CLP advisory board
SOURCE_36_Allegheny director
SOURCE_37_CLP and Monessen district directors
SOURCE_38_CLP cabinet
SOURCE_39_CLP city libraries
SOURCE_40_CLP committee
SOURCE_41_CLP county services
SOURCE_42_CLP director
SOURCE_112_Mary Frances Cooper
SOURCE_43_Bob Croneberger
SOURCE_44_Keith Doms
SOURCE_45_Ralph Munn
SOURCE_91_Anthony A. Martin
SOURCE_92_Donald C. Potter
SOURCE_46_CLP district services
SOURCE_47_CLP services
SOURCE_48_EI Network
SOURCE_49_Friends groups
SOURCE_50_Trustees
SOURCE_51_Local libraries in Allegheny County
SOURCE_52_Trustees
SOURCE_53_Local libraries in Westmoreland County
SOURCE_54_RAD lobbyists
SOURCE_89_Other

H_Civil Society
Clubs and associations
SOURCE_100_Pennsylvania Citizens for Better Libraries
SOURCE_101_Public Library Project
SOURCE_102_Urban Library Council
SOURCE_108_American Libraries Association
SOURCE_109_Buhl Foundation
SOURCE_113_21st century library study
SOURCE_55_Allegheny Conference on Community Development
SOURCE_56_Allegheny County Council of Parent-Teacher Associations
SOURCE_57_Allegheny Federation of Women's Clubs
SOURCE_58_Allegheny League of Municipalities
SOURCE_59_Building owners and managers association
SOURCE_60_Civic Club of Allegheny County
SOURCE_61_Library Planning Committee of Allegheny County
SOURCE_62_Metropolitan Plan Commission
SOURCE_63_Metropolitan Study Commission
SOURCE_64_Pennsylvania Economy League
SOURCE_65_Pennsylvania Library Association
SOURCE_66_y_other
SOURCE_67_z_Multiple groups
SOURCE_68_real estate board
SOURCE_85_County Boroughs Association
SOURCE_90_Governor's advisory council
SOURCE_94_League of Women Voters
SOURCE_69_Experts and consultants
SOURCE_70_Library or Citizens advisory council
SOURCE_71_Private actor
SOURCE_72_Private corporation
I_Economic system

SOURCE_74_Contractor
SOURCE_75_Mass media outlets
SOURCE_76_Private actor
SOURCE_77_Private business
J_SOURCE_78_Some combination of city, county, and civil society groups
Z_SOURCE_79_Unknown
04_Actor's Position and Role
A_Political system
Actor Circuit_201_National political system
Actor Core
US Congress
US supreme court
Actor Inner periphery
cwa lwd
State library agencies
Actor Outer periphery
Suppliers
Actor Circuit_202_State political system
Actor Core
Executive
Governor
Legislative body
General assembly
Policy committees
Actor Inner periphery
01_Central authority
Department of Revenue
Labor and Industry
Public Utility Commission
State library

02_Regional authority
Allegheny County
Commission on the Future of Libraries
County library
District library
Library system
03_Local authority
All authorities
Local libraries
Labor and Industry
Actor Outer periphery
Customer
ACLA
civil society groups
County commissioners
Library trustees
Municipality
Other
PaLA
Supplier
Civil society group
Commission on the Future of Libraries
commissioned study
Metropolitan Plan Commission
Governor's advisory council
Local libraries
PaLA
Pennsylvania citizens for better libraries
Pittsburgh city mayor
voters

z_multiple groups
Actor Circuit_203_County political system
Actor Core
County commissioners
County controller
County Council
County referendum
Court
Orphans court
Solicitor
Actor Inner periphery
Allegheny County Housing Authority
Commission on the Future of Libraries
County departments
County library
County library director
EIN
Actor Outer periphery
Customers
ACLA
City of Pittsburgh
Library trustees
Local libraries
Suppliers
ACLA
Citizen Study committee
Civil society group
Library Planning Committee
CLP
Contractor

EIN
Library study
Local libraries
Mass media
Municipality
State library
Voters
Actor Circuit_204_Pittsburgh city political system
Actor Core
both mayor and council
City Council
north side Allegheny library committee
General elections
Mayor
Referenda
unknown
Actor Inner periphery
Allegheny Northside library
City library system
City Planning Department
Actor Outer periphery
Customers
Suppliers
Civil society group
Friends of the library group
z_multiple groups
CLP
General assembly
Actor Circuit_205_ACLLA political system
Actor Core



ACLA Board
Committees
Executive director
LAC executive
Member library voters
Actor Inner periphery
EIN
Headquarters
Executive director
Staff
LAC
Center region
East region
LAC board
North region
South region
West region
Libraries
Actor Outer periphery
Customers
Suppliers
Actor Circuit_206_Intra-library political system
Actor Core
Board of Trustees
Cabinet
CLP advisory board
Committee
Director
Unknown
Actor Inner periphery

Departments
District Services
Electronic Information Network
Actor Outer periphery
Customers
CLP
County Commissioners
Liaison
Suppliers
ACLA
Advisory council
CFLAC
Civil society group
CLASP
CLP
CLP county services
Committee
Consultant
General assembly
Private actor
Actor Circuit_207_Local municipal political system
Actor Core
City council
Local board
referendum voters
Township supervisor
Unknown
Actor Inner periphery
Local libraries
Municipal departments

Actor Outer periphery
Customers
ACLA
Andrew Carnegie
Library trustees
Local library
Suppliers
ACLA
Citizens groups
CLP county services
CLP district services
commissioned study
Friends of the library groups
Actor Circuit_208_Local school district political system
Actor Core
School board
Actor Inner periphery
Local libraries
Actor Outer periphery
Customers
Supplier
Actor Circuit_209_Regional Asset District political system
Actor Core
Executive Director
Library Committee
RAD board
Actor Inner periphery
Acting regional assets
Actor Outer periphery
Customers

Potential regional assets
Suppliers
Actor Circuit_210_Electronic information network
Actor Core
ACLA
CFLAC
CLP
Joint board
Actor Inner periphery
ACLA libraries
Staff and support
Actor Outer periphery
Customer
Supplier
Actor Circuit_211_Civil society group political system
Actor Core
Board of directors
lead facilitator
Members
Officers
Actor Inner periphery
Committee chairs
Committees
discussion leader
Funded entity
Actor Outer periphery
Customers
Suppliers
Actor Circuit_213_Unknown
Actor Core

Actor Inner periphery
Actor Outer Periphery
B_Actor Circuit_212_Economic system news media
Actor Core
board
consultants
Editors
Actor Inner periphery
Outlets
Actor Outer periphery
Customers
Suppliers
05_Audience
Broadcast
TARGET_103_National population
TARGET_105_Contractors
TARGET_80_Allegheny County Residents
TARGET_81_Civil society groups
TARGET_82_County libraries
TARGET_83_Pennsylvania counties
TARGET_84_Pennsylvania district libraries
TARGET_86_Allegheny municipalities
TARGET_87_Pennsylvania residents
TARGET_95_National libraries
TARGET_96_Pennsylvania libraries
Narrowcast
A_Federal government
TARGET_1_csa lwd
TARGET_2_State library agencies
TARGET_3_US Congress

B_State government
TARGET_106_department of state
TARGET_4_Governor
TARGET_5_Pennsylvania state assembly
TARGET_6_Pennsylvania state library
TARGET_7_secretary of labor and industry
TARGET_8_voters
TARGET_9_constitution
TARGET_97_IRS
TARGET_98_Public Utility Commission
C_County government
TARGET_10_Allegheny County Housing Authority
TARGET_104_AIM authority for improvements in municipalities
TARGET_11_County commissioners
TARGET_110_knowledge connections
TARGET_12_citizen study committee on libraries
TARGET_13_Commission on the future of libraries
TARGET_14_County controller
TARGET_15_Courts
TARGET_16_county departments
TARGET_17_Voters of Allegheny county
TARGET_18_Allegheny County Government Study Commission
D_Municipal and city government
TARGET_19_City of Allegheny
TARGET_20_City of Pittsburgh
TARGET_21_Both mayor and council
TARGET_22_City Council
TARGET_23_Mayor
TARGET_24_Courts
TARGET_25_Unknown

TARGET_26_Local Municipality
TARGET_27_Local board
TARGET_28_Multiple municipalities
E_TARGET_29_School districts
TARGET_30_school boards
F_TARGET_31_Regional Asset District
G_Library groups
Allegheny County library groups
TARGET_32_ACLA
TARGET_33_CLASP County Library Association Serving the People
TARGET_34_LASH
TARGET_35_SHLA
CLP
TARGET_36_Allegheny director
TARGET_37_CLP and Monessen district directors
TARGET_38_CLP cabinet
TARGET_39_CLP city libraries
TARGET_40_Committee
TARGET_41_CLP county services
TARGET_42_CLP director
TARGET_112_Mary Frances Cooper
TARGET_43_Bob Croneberger
TARGET_44_Keith Doms
TARGET_45_Ralph Munn
TARGET_91_Anthony A. Martin
TARGET_92_Donald C. Potter
TARGET_46_CLP district services
TARGET_47_CLP services
TARGET_48_EIN
TARGET_49_friends groups

TARGET_50_Trustees
TARGET_114_ACLA and CLP directors
TARGET_51_Local libraries in Allegheny County
TARGET_52_trustees
TARGET_53_Local libraries in Westmoreland County
TARGET_54_RAD lobbyists
TARGET_93_Libraries outside Allegheny county
H_Civil Society
Clubs and associations
TARGET_100_Pennsylvania Citizens for Better Libraries
TARGET_113_21st century library service
TARGET_55_Allegheny Conference on Community Development
TARGET_56_Allegheny County Council of Parent Teacher Associations
TARGET_57_Womens clubs
TARGET_58_League of Municipalities
TARGET_59_building owners and managers association
TARGET_60_Civic Club of Allegheny County
TARGET_61_Library Planning Committee of Allegheny County
TARGET_62_Metropolitan Plan Commission
TARGET_63_Metropolitan Study Commission
TARGET_64_Pennsylvania Economy League
TARGET_65_Pennsylvania Library Association
TARGET_66_y_other
TARGET_67_z_multiple clubs
TARGET_68_Real Estate Board
TARGET_88_Health and Welfare Federation
TARGET_94_League of women voters
TARGET_69_Experts and consultants
TARGET_70_Library or citizens advisory council
TARGET_71_Private actor



TARGET_72_Private corporation or foundation
TARGET_73_Voluntary citizens group
I_Economic system
TARGET_74_Contractor
TARGET_75_Mass media outlets
TARGET_76_Private actor
TARGET_77_Private business
TARGET_78_some combination of city, county, and civil society groups
TARGET_79_Unknown
06_Audience's Role and Position
Audience circuit 999_diffuse public
Allegheny County Residents
Allegheny municipalities
Civil society groups
Contractors
County libraries
National libraries
National population
Pennsylvania counties
Pennsylvania district libraries
Pennsylvania libraries
Pennsylvania residents
Audience Circuit_213_Unknown
Audience Core
Audience Inner Periphery
Audience Outer Periphery
Narrowcast
A_Political system
Audience Circuit_201_National political system
Audience Core

US Congress
Audience Inner periphery
LSCA grant recipients
new deal groups
State library agencies
Audience Outer periphery
Audience Circuit_202_State political system
Audience Core
constitution
Executive
Governor
Legislative body
General assembly
Policy committees
Audience Inner periphery
01_Central authority
department of state
IRS
Public Utility Commission
State library
02_Regional authority
Allegheny County
Commission on the Future of Libraries
County library
District library
Library system
non-profit entity
RAD
03_Local authority
Local libraries

Local municipality
School districts
04_All authorities
Audience Outer periphery
Customer
Other
PaLA
Supplier
Civil society group
Commissioned study
Governor's advisory council
PaLA
Pennsylvania citizens for better libraries
Pittsburgh city mayor
Voters
Audience Circuit_203_County political system
Audience Core
County commissioners
County controller
County council
Courts
Voters
Audience Inner periphery
administrative departments
AIM
Allegheny County Housing Authority
Knowledge Connections
Commission on the Future of Libraries
County library
county library director

EIN
RAD board
Audience Outer periphery
Customers
City of Pittsburgh
local libraries
Suppliers
Allegheny County Government Study Commission
Civil society group
CLASP
CLP
Library Planning Committee
Library study
Audience Circuit_204_Pittsburgh city political system
Audience Core
Both mayor and council
City Council
Northside Allegheny library committee
General elections
Mayor
Referenda
Unknown
Audience Inner periphery
Allegheny north side library
City library system
Audience Outer periphery
Customers
Suppliers
Civil society group
Friends of the library group

Multiple groups
Audience Circuit_205_ACLA political system
Audience Core
ACLA Board
Committees
Executive director
LAC executive
Member library voters
Audience Inner periphery
business contracts
EIN
Grant recipients
Headquarters
Executive director
Staff
LAC
Center region
East region
LAC board
North region
South region
West region
Member libraries
Audience Outer periphery
Customers
Suppliers
Audience Circuit_206_Intra-library political system
Audience Core
Board
Cabinet

DeeAnna Cavinee
Committee
Director
Unknown
Audience Inner periphery
Departments
county services
District Services
EIN
Audience Outer periphery
Customers
County Commissioners
Suppliers
Advisory council
CLASP
CLP county services
CLP district services
Audience Circuit_207_Local municipal political system
Audience Core
City council
Local board
Township supervisor
Unknown
Audience Inner periphery
Local libraries
Municipal departments
Audience Outer periphery
Customers
Andrew Carnegie
Suppliers

CLP county services
Friends of the library groups
Audience Circuit_208_Local school district political system
Audience Core
School board
Audience Inner periphery
Local libraries
schools
Audience Outer periphery
Customers
Supplier
Audience Circuit_209_Regional Asset District political system
Audience Core
Executive director
Library committee
RAD board
Audience Inner periphery
Acting assets
Audience Outer periphery
Customers
Potential regional assets
Suppliers
Audience Circuit_210_Electronic information network
Audience Core
ACLA
CFLAC
CLP
Joint board
Audience Inner periphery
Member libraries

Staff and support
Audience Outer periphery
Customer
Supplier
Audience Circuit_211_Civil society group political system
Audience Core
Board of directors
lead facilitator
Members
Officers
Audience Inner periphery
Committee chairs
Committees
Discussion leader
Funded entity
Audience Outer periphery
Customers
Suppliers
B_Audience Circuit_212_Economic system
Audience Core
auditors
editors
Audience Inner periphery
loan recipient
Audience Outer periphery
Customers
Suppliers
07_Issue
County legislation or policies
ISSUE_1_RAD legislation



ISSUE_2_City county consolidation
ISSUE_3_Commission on the Future of Libraries
ISSUE_4_County department funding
ISSUE_5_County library director
iSSUE_6_Home rule
ISSUE_7_RAD board
ISSUE_8_tax increase
ISSUE_29_quality of formal debate
ISSUE_50_unknown
ISSUE_51_z_miscellaneous
Local Funding
ISSUE_10_compliance with ACLA
ISSUE_52_standards
ISSUE_11_compliance with RAD
ISSUE_12_grants
ISSUE_13_Local allocations for libraries
ISSUE_14_Local millage for libraries
ISSUE_15_RAD funding
ISSUE_9_ACLA grant
Local organizations
City library system
ISSUE_16_City library budget
ISSUE_17_Librarian wages
ISSUE_18_north side Allegheny library governance
ISSUE_19_Pittsburgh city Allegheny city library merger
ISSUE_20_Staffing
ISSUE_21_z_miscellaneous issues
ISSUE_22_Incorporation
ISSUE_23_Local library administration
ISSUE_24_Local library formation

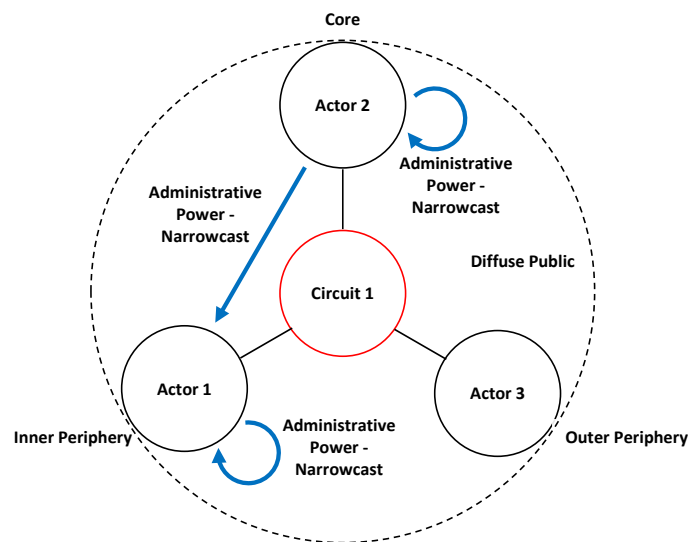
National funding
ISSUE_25_Internet
ISSUE_26_LSCA
ISSUE_27_national planning
ISSUE_28_new deal funding
ISSUE_53_LSTA
Regional organization
ISSUE_30_ACLA formation and governance
ISSUE_31_computerization
ISSUE_32_County funding
ISSUE_33_Countywide system formation and unification
ISSUE_34_distribution formula
ISSUE_35_fax machines
ISSUE_36_federated system
ISSUE_37_Formation of county library organizations
ISSUE_38_library study
ISSUE_39_local library coordination
ISSUE_40_Reading centers in the housing projects Knowledge Connections
ISSUE_42_Three Rivers Free Net
ISSUE_43_Union catalog
ISSUE_44_EIN
ISSUE_54_delivery service
Regional boundaries
ISSUE_41_Redrawing district lines
State system
ISSUE_45_AccessPA
ISSUE_46_library telecommunications rates
ISSUE_47_Local funding from state
ISSUE_48_PA state code and state plan
ISSUE_49_State budget

08_Legitimation outcome
Indications of failure
LEGITIMATION_Failure Bypass representative public
LEGITIMATION_Failure Objections
Indications of success
LEGITIMATION_Success Consensus
LEGITIMATION_Success Discussion or periphery support
LEGITIMATION_Unknown
09_Implementation outcome
IMPLEMENTATION_Failure
IMPLEMENTATION_Success
IMPLEMENTATION_Unknown

## POWER

***Administrative power – Narrowcast.*** Administrative power is authority derived from a pre-determined arrangement. It coordinates actions by orienting actors to the positive or negative consequences of that agreement. It is asymmetrical, top-down and it can be thought of as command power. Negative sanctions might include loss of money or rank, and positive sanctions might include monetary benefits. Administrative power includes oversight and monitoring of other actors. Administrative power might be legitimate or illegitimate, depending on the process that led up to the implementation of administrative power, the statute, agreement, or policy that forms the basis of administrative power, or the way the authority is carried out.

In a circuit, a narrowcast of administrative power is transmitted from core to inner periphery, within the core, or within the inner periphery (see [Figure I.1](#)). In a narrowcast, the audience is targeted by the sender and is therefore clearly decipherable in the source material. Indicators of administrative power include verbs in the imperative form, the delegation of roles or duties, or the institution of deadlines.



**Figure I.1. Administrative power – narrowcast pathways in a circuit.**

Administrative power is distinguished from communicative power because administrative power orients actions according to consequences whereas communicative power orients actions based on mutual understanding and agreement. In cases of administrative power, understanding is presupposed and is based on some already-existing contract, agreement, or act of legislation. Administrative power is distinct from formal decision because in the case of formal decision, a contract or act of legislation is decided upon, whereas in the case of administrative power, the

agreement forms the basis of the power relationship. [Table I.2](#) provides summary characteristics for administrative power – narrowcast.

**Table I.2. Summary characteristics of administrative power – narrowcast.**

Sub-category name	Administrative power - narrowcast
Definition	A communicative transmission where a sender orients a receiver's actions according to consequences or based on a pre-determined agreement.
Circulation in a circuit	core to inner periphery, core to core, or inner periphery to inner periphery
Indicators	verbs in imperative form, such as orders and commands; distribution of forms and applications; transmission of information regarding deadlines, duties, meeting dates; project management
Decision rules	Excludes votes and referenda (formal decision) Excludes proposals and discussion (communicative power) Audience is targeted and clearly identifiable.
Examples	RAD tells ACLA to amend meeting minutes. ACLA executive committee members appraise association members of legislative actions and solicit input regarding a federated system.

As an example of administrative power, in 1996 David Donahoe, the executive director of RAD, directed Carolyn Toth, the executive board president of ACLA, to modify ACLA's meeting minutes (see [Figure I.2](#)). The communicate was phrased as an order, and indeed ACLA was in no position to negotiate or disobey because RAD money provided a large portion of ACLA's money. Moreover, in the form of an agreement of mutual understanding, ACLA had previously agreed to relinquish some administrative control to RAD in order to become a RAD-funded asset. This communication between RAD and ACLA was therefore coded as an instance of administrative power.

Audience Circuit\_209\_Regional Asset District political system  
 Audience Inner periphery  
 Actor Circuit\_209\_Regional Asset District political system  
 Actor Core  
 TARGET\_32\_ACLA  
 IMPLEMENTATION\_Success  
 Acting assets  
 LEGITIMATION\_Success Discussion or periphery support  
 ISSUE\_11\_compliance with RAD  
 POWER\_Administrative Narrowcast  
 F\_SOURCE\_31\_Regional Asset District  
 RAD board  
 1996  
 Coding Density

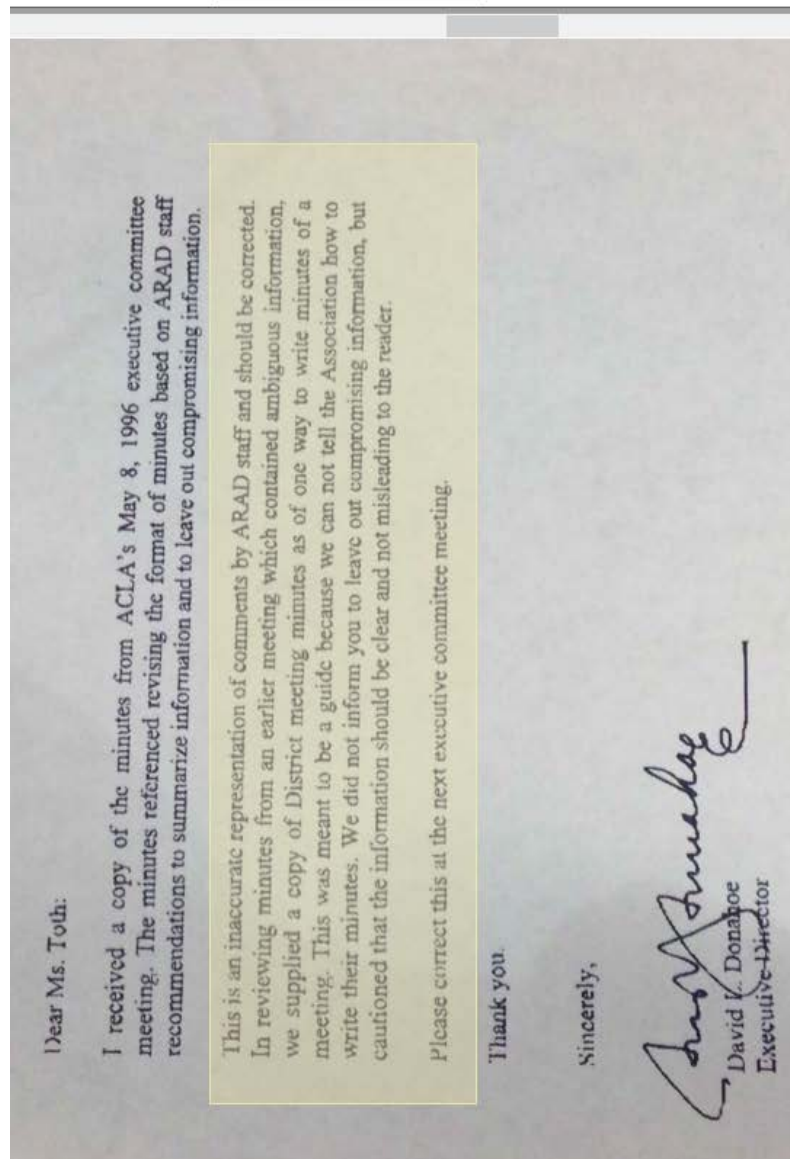
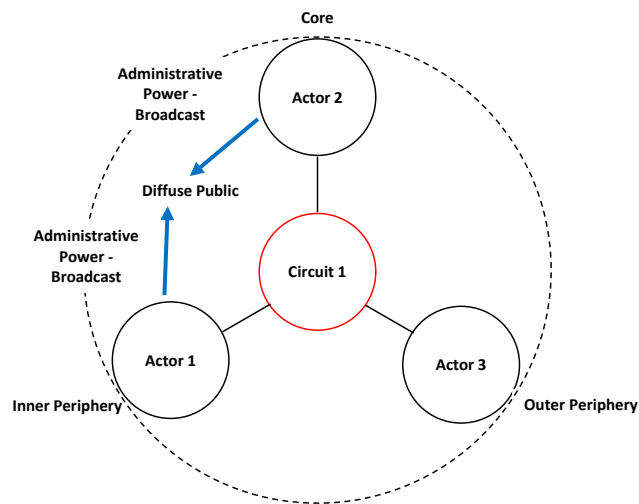


Figure I.2. Example segment of administrative power - narrowcast.

***Administrative power – Broadcast.*** Like administrative power – narrowcast, administrative power – broadcast is authority derived from a predetermined agreement. Unlike a narrowcast, however, the audience in a broadcast is not clearly identifiable. It is not clear who receives or acts upon the broadcast. It can only be inferred to whom, in general, the transmission was sent. In a circuit, administrative power – broadcasts can be sent from core to diffuse public, or from inner periphery to diffuse public (see [Figure I.3](#)). Summary characteristics for administrative power – broadcasts are shown in [Table I.3](#).



**Figure I.3. Administrative power – broadcast pathways in a circuit.**

**Table I.3. Summary characteristics for administrative power – broadcast.**

Sub-category name	Administrative power - broadcast
Definition	A communicative transmission where a sender orients a receiver's actions based on a pre-determined agreement.
Pathways in a circuit	core to diffuse public, inner periphery to diffuse public
Indicators	verbs in imperative form, such as orders and commands; distribution of forms and applications; transmission of information regarding deadlines and meeting dates
Decision rules	Excludes votes and referenda (formal decision) Excludes proposals and discussion (communicative power) Audience is targeted and clearly identifiable.
Examples	Announcements by the state library of LSCA application procedures Announcements by district library centers of annual report submission guidelines.

An example of an administrative power – broadcast was when, in 1970, the State Library of Pennsylvania announced in its long-range plan that it would create a Bureau of Library Development to administer Library Services and Construction Act funding to libraries in Pennsylvania (see [Figure I.4](#)). It can be inferred that copies of this announcement were sent to all libraries in Pennsylvania, but in an example segment it is not entirely clear to whom the message was sent, who received it, and who responded. The audience of the message is therefore the State Library's diffuse public. The agreement that forms the basis of this administrative broadcast is the federal legislation of the Library Services and Construction Act. Preceded by the Library Services Act of 1956, signed into law as the Library Services and Construction Act in 1964, and revised in 1970 and 1971, the Act designates state library agencies to distribute federal money to libraries in their respective states ([Fry, 1975](#)).



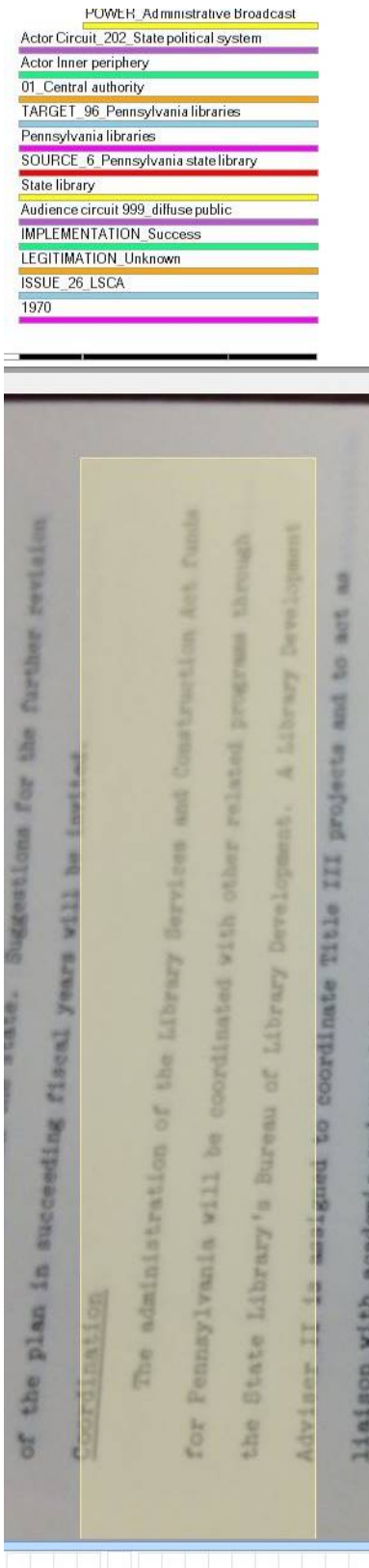
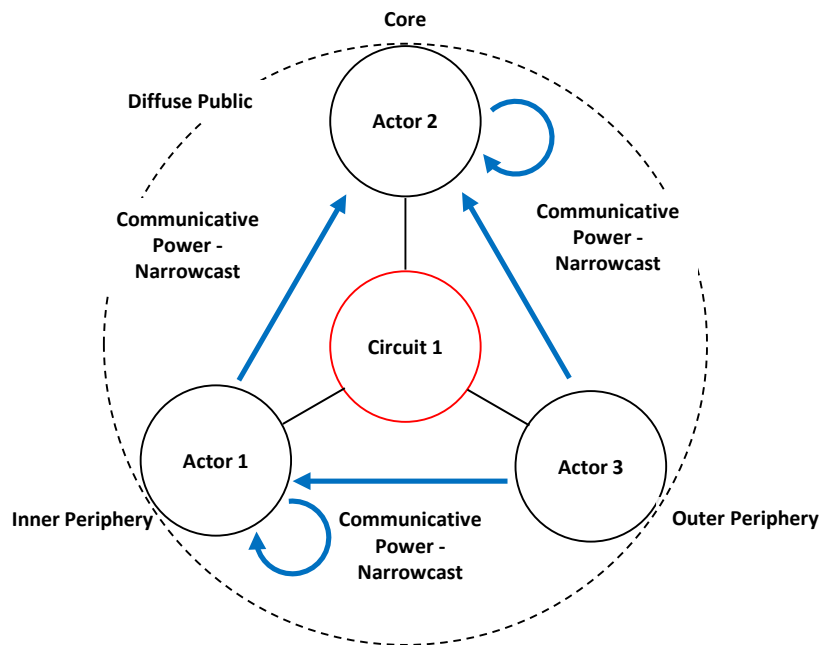


Figure I.4. Example segment of administrative power – broadcast.

***Communicative Power – Narrowcast.*** Communicative power is transmission from sender to receiver where the sender attempts to reach a mutual understanding with the receiver about a shared concern. Discussions, proposals, and reports are instances of communicative power. A communicative power – narrowcast has a clear target. In a circuit, the pathways of communicative power – narrowcasts are from outer periphery to inner periphery, outer periphery to core, inner periphery to core, inner periphery to inner periphery, and core to core (see [Figure I.5](#)). These characteristics are summarized in [Table I.4](#).



**Figure I.5. Communicative power – narrowcast pathways in a circuit.**

**Table I.4. Summary characteristics of communicative power – narrowcast.**

Sub-category name	Communicative power - narrowcast
Definition	A communicative transmission where a sender orients a receiver's actions based on reasons and mutual understanding. The audience is clearly identifiable.
Pathways in a circuit	outer periphery to inner periphery, outer periphery to core, inner periphery to core, inner periphery to inner periphery, and core to core
Indicators	verbs such as propose, suggest, recommend, discuss
Decision rules	Excludes votes and referenda (formal decision) Excludes announcements to a diffuse audience (communicative power - broadcast) Audience is targeted and clearly identifiable.
Examples	Petitions by the Civic Club to City Council for a qualified librarian on the North Side.

An example of a communicative power – narrowcast is when in 1927 the Civic Club of Allegheny County petitioned the City Council and mayor of Pittsburgh to hire a qualified librarian for the North Side library which was at that time managed directly by the city and was not yet a branch of the Carnegie Library of Pittsburgh system (see [Figure I.6](#)).

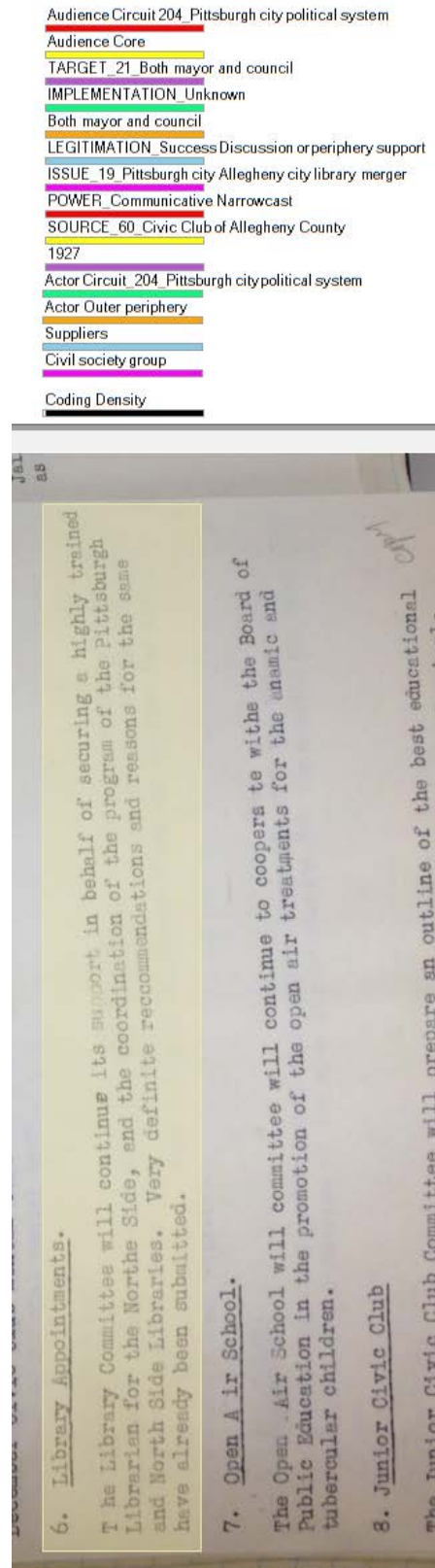
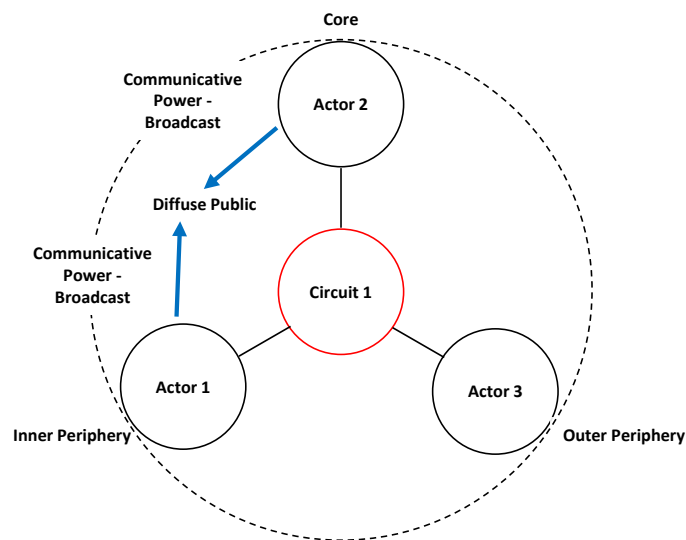


Figure I.6. Example segment of a communicative power – narrowcast.

***Communicative Power – Broadcast.*** Like communicative power – narrowcasts, communicative power broadcasts are transmissions where a sender attempts to orient a receiver’s actions using reasons, argument, and mutual understanding. Unlike narrowcasts, however, communicative power – broadcasts have no clearly discernible audience. It is not known who will receive the message or act upon it. The receiver of communicative power – broadcasts is therefore a diffuse public. In a circuit, the pathways of communicative power – broadcast are from core to diffuse public or from inner periphery to diffuse public (see [Figure I.7](#)). These characteristics of communicative power-broadcasts are summarized in [Table I.5](#).



**Figure I.7. Communicative power – broadcast pathways in a circuit.**

**Table I.5. Summary characteristics of communicative power – broadcasts.**

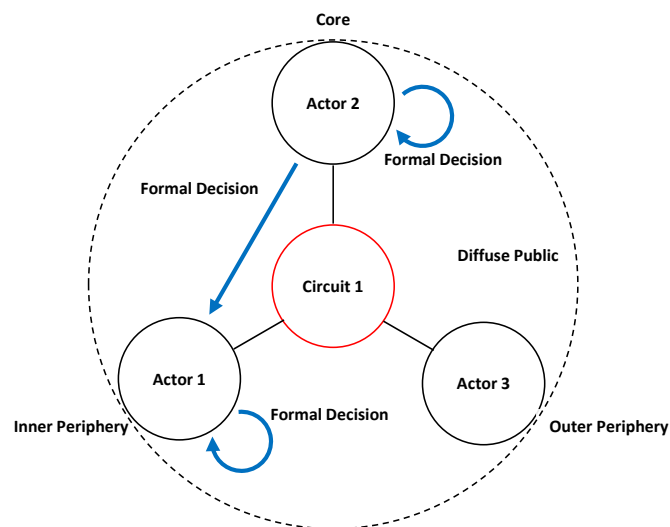
Sub-category name	Communicative power - broadcast
Definition	A communicative transmission where a sender orients a receiver's actions based on reasons and mutual understanding. The receiver is not clearly identifiable.
Pathways in a circuit	core to diffuse public or from inner periphery to diffuse public
Indicators	verbs such as announce, report Communications transmitted via mass media outlets.
Decision rules	Unlike narrowcasts, the audience is not clearly identifiable.
Examples	Newspaper coverage of proposed changes to ACLA distribution formula

An example of a communicative power – broadcast was in the 2009 newspaper coverage of the debates to change the RAD funding formulas to ACLA-member libraries. The mass media informed the public of the issue of a funding formula, but it is not clear who precisely read and reacted to the communicative transmissions (see [Figure I.8](#)).



Figure I.8. Example segment of communicative power – broadcast.

**Formal Decision.** A formal decision is one made by a vote, referendum, contract, or executive order. A formal decision can be legitimate or illegitimate depending on the process leading up to the decision, whether there was open discussion and deliberation. A legitimate formal decision is informed by communicative power, and forms the basis of legitimate administrative power. In a circuit, formal decision pathways are from core to inner periphery, core to core, and inner periphery to inner periphery (see [Figure I.9](#)). These characteristics are summarized in [Table I.6](#). An example of a formal decision - narrowcast is from 1993 when the Pennsylvania state Senate approved a bill to authorize Allegheny County to institute a regional asset district and impose an additional 1 percent sales tax (see [Figure I.10](#)).



**Figure I.9. Formal decision pathways in a circuit.**



**Table I.6. Summary characteristics of a formal decision.**

Sub-category name	Formal decision
Definition	A decision made by vote, referendum, contract, or other formal means that affects a targeted audience.
Pathways in a circuit	core to inner periphery, core to core, and inner periphery to inner periphery
Indicators	verbs such as decide, approve, vote, pass
Decision rules	A formal decision may or may not result in a monetary distribution.
Examples	State Senate vote to pass a bill for a regional asset district

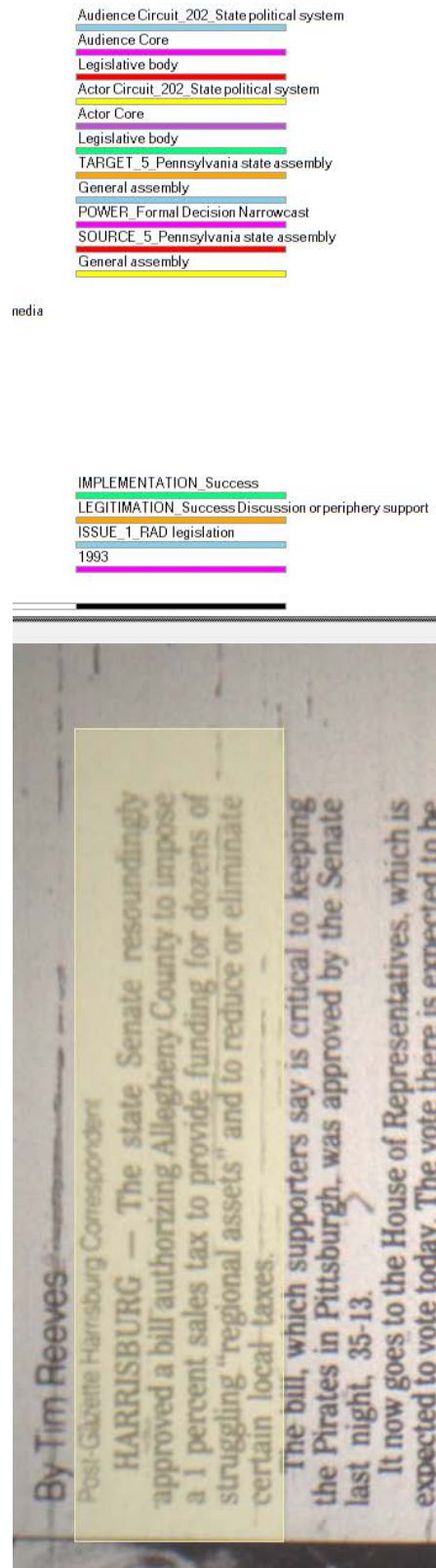
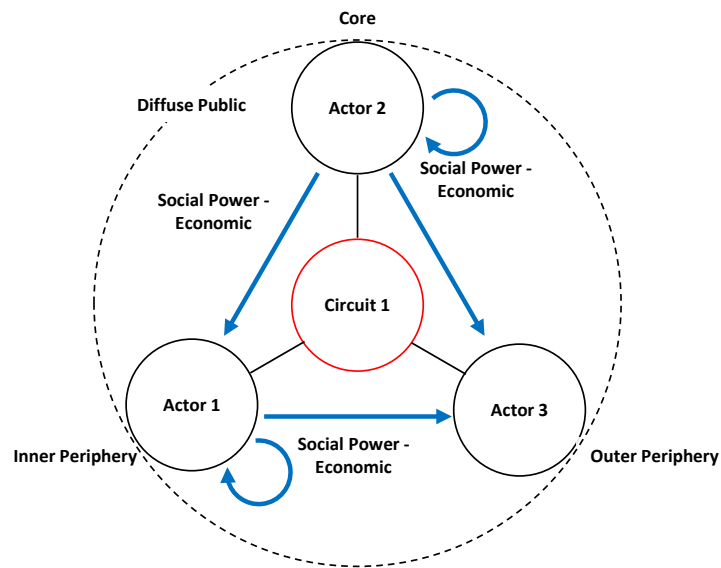


Figure I.10. Example segment of a formal decision.

***Social Power – Economic.*** Social power – economic is a transmission of money. In a circuit, social power – economic transmissions are sent from core to inner periphery, core to outer periphery, core to core, inner periphery to inner periphery, and inner periphery to outer periphery (see [Figure I.11](#)). These characteristics are summarized in [Table I.7](#). An example of a social power – economic transmission is from 1993 when the State of Pennsylvania award CLP a grant to fund the Three Rivers FreeNet, a local electronic community information network (see [Figure I.12](#)).



**Figure I.11. Social power – economic pathways in a circuit.**

**Table I.7. Summary characteristics of social power – economic.**

Sub-category name	Social power - economic
Definition	Transmission of money; funding power
Pathways in a circuit	core to inner periphery, core to outer periphery, core to core, inner periphery to inner periphery, and inner periphery to outer periphery
Indicators	grants, awards, funding
Decision rules	Often co-present with a formal decision
Examples	FreeNet funding grant to CLP from the State of Pennsylvania

03 Local authority  
 Actor Core  
 Legislative body  
 TARGET\_39\_CLP city libraries  
 Local libraries  
 ISSUE\_42\_Three Rivers Free Net  
 POWER\_Social Economic power  
 SOURCE\_5\_Pennsylvania state assembly  
 General assembly

MENTATION\_Success  
 Audience Circuit\_202\_State political system  
 Audience Inner periphery  
 Actor Circuit\_202\_State political system  
 MATION\_Success Discussion or periphery support  
 Density

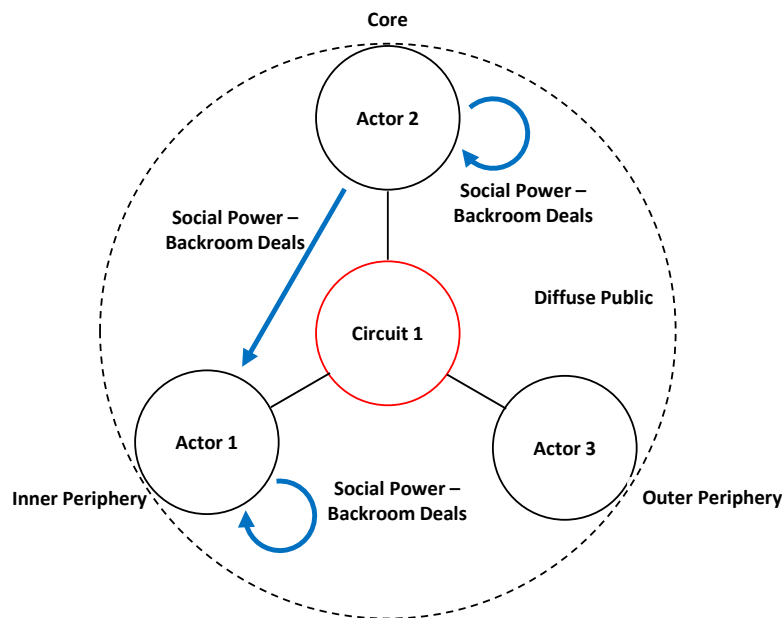
... county wide plan had been advocated by her board for many years.

D. Director Croneberger said that the CLP had received a 2 year FreeNet, electronic community information network grant from the State of Pennsylvania, \$55,000 for the first year and \$40,000 for the second. He said that the county network steering committee of professionals, universities, government etc. would be involved in the project. He said that WQED was also interested in supporting FreeNet development. National Public Television Network has grants for their affiliates for similar programming.

**KNOWLEDGE CONNECTIONS:** Director Cavinee gave the commission an overview of the opening of Hays Manor Knowledge Connections and some of its successes, stressing the positive outlet for some of the small children. She told about the visit to the Knowledge Connection by Secretary of Labor and Industry Foley and that he was so impressed that he promised to look into the possibility of year round funding for the library youth corps.

Figure I.12. Example segment of social power – economic.

***Social Power – Backroom Deals.*** Social power – backroom deals is an illegitimate form of power where positions, awards, and status are distributed not as the result of an open, deliberative process, but instead based on privilege, kinship ties, or business ties. In a circuit, pathways of social power – backroom deals travel from core to core, core to inner periphery, and inner periphery to inner periphery (see [Figure I.13](#)). These characteristic are summarized in [Table I.8](#). An example of a backroom deal is from 1933 when City Council elected a library director as a reward for past service, not in light of qualifications (see [Figure I.14](#)).



**Figure I.13. Social power – backroom deals pathways in a circuit.**

**Table I.8. Summary characteristics of social power – backroom deals.**

Sub-category name	Social power – backroom deals
Definition	Transmissions of status and position that bypasses an open, deliberative process
Pathways in a circuit	core to core, core to inner periphery, and inner periphery to inner periphery
Indicators	A decision or award that bypasses deliberation
Decision rules	Often co-present with a formal decision
Examples	Appointment of library director as a reward for past services

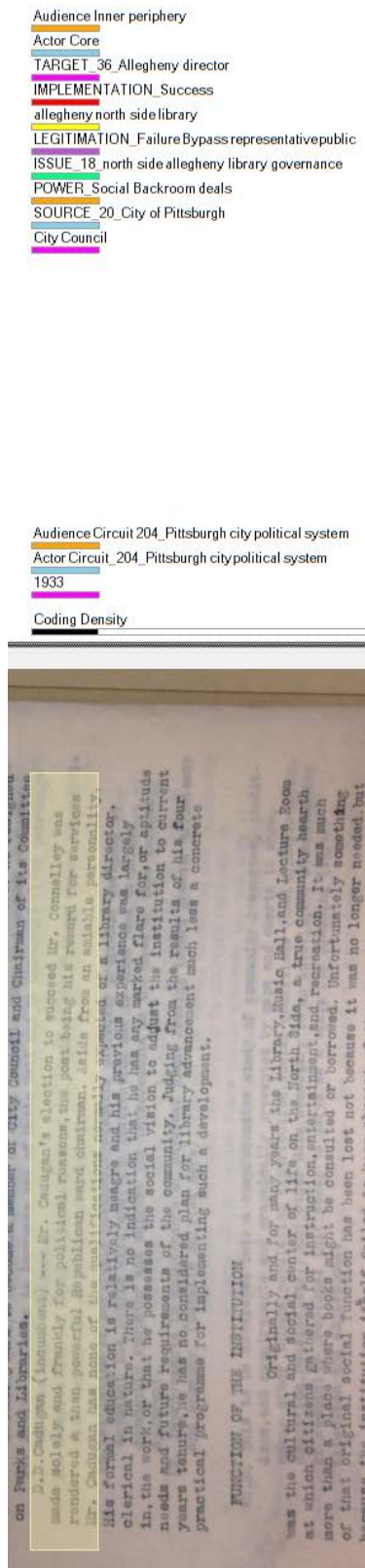


Figure I.14. Example segment of social power – backroom deals.



## ACTORS

***Federal government.*** Funding and administration of public libraries in the US is reserved for state and local control. There is no federal oversight of public libraries, but several agencies, authorities, and initiatives do affect local public libraries. There has been public library funding in the form of state grants since 1956 with the passage of the Library Services Act ([Fry, 1975](#)). This money was administered by the Department of Education. Rulings of the US Supreme Court have also set conditions for libraries that receive federal funding. Federal actors are listed and described in [Table I.9](#).

**Table I.9. Federal government actor names and descriptions.**

Actor name	Actor description
Civil Works Administration, Local Works Division	A New Deal jobs creation program. Sponsored a survey of library services in Pittsburgh in 1935.
Library agencies	Federal agencies such as the Library Programs Office at the Department of Education, the National Commission on Libraries and Information Science, and the Institute for Museum and Library Services
US Congress	US Senate and US House of Representatives
US Supreme Court	Supreme Court of the US

**State government.** The Commonwealth of Pennsylvania is one of 50 US states. It has a governor and a bicameral legislature known as the General Assembly. The legislature and governor determine yearly state budget allocations for libraries. There are a number of state departments, including the Department of Education, which includes the offices that oversee public library development and funding. The names and structure of these library offices have changed over time. The first state library code was implemented in 1961. The code initiated state funding to qualifying libraries and organized the libraries into districts. In 2014, there were 474 state-aided libraries in the state, the state spent over 57 million dollars on operating expenditures statewide, and almost 9 million of that was spent on Allegheny County libraries ([Office of Commonwealth Libraries, 2014](#)). State actors are listed and described in [Table I.10](#).

**Table I.10. State government actor names and descriptions.**

Actor name	Actor description
PA Governor	Executive leader of the Commonwealth of Pennsylvania
Pennsylvania General Assembly	Includes both the House and Senate
Pennsylvania state library	Includes both the actual state library in Harrisburg and the departments that coordinate library services across the state and distribute state aid
PA Secretary of Labor and Industry	Monitors employment practices in the state and provides grants for job promotion initiatives
voters of PA	All registered voters in the state of PA. Voters are actors in instances of formal decisions at a state level
constitution of PA	Outlines basic rights and structure of government for the Commonwealth of Pennsylvania
PA Department of Revenue	Charged with implementing tax collection procedures for the state
PA Public Utility Commission	Regulates utilities such as electricity, natural gas,

	telecommunications, water, and transportation
PA Department of State	Registers non-profit corporations

**County government.** County government is a mix of both local and state services. The legacy of county-level government was inherited from the English shire system ([Salant, 2002, p. 117](#)). There are 67 counties in Pennsylvania. Allegheny County is distinctive because in it is located Pittsburgh, the second-largest city in Pennsylvania. Like Philadelphia County, Allegheny County flirted with prospects of a city-county merger, though this movement was never successful in Pittsburgh as it was in Philadelphia. County government structure is set by state law. At the core of this structure is a 3-commissioner system, which was how the county was governed throughout the 20th century. The Pennsylvania Assembly and Allegheny County approved a new Home Rule structure that began in 2000 and abolished the commissioner system. County actors are listed and described in [Table I.11](#).

**Table I.11. County government actor names and descriptions.**

Actor name	Actor description
Allegheny County Housing Authority	Administers public housing in the County
Board of County Commissioners	Until 2000, a 3-member committee that decided county-wide projects and funding
Citizen Study Committee on Libraries	Committee formed in 1977 by Allegheny County Commissioners and funded by LSCA money, assigned to study library development in the County
Commission on the Future of Libraries in Allegheny County	CFLAC. Formed and chaired in 1991 by Frank Lucchino, then County Controller, and tasked to

	improve library services in the County
County Controller	Oversees fiscal affairs in the County
County court	Court of Common Pleas, Orphan's Court
County departments	Various county-funded departments such as Health and Human Services
Voters of Allegheny County	Voters in referenda and elections
Allegheny County Government Study Commission	Appointed in 1924 to study municipal consolidation in Pittsburgh. Proposed a regional home rule charter that failed to carry in Allegheny County in 1929
Allegheny County Solicitor	Lawyer for the County
Authority for Improvements in Municipalities (AIM)	A non-profit, county-created authority for managing municipal facilities

***Municipal and city government.*** The basic unit of local government is the municipality. Municipalities in Pennsylvania are of different sizes and types, including boroughs, townships, and cities. Allegheny County has 130 municipalities, more than any other county in the state and one of the most in the nation ([Sleeper et al., 2004](#)). Though the specifics vary, most public libraries are funded or administered in some way through a municipality. Municipal and city actors are listed and described in [Table I.12](#).

**Table I.12. Municipal and city government actor names and descriptions.**

Actor name	Actor description
City of Allegheny	A separate municipality until annexed by Pittsburgh in 1907; library remained separate from CLP until 1956
City of Pittsburgh	Used as actor when more specific entity is unclear
both Mayor and Council	Used as actor when both mayor and council transmit some form of power
Pgh. City Council	Decision makers for the city
Pgh. Mayor	Executive decision maker for the city
City courts	Municipal court for the city
Unknown	An unknown actor associated with the city
County municipalities outside the city	Local municipalities outside the city of Pittsburgh
Local municipal board	The board of a municipality outside the city
Multiple municipalities	A group of municipalities outside the city

***School districts.*** School districts are special-purpose government authorities initiated through the state Department of Education by local municipalities. Like water, parking, or other special authorities, school districts have a specialized purpose, and that is education. School districts are governed by school boards whose members are elected and can levy property taxes within the district to fund school services. Some school districts also fund or govern public libraries within the county. School district actors are listed and described in [Table I.13](#).

**Table I.13. School district actor name and descriptions.**

Actor name	Actor description
School districts	Used as an actor when more precise information is not available

School boards	Decision makers for school districts
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***Regional Asset District.*** Regional Asset District is a special-purpose district designed in part to offload the funding of cultural assets from the city and county to the surrounding region. It funds these assets through an extra 1 percent sales tax in the county, atop the state’s 6 percent. The Allegheny County Library Association, the Carnegie Library of Pittsburgh, and the Electronic Information Network are 3 of the district’s contractual assets. Combined, in 2016, they received over 30 million dollars, almost one-third of the district’s total budget of over 90 million dollars ([Allegheny Regional Asset District, 2016](#)). Regional Asset District actors are listed and described in [Table I.14](#).

**Table I.14. Regional Asset District name and description.**

Actor name	Actor description
Allegheny Regional Asset District	Formed in 1994, RAD is a special-purpose district whose jurisdiction coincides with Allegheny County. The district levies an extra 1 percent sales tax on most purchases within the county. Half of the revenue from this tax is redistributed to county municipalities. The other half is dispersed to cultural assets. A 7-member board decides on the assets and budget. 4 members are appointed by the county chief executive, 2 by the mayor of Pittsburgh, and 1 at-large member is voted on by the appointees.

***Library groups.*** There are a number of libraries and library groups that have operated in Allegheny County throughout the 20th century and into the 21st. Library actors are listed and described in [Table I.15](#).

**Table I.15. Library group actor names and descriptions.**

Actor name	Actor description
ACLA	Allegheny County Library Association. A non-profit member association of public libraries in Allegheny County. Formed in 1994 in order to receive and distribute RAD money. 1 of 33 library systems in the state.
CLASP	County Library Association Serving the People. Precursor to ACLA. A loose membership association of librarians and trustees in Allegheny County. Formed in 1991 in response Lucchino's <i>Quiet Crisis</i> report. Transformed into ACLA in 1994.
LASH	Library Association of South Hills. A group of librarians that coordinated services in South Hills libraries. Pre-dated CLASP and ACLA
SHLA	South Hills Library Association. A group of trustees from libraries in South Hills.
Allegheny County library director	Position first opened and filled in 1992 by the Commission for the Future of Libraries in Allegheny County and at the request of Frank Lucchino. First funded through Buhl Foundation grants, then county-funded. Helped to coordinate Three Rivers Free Net, EIN, and RAD funding for ACLA. Merged into the ACLA executive director position. First filled by DeeAnna Cavinee, then Marilyn Jenkins.
CLP and Monessen district directors	Met to discuss re-drawing of district lines so that the Pittsburgh District coincided with Allegheny County.
CLP cabinet	Administrators under Bob Croneberger at CLP. Included assistant directors, associate director, and district coordinators.

CLP city libraries	Carnegie Library of Pittsburgh main and branches
CLP committee	Any committee of CLP formed by the director or trustees
CLP county services	Includes county-wide services at CLP since 1956, when CLP initiated the county card and county bookmobile
CLP director	used as the actor when more precise details are not clear
CLP advisory board	A special advisory board for CLP trustees formed by librarians and trustees from around the county
Bob Croneberger	The 8th CLP director; served from 1986-1998. Initiated TRFN, EIN, and contracted with RAD.
Keith Doms	The 6th CLP director, from 1964-1969. Assistant director under Munn. Went on to become director of the Free Library of Philadelphia.
Ralph Munn	The 5th director of CLP, from 1928-1964. A number of significant events occurred during Munn's tenure.
Mary Frances Cooper	11th director of CLP. Served from 2012 to the present.
Anthony A. Martin	The 7th director of CLP. Served from 1969-1985. First director of CLP Allegheny Branch after the merger in 1956.
Donald C. Potter	Assistant director of CLP under Tony Martin. Jointed CLP in 1969. Previously served as Head of the Bureau of Library Development at the PA State Library.
CLP district services	CLP acted as a district library center since 1961. District services were implemented by 1963 to offer consultation and coordination services to surrounding libraries in the district.
CLP services	Services and departments for libraries within the city.
EI Network	Implemented by 1996, a shared catalog and computer network system for libraries in Allegheny County. Formed by CLP, ACLA, and CFLAC. Successor to Project Link-up and Three Rivers Free-Net. Originally funded by foundation and county monies. Original board had 7 members: 2 from CLP, 2 from ACLA, 2 from CFLAC, and 1 from the University of Pittsburgh School of Library and Information Science. Now a non-profit corporation and funded through RAD.
Friends groups	Non-librarian community advocates for CLP
CLP Trustees	Trustees who manage the library trust.



local libraries in Allegheny County	Libraries outside the city and not a part of the CLP system.
Local library trustees	Trustees of the libraries outside the city
local libraries in Westmoreland County	Libraries in the county west of Allegheny, including Monessen
Libraries outside Allegheny County	Libraries beyond Allegheny and Westmoreland
RAD lobbyists	Any potential asset petitioning for funding
ACLA and CLP directors	Joint coordination or decision making by the directors of CLP and ACLA
Knowledge Connections	Computer and homework-help rooms established in public housing developments throughout Allegheny County by CFLAC and Lucchino. Operational from early 1994.
Library groups - other	Miscellaneous groups not mentioned elsewhere.

***Civil society.*** Pittsburgh has an active civil society and a large number of civil society groups, many of which have interacted with library groups and have advocated for or proposed visions of a large-scale library system in the Pittsburgh region. Civil society is defined as non-government and non-business. A civil society group is a voluntary association whose members organize to promote some issue or cause. Private actors who are not acting commercially or as members of government are also considered part of civil society. Civil society actors are listed and described in [Table I.16](#).

**Table I.16. Civil society actor group names and descriptions.**

Actor name	Actor description
Allegheny Conference on Community	A non-profit think tank composed of leaders from

Development	business and government in the Pittsburgh area. Proposes economic development plans. Sponsored a library study in 1950. Group was an architect and lobbyist for the RAD legislation.
Allegheny County Council of Parent-Teacher Associations	An umbrella group for PTA groups in the county.
Allegheny Federation of Women's Clubs	An umbrella group for women's clubs in the county.
Allegheny County Boroughs Association	Member municipalities in the association.
Allegheny League of Municipalities	An association of municipal leaders and home-rule advocates.
Building Owners and Managers Association	Association for commercial property owners.
Civic Club of Allegheny County	Progressive reform group active throughout the first half of the 20th century. Early advocates of a county library system.
Library Planning Committee of Allegheny County	Citizen-led group in the 1950s and early 1960s that worked with CLP to petition county commissioners for expanded county-wide library services. Successful in 1956 when initial steps were taken, then continued to push for a consolidated system.
Metropolitan Plan Commission	Instituted in 1923, the Commission was charged with the study of city-county consolidation. Their proposal failed to pass a county referendum in 1929.
Metropolitan Study Commission	Formed in 1952 to study inter-municipal cooperation in the Pittsburgh area. Led to a library study and home rule charter published in 1955.
Pennsylvania Economy League	Think tank that weighs in on economic policy. Active with libraries and Civic Club since early 20th century. Architects of RAD proposal. Assisted CLASP libraries to receive RAD money.
Pennsylvania Library Association	Professional association and lobbying group for libraries and librarians in Pennsylvania.
Civil society - other	Civil society group not otherwise mentioned.
Multiple civil society groups	Use as actor when more than one group bands together to communicate a message.
Real Estate Board	Lobbyists for lower county real estate taxes.

Experts and consultants	Outside experts or consultants who comment on or study the library situation in Pittsburgh. Non-paid.
library or citizens advisory council	Any citizens' advisory council to local library organizations.
Private civil society actor	A private person not associated with a group.
Private corporation or foundation	Non-profit entity, corporation, foundation.
Pennsylvania Citizens for Better Libraries	Association for non-librarian and trustees that sponsors advocacy training.
Public Library Project	Formed by State Librarian Sara Parker in 1992 to recommend changes in the library code.
Urban Library Council	Association of large urban libraries in the US and Canada.
American Libraries Association	Professional association, lobbying group, and policy-making group for libraries in the US and Canada.
Buhl Foundation	Offers grants to arts and education organizations in Pittsburgh.
21st century library study	Begun by CLP and ACLA in 2012 at the request of the RAD board to study options for restructuring and economizing services.
PA library Governor's Advisory Council	A group of 12 library trustees, librarians, and laypeople who offer advice to the governor, secretary of education, and state librarian on library policy.
League of Women Voters	A non-profit political advocacy and education group.
Health and Welfare Federation	Non-profit group that promoted social work and welfare in Pittsburgh
Voluntary citizens group	An unstructured, loose association.

***Economic system.*** There were several economic actors identified in this study. Economic actors are profit-driven and offer products or services in exchange for money. Economic actors are listed and described in [Table I.17](#).

**Table I.17. Economic system actor names and descriptions.**

Actor name	Actor description
Contractor	A group or person hired to perform a task.
Mass media outlets	Commercially-run mass-circulation media groups, such as newspapers and television.
Private economic actor	A single actor buying or selling labor time or product.
Private business	A group coordinated by a shared interest in profit.

***Other.*** There were two types of residual actors used in this study. These actors are listed and described in [Table I.18](#).

**Table I.18. Miscellaneous actor names and descriptions.**

Actor name	Actor description
Some combination of City, County, and civil society groups	Use as actor in cases where more than one group or type of group join to perform a communicative event.
Actor - Unknown	Cases where authorship or sender is unknown.

## ACTOR POSITION AND ROLES

***National circuit.*** The national circuit consists of the Congress and Supreme Court in the core, various semi-autonomous agencies in the inner periphery, and an outer periphery that is occupied by various suppliers and customers. These actors are listed and described in [Table I.19](#).

**Table I.19. Recurring actors in the national circuit.**

Position	Consistent actors
Core	US Congress US Supreme Court
Inner periphery	Civil Works Administration State Library Agencies
Outer periphery	Suppliers Customers

***State circuit.*** The state circuit consists of the Governor, General Assembly, and various policy committees at the core. The inner periphery is composed of central, regional, and local actors. Central actors in the inner periphery include the Department of Revenue, the Department of Labor and Industry, and the Public Utility Commission. Regional actors include county or district libraries. Local actors include local libraries. In the outer periphery of the state circuit are customers such as civil society groups and suppliers such as commissioned studies. These actors are listed and described in [Table I.20](#).

**Table I.20. Recurring actors in state circuit.**

Position	Consistent actors
Core	Governor General Assembly Policy committees
Inner periphery	Department of Revenue Labor and Industry Public Utility Commission State Library Allegheny County Offices Commission on the Future of Libraries County Library District Library Library System Local libraries
Outer periphery	Customers: ACLA Civil society groups County Commissioners Library Trustees Municipality Pennsylvania Library Association  Suppliers: Civil Society Groups Commission on the Future of Libraries Commissioned study (e.g. Metropolitan Plan Commission) Governor's Advisory Council Local libraries Pennsylvania Library Association Pennsylvania Citizens for Betters Libraries Pittsburgh city mayor Pennsylvania voters

***County circuit.*** The county circuit consists of the County Commissioners, County Controller, and referenda and elections at the core. In the core are the semi-autonomous departments such as the Housing Authority and the Commission on the Future of Libraries. In

the outer periphery, customers include ACLA, the City, and local libraries. Suppliers include various study committees and municipalities (see [Table I.21](#)).

**Table I.21. Recurring actors in the county circuit.**

Position	Consistent actors
Core	County Commissioners County Controller County Council County referendum Orphans' Court Solicitor
Inner periphery	Allegheny County Housing Authority Commission on the Future of Libraries County departments County library County library director EIN
Outer periphery	Customers: ACLA City of Pittsburgh Library trustees Local libraries  Suppliers: ACLA Citizen Study Committee Library Planning Committee CLP Contractors EIN Library study Local libraries Mass media Municipality State Library Voters

***Pittsburgh city circuit.*** The Pittsburgh circuit consists of the Mayor and City Council at the core, along with city elections and referenda. The inner periphery includes city departments and the library system. The outer periphery includes suppliers such as the Friends of the Library group (see [Table I.22](#)).

**Table I.22. Recurring actors in the city circuit.**

Position	Consistent actors
Core	Both Mayor and Council City Council General elections Mayor Referenda
Inner periphery	Allegheny North Side Library City library system City Planning Department
Outer periphery	Customers Suppliers: Friends of the Library group CLP General Assembly

***ACLA circuit.*** The ACLA circuit includes the board and executive director at the core. The Librarians Advisory Council sometimes occupies the core position, other times it occupies the inner periphery. Also in the inner periphery are eiNetwork and member libraries. In the outer periphery are various customers and suppliers ([Table I.23](#)).



**Table I.23. Recurring actors in the ACLA circuit.**

Position	Consistent actors
Core	ACLA board committees Executive director LAC executive Member library voters
Inner periphery	EIN Headquarters – executive director, staff LAC Member libraries
Outer periphery	Customers Suppliers

***Intra-library circuit.*** The intra-library circuit includes the board and director at the core, departments in the inner periphery, and various customers and suppliers in the outer periphery ([Table I.24](#)).

**Table I.24. Recurring actors in the intra-library circuit.**

Position	Consistent actors
Core	Board of Trustees Cabinet CLP advisory board Committee Director
Inner periphery	Departments – e.g., District Services, EIN
Outer periphery	Customers: CLP County Commissioners  Suppliers:

	ACLA Advisory Council CFLAC Civil Society Group CLASP CLP CLP county services Committee Consultant General Assembly Private actors
--	--

***Local municipal circuit.*** The local municipal circuit includes the city council, local board, and supervisor at the core, municipal departments such as local libraries in the inner periphery, and customers and suppliers in the outer periphery ([Table I.25](#)).

**Table I.25. Recurring actors in the municipal circuit.**

Position	Consistent actors
Core	City Council Local board Referendum voters Township supervisor
Inner periphery	Local libraries Municipal departments
Outer periphery	Customers: ACLA Andrew Carnegie Library trustees Local library  Suppliers: ACLA Citizens' groups

	CLP county services Commissioned study Friends of the Library groups
--	--

***Local school district circuit.*** The local school district circuit includes the board in the core, local libraries in the inner periphery, and customers and suppliers in the outer periphery ([Table I.26](#)).

**Table I.26. Recurring actors in the school district circuit.**

Position	Consistent actors
Core	School board
Inner periphery	Local libraries
Outer periphery	Customers Suppliers

***Regional Asset District circuit.*** The Regional Asset District circuit includes the executive director, library committee, and RAD board in the core; acting regional assets in the inner periphery; and potential regional assets as customers in the outer periphery ([Table I.27](#)).

**Table I.27. Recurring actors in the RAD circuit.**

Position	Consistent actors
Core	Executive Director Library Committee RAD Board
Inner periphery	Acting regional assets
Outer periphery	Customers: Potential regional assets  Suppliers

***Electronic Information Network circuit.*** The eiNetwork circuit includes representatives of ACLA, CFLAC, and CLP on the joint board in the core, ACLA member libraries and support staff in the inner periphery, and various customers and suppliers in the outer periphery ([Table I.28](#)).

**Table I.28. Recurring actors in the EIN circuit.**

Position	Consistent actors
Core	ACLA CFLAC CLP Joint board
Inner periphery	ACLA libraries Staff and support

Outer periphery	Customers Suppliers
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***Civil society circuit.*** The civil society circuit includes boards, members, and officers at the core, committees, discussion leaders, and funded entities in the inner periphery, and various customers and suppliers in the outer periphery ([Table I.29](#)).

**Table I.29. Recurring actors in the civil society circuit.**

Position	Consistent actors
Core	Board of Directors Lead facilitator Members Officers
Inner periphery	Committee chairs Committees Discussion leader Funded entity
Outer periphery	Customers Suppliers

***Economic circuit.*** The economic circuit includes boards, consultants, and editors in the core, news media outlets in the inner periphery, and customers and suppliers in the outer periphery ([Table I.30](#)).

**Table I.30. Recurring actors in the economic circuit.**

Position	Consistent actors
Core	Board Consultants Editors
Inner periphery	News media outlets
Outer periphery	Customers Suppliers

***Unknown circuit.*** An unknown circuit is one where formative stages of development have occurred, but its shape is not yet well defined and it is still too early to tell if it can maintain itself. Each of the positions therefore do not yet have well-defined actors ([Table I.31](#)).

**Table I.31. Recurring actors in the unknown circuit.**

Position	Consistent actors
Core	Diffuse core
Inner periphery	Diffuse inner periphery
Outer periphery	Diffuse outer periphery

## AUDIENCES

**Table I.32. Types of audiences that receive broadcasts.**

General scope of broadcast	Description of scope
Broadcast to Allegheny County residents	Distribution area roughly coincides with county lines
Broadcast to civil society groups	A general announcement to civil society groups in the Pittsburgh area
Broadcast to County libraries	Transmissions to county libraries
Broadcast to Pennsylvania counties	Transmissions to county offices within Pennsylvania
Broadcast to Pennsylvania district libraries	Announcements to district libraries in Pennsylvania
Broadcast to Allegheny County municipalities	Announcements to all municipalities in Allegheny County
Broadcast to Pennsylvania residents	Transmissions to all residents of Pennsylvania
Broadcast to national population	National-scale transmissions
Broadcast to private contractors	Calls for private contractors
Broadcast to national libraries	Announcements to libraries at a national scale
Broadcast to Pennsylvania libraries	Announcements to all libraries in Pennsylvania

## ISSUES

**Table I.33. Issues included in the coding frame.**

Issue category	Coding key number	Issue name	Issue definition
County issues	1	RAD legislation	Lobbying for RAD legislation, passing it in the General Assembly, approval by Board of Commissioners, implementation of RAD tax.
	2	City-county consolidation	Merger of city and county functions into a single governmental unit.
	3	Commission on the Future of Libraries	Formation of the Commission, its mission and duties.

	4	County department funding	Funding to various departments and offices in Allegheny County outside of library funding.
	5	County library director	Hiring of director, mission and duties.
	6	Home rule	Lobbying or legislation for restructuring Allegheny County governance or the governance of municipalities within the county.
	7	RAD board	Appointments to the board, constitution of the board, board powers.
	8	Tax increase	Raising county taxes.
Local funding	9	ACLA grant	Regional competitive grants supplied by ACLA to agencies or libraries.
	10	Compliance with ACLA	General administrative requirements for ACLA membership, membership agreement.
	52	compliance with ACLA - standards	Compliance specifically in regards to library standards.
	11	Compliance with RAD	Requirements for ACLA and libraries for maintaining regional asset status.
	12	Grants	Grant funding from foundations and businesses.
	13	local allocations for libraries	Funding from municipal or school district taxes to county libraries.
	14	Local millage for libraries	Specifically regarding a dedicated millage for local libraries.
	15	RAD funding	Money received from RAD as a regional asset.
Local library organizations - city libraries	16	City library budget	Funding allocation by the city to CLP.
	17	Librarian wages	Wages and salaries for librarians within CLP.
	18	North side Allegheny library governance	Director and appointments to director position at Carnegie Free Library of Allegheny.
	19	Pittsburgh city-Allegheny City library	Merger of Allegheny library in North Side with CLP system.



		merger	
	20	Staffing	Staff positions and departments in CLP.
	21	City library system miscellaneous issues	Issues at CLP not otherwise stated.
Local library organizations - county libraries	22	Incorporation	Formation of a library, whether by incorporating as a non-profit.
	23	Local library administration	Trustees or directors or governance structure of a local library.
	24	Local library formation	History of formation of a local library.
National funding	25	Internet	Grants for Internet use or related technologies.
	26	LSCA	Library Services and Construction Act. Grants for planning and building of libraries.
	27	National planning	Planning for libraries on a national scale.
	28	New deal funding	Funding received for libraries during the New Deal.
	53	LSTA	Library Services and Technology Act. Funding for services and technologies in libraries.
Regional organization	30	ACLA formation and governance	Incorporation of ACLA, restructuring, governance structure.
	31	Computerization	Distribution and installation of computers in libraries across the county.
	32	County funding	Funding from the county budget to county libraries.
	33	Countywide system formation and unification	A vision or plan for integration and cooperation of libraries county-wide.
	34	Distribution formula	The means of distributing RAD funding by ACLA to county libraries (not CLP).
	35	Fax machines	Distribution and installation of fax machines in libraries across the county.
	36	Federated system	Plans for a federated system of libraries across the county.

	37	Formation of county library organizations	How library groups or associations emerged, their functions and governance structures.
	38	Library study	A study of libraries in the county.
	39	Local library coordination	Shared services or personnel between libraries.
	40	Reading centers in the housing projects - Knowledge Connections	Formation, activities, funding, or governance of Knowledge Connection sites.
	41	Redrawing district lines	Merging Pittsburgh district lines to coincide with county lines.
	42	Three Rivers Free-Net	Development or maintenance of online discussion board and email site hosted by CLP in early 1990s.
	43	Union Catalog	Development of infrastructure for sharing bibliographic records online across the county.
	44	EIN	Funding, development, or governance of infrastructure for sharing bibliographic records, patron data, databases, and other resources online across the county through a secure network.
	54	Delivery service	Funding and maintenance of infrastructure for shipping and sorting of shared physical resources across the county libraries.
State system	45	AccessPA	Funding and maintenance of inter-library loan system across libraries in Pennsylvania.
	46	Library telecommunications rates	Special phone rates for libraries as dial-up access to online material became ubiquitous.
	47	Local funding from state	State allocations to local libraries.
	48	PA state code and state plan	The state library code.
	49	State budget	Allocations for libraries in PA as determined by the Governor and General Assembly.

Other issues	29	Quality of formal debate	Reflection on the quality of discussion.
	50	Unknown	An unknown issue.
	51	Miscellaneous	Issues not otherwise mentioned.

## LEGITIMATION

**Table I.34. Legitimation sub-categories and definitions.**

Legitimation sub-category	Definition
Failure – Bypass representative public	Little or no discussion led up to a communicative event.
Failure – Objections	Objections were raised regarding a communicative event.
Success – Discussion and periphery support	Formative discussion was held about the content of a communicative event.
Success – Consensus	Agreement is reached about the content of a communicative event.
Unknown	Legitimacy of a communicative event is unknown.

## IMPLEMENTATION

**Table I.35. Implementation sub-categories and definitions.**

Implementation sub-category	Definition
Failure	The content of a communicative event is not carried out.

Success	The content of a communicative event is carried out.
Unknown	Whether or not the content of a communicative event is carried out is unknown.

## APPENDIX J: CODING KEYS

### ACTOR, AUDIENCE, AND CIRCUIT KEY

Table J.1. Actor, audience, and circuit key.

ID	Label
1	Civil Works Admin. Local Works Div.
2	Library agencies
3	US Congress
4	PA governor
5	Pennsylvania General Assembly
6	Pennsylvania state library
7	PA Secretary of Labor and Industry
8	voters of PA
9	constitution of PA
10	Allegheny County Housing Authority
11	Board of County Commissioners
12	Citizen Study Committee on Libraries
13	Commission on the Future of Libraries
14	County Controller
15	County court
16	County departments
17	Voters of Allegheny County

18	Allegheny County Government Study Commission
19	City of Allegheny
20	City of Pittsburgh
21	both Mayor and Council
22	Pgh. City Council
23	Pgh. Mayor
24	City courts
25	Unknown
26	County municipalities outside the city
27	Local municipal board
28	Multiple municipalities
29	School districts
30	School boards
31	Regional Asset District
32	ACLA
33	CLASP
34	LASH
35	SHLA
36	Allegheny County library director
37	CLP and Monessen district directors
38	CLP cabinet
39	CLP city libraries
40	CLP committee
41	CLP county services
42	CLP director
43	Bob Croneberger
44	Keith Doms
45	Ralph Munn

46	CLP district services
47	CLP services
48	EI Network
49	Friends groups
50	CLP Trustees
51	local libraries in Allegheny County
52	Local library trustees
53	local libraries in Westmoreland County
54	RAD lobbyists
55	Allegheny Conference on community development
56	Allegheny County Council of Parent-Teacher Associations
57	Allegheny Federation of Women's Clubs
58	Allegheny League of Municipalities
59	Building Owners and Managers Association
60	Civic Club of Allegheny County
61	Library Planning Committee of Allegheny County
62	Metropolitan Plan Commission
63	Metropolitan Study Commission
64	Pennsylvania Economy League
65	Pennsylvania Library Association
66	Civil society - other
67	Multiple civil society groups
68	Real Estate Board
69	Experts and consultants
70	library or citizens advisory council
71	Private civil society actor
72	Private corporation or foundation
73	Voluntary citizens group

74	Contractor
75	Mass media outlets
76	Private economic actor
77	Private business
78	Some combination of City, County, and civil society groups
79	Actor - Unknown
201	National circuit
202	State circuit
203	County circuit
204	Pittsburgh city circuit
205	ACLA circuit
206	Intra-library circuit
207	Local municipal circuit
208	Local school district circuit
209	Regional Asset District circuit
210	Electronic Information Network circuit
211	Civil society circuit
212	Economic circuit
213	Unknown circuit
80	Broadcast to Allegheny County residents
81	Broadcast to civil society groups
82	Broadcast to County libraries
83	Broadcast to Pennsylvania counties
84	Broadcast to Pennsylvania district libraries
85	Broadcast to Allegheny County Boroughs Association
86	Broadcast to Allegheny County municipalities
87	Broadcast to Pennsylvania residents
88	Health and Welfare Federation



89	Broadcast - other
90	PA library Governor's Advisory Council
91	Anthony A. Martin
92	Donald C. Potter
93	Libraries outside Allegheny County
94	League of Women Voters
95	Broadcast to national libraries
96	Pennsylvania libraries
97	PA Department of Revenue
98	PA Public Utility Commission
99	Allegheny County Solicitor
100	Pennsylvania Citizens for Better Libraries
101	Public Library Project
102	Urban Library Council
103	Broadcast to national population
104	Authority for Improvements in Municipalities (AIM)
105	Private contractors
106	PA Department of State
107	US supreme court
108	American Libraries Association
109	Buhl Foundation
110	Knowledge Connections
111	CLP advisory board
112	Mary Frances Cooper
113	21st century library study
114	ACLA and CLP directors

## POWER KEY

**Table J.2. Power key.**

Power	Code
Administrative Power – Broadcast	ab
Administrative Power – Narrowcast	an
Communicative Power – Broadcast	cb
Communicative Power – Narrowcast	cn
Formal Decision	fd
Social Power – Economic	se
Social Power – Backroom deals	sb

## CIRCUIT POSITION KEY

**Table J.3. Circuit position key.**

Position	Code
Core	co
Inner Periphery	ip
Outer Periphery	op
Diffuse Public	dp

## ISSUE KEY

**Table J.4. Issue key.**

Code	Issue
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1	RAD legislation
2	city county consolidation
3	commission on the future of libraries
4	county department funding
5	county library director
6	home rule
7	RAD board
8	tax increase
9	ACLA grant
10	compliance with ACLA
11	compliance with RAD
12	grants
13	local allocations for libraries
14	local millage for libraries
15	RAD funding
16	city library budget
17	librarian wages
18	north side Allegheny library governance
19	Pittsburgh city Allegheny city library merger
20	staffing
21	city library system miscellaneous issues
22	incorporation
23	local library administration
24	local library formation
25	Internet
26	LSCA
27	national planning
28	new deal funding

29	quality of formal debate
30	ACLA formation and governance
31	computerization
32	county funding
33	countywide system formation and unification
34	distribution formula
35	fax machines
36	federated system
37	formation of county library organizations
38	library study
39	local library coordination
40	reading centers in the housing projects knowledge connections
41	redrawing district lines
42	three rivers free net
43	union catalog
44	EIN
45	AccessPA
46	library telecommunications rates
47	local funding from state
48	PA state code and state plan
49	state budget
50	unknown
51	miscellaneous
52	compliance with ACLA - standards
53	LSTA
54	delivery service

## LEGITIMATION KEY

**Table J.5. Legitimation key.**

Legitimation	Code
Failure – Bypass representative public	fb
Failure – Objections	fo
Success – Discussion and periphery support	sd
Success – Consensus	sc
Unknown	un

## IMPLEMENTATION KEY

**Table J.6. Implementation key.**

Implementation	Code
Failure	fa
Success	su
Unknown	un

## **APPENDIX K: CODING MATRICES**

### **COLUMN HEADING ABBREVIATIONS**

No. – Source number. Numbers correspond to those in the source tables.

Pgs. –Total number of pages in the source.

Sgmt – Segment number.

Actr – Actor.

Aud – Audience.

Pwr – Power.

Actr Crc –Actor circuit.

Actr Pos – Actor position.

Aud Crc – Audience circuit.

Aud Pos – Audience position.

Yr – Year of communicative event.

Iss – Issue.

Leg – Legitimation.

Imp – Implementation.

## CODING TABLE FOR PERIOD 1

**Table K.1. Coding table for period 1.**

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Is	Leg	Imp
1	1	1	75	80	cb	212	ip	212	dp	1940	16	un	un
		2	16	11	cn	203	ip	203	co	1940	4	un	un
		3	5	16	an	202	co	202	ip	1940	4	un	su
		4	11	80	ab	203	co	203	dp	1940	8	un	un
2	39	1	40	50	cn	206	co	206	co	1931	23	un	su
		2	20	45	fn	204	co	204	ip	1931	16	sd	su
		3	45	21	cn	204	ip	204	co	1931	16	sc	su
3	18	1	67	80	cb	211	co	211	dp	1940	51	un	un
4	1	1	60	11	cn	203	op	203	co	1940	33	sd	un
		2	11	60	cn	211	op	211	co	1940	33	sd	su
		3	60	67	cn	211	op	211	co	1940	33	sd	un
5	11	1	60	23	cn	204	op	204	co	1939	19	sd	fa
6	12	1	60	64	cn	211	op	211	co	1937	19	sd	un
		2	64	21	cn	204	op	204	co	1937	19	sd	un
		3	60	21	cn	204	op	204	co	1937	16	sd	su
7	3	1	60	11	cn	203	op	203	co	1941	33	sd	fa
8	5	1	60	21	cn	204	co	204	co	1931	16	sd	un
		2	60	60	fd	211	co	211	ip	1931	16	sc	su
		3	60	60	cn	211	ip	211	ip	1931	16	sc	su
9	2	1	60	22	cn	204	op	204	co	1933	16	sd	un
		2	59	22	cn	204	op	204	co	1933	16	sd	un
		3	60	22	an	204	op	204	co	1933	17	sd	un
10	6	1	60	60	cb	211	ip	211	ip	1924	33	sd	un

11	2	1	60	21	cn	204	op	204	co	1927	19	sd	un
12	2	1	60	22	cn	204	op	204	co	1928	16	sd	un
13	6	1	60	60	fd	211	co	211	ip	1929	16	sc	su
		2	60	22	cn	204	op	204	co	1929	16	sd	un
14	3	1	59	60	fd	211	op	211	co	1936	16	sc	su
		2	60	60	fd	211	co	211	ip	1936	16	sc	su
		3	60	64	cn	211	op	211	co	1936	19	sd	un
15	1	1	11	60	cn	211	op	211	co	1940	33	sd	su
		2	67	11	cn	203	op	203	co	1940	33	sd	un
		3	60	80	cb	211	co	211	dp	1940	33	sd	su
		4	67	11	cn	203	op	203	co	1940	33	sd	un
16	121	1	45	50	cn	206	co	206	co	1929	33	un	un
		2	45	60	cn	211	op	211	co	1929	16	sd	su
		3	60	22	cn	204	op	204	co	1929	16	sd	su
17	1	1	75	80	cb	212	ip	212	dp	1938	19	sd	un
		2	60	22	cn	204	op	204	co	1938	19	sd	un
18	5	1	60	80	cb	211	co	211	dp	1925	19	sd	un
19	2	1	60	80	cb	211	co	211	dp	1930	33	sd	un
20	2	1	60	80	cb	211	co	211	dp	1930	33	sd	un
21	1	1	60	80	cb	211	co	211	dp	1938	19	sd	un
		2	75	80	cb	212	ip	212	dp	1938	19	sd	un
22	2	1	60	80	cb	211	co	211	dp	1928	33	sd	un
23	2	1	60	80	cb	211	co	211	dp	1929	33	sd	un
24	2	1	60	80	cb	211	co	211	dp	1931	33	sd	un
25	1	1	75	80	cb	212	ip	212	dp	1940	33	sd	un
		2	67	11	cn	203	op	203	co	1940	33	sd	su
		3	11	60	cn	211	op	211	co	1940	33	sd	su
26	1	1	75	80	cb	212	ip	212	dp	1940	33	sd	un
		2	67	11	cn	203	op	203	co	1940	33	sd	un
		3	67	67	fd	211	co	211	ip	1940	33	sc	su



27	1	1	75	80	cb	212	ip	212	dp	1940	33	sd	un
		2	56	11	cn	203	op	203	co	1940	33	sd	fa
28	3	1	75	80	cb	212	ip	212	dp	1940	8	un	un
		2	11	80	cb	203	co	203	dp	1940	8	un	un
		3	11	68	cn	211	op	211	co	1940	8	sd	un
29	2	1	5	5	cn	202	co	202	co	1925	48	sd	su
		2	5	5	fd	202	co	202	co	1925	48	sc	su
		3	5	4	cn	202	co	202	co	1925	48	sc	su
30	3	1	4	83	fd	202	co	202	dp	1925	48	sc	su
31	3	1	5	83	fd	202	co	202	dp	1929	48	sd	su
32	7	1	4	83	fd	202	co	202	dp	1931	47	sd	su
33	2	1	5	5	cn	202	co	202	dp	1925	48	sd	su
34	1	1	75	80	cb	212	ip	212	dp	1940	33	sd	un
		2	56	11	cn	203	op	203	co	1940	33	sd	un
35	11	1	20	36	bd	204	co	204	ip	1933	18	fb	su
		2	60	22	cn	204	op	204	co	1933	19	sd	un
36	2	1	67	11	cn	203	op	203	co	1940	33	sc	fa
		2	11	60	cn	211	op	211	co	1940	33	sd	su
		3	60	67	fd	211	co	211	op	1940	33	sc	su
		4	60	11	cn	203	op	203	co	1940	33	sd	un
37	2	1	60	11	an	203	op	203	co	1939	33	sd	un
38	2	1	67	60	fd	211	op	211	co	1940	33	sc	su
		2	60	11	cn	203	op	203	co	1940	33	sd	fa
		3	11	60	fd	203	co	203	op	1941	33	sd	fa
39	4	1	45	22	cn	204	op	204	co	1933	18	un	un
40	2	1	45	22	cn	204	op	204	co	1933	18	un	un
41	4	1	56	11	cn	203	op	203	co	1940	33	sd	un
		2	56	45	cn	206	op	206	co	1940	33	sd	un
42	2	1	56	67	cn	211	op	211	co	1938	33	sd	su
		2	56	51	cn	206	op	206	co	1938	33	sd	un

43	1	1	66	29	cn	208	op	208	co	1937	33	sd	su
44	1	1	75	80	cb	212	ip	212	dp	1938	19	sd	un
		2	60	22	cn	204	op	204	co	1938	19	sd	un
45	6	1	75	80	cb	212	ip	212	dp	1937	33	sd	un
46	189	1	56	28	cn	207	op	207	co	1938	33	sd	un
		2	60	11	cn	203	op	203	co	1939	33	sd	un
		3	56	11	cn	203	op	203	co	1940	33	sd	un
		4	57	11	cn	203	op	203	co	1940	33	sd	fa
		5	11	60	cn	211	op	211	co	1940	33	sd	su
		6	60	60	fd	211	co	211	co	1940	33	sc	su
		7	60	11	cn	203	op	203	co	1940	33	sc	fa
		8	60	56	cn	211	co	211	op	1941	33	fo	fa
		9	11	60	fd	203	co	203	op	1941	33	fo	fa
47	1	1	62	5	cn	202	op	202	co	1929	2	sd	fa
		2	5	62	fd	202	co	202	op	1928	2	sd	su
48	2	1	5	62	fd	202	co	202	op	1923	2	sd	su
		2	5	18	fd	202	co	202	ip	1927	2	sd	su
		3	71	5	fd	202	op	202	co	1928	2	un	un
		4	17	16	fd	203	op	202	op	1929	2	un	un
49	1	1	60	80	cb	211	co	211	dp	1938	19	un	un
50	1	1	75	80	cb	212	ip	212	dp	1938	19	sd	un
51	16	1	1	66	an	201	ip	201	ip	1935	28	un	su
52	8	1	60	11	cn	203	op	203	co	1928	33	sd	fa
53	2	1	17	5	fd	202	op	202	co	1929	2	sd	fa
		2	5	4	fd	202	co	202	co	1923	2	sd	su
		3	4	62	fd	202	co	202	op	1924	2	sd	su
		4	62	5	cn	202	op	202	co	1925	2	sd	su
		5	5	62	fd	202	co	202	op	1925	2	sd	su
		6	8	9	fd	202	op	202	co	1928	2	sd	su
		7	62	5	cn	202	op	202	co	1928	2	sd	su

		8	5	62	fd	202	co	202	op	1928	2	sd	su
54	1	1	60	22	cn	204	op	204	co	1926	19	sd	fa
		2	60	22	cn	204	op	204	co	1938	19	sd	fa
55	4	1	60	22	cn	204	op	204	co	1926	19	sd	fa
		2	60	22	cn	204	op	204	co	1938	19	sd	fa
		3	60	11	cn	203	op	203	co	1939	33	sd	fa
		4	60	11	cn	203	op	203	co	1940	33	sd	fa
		5	11	60	fd	203	op	203	co	1940	33	sd	fa

## CODING TABLE FOR PERIOD 2

Table K.2. Coding table for period 2.

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	16	1	11	41	se	206	op	206	co	1956	33	sd	su
		2	45	51	cb	206	co	206	co	1958	33	un	un
2	181	1	72	55	se	211	op	211	co	1950	33	sd	su
		2	55	69	an	211	ip	211	op	1950	33	sd	su
		3	69	55	cn	211	ip	211	ip	1950	33	sd	su
		4	55	55	fd	211	ip	211	co	1950	33	sd	su
		5	55	55	fd	211	co	211	co	1950	33	sd	su
		6	55	80	cb	211	co	211	dp	1950	33	sd	su
3	1	1	61	80	cb	211	ip	211	dp	1955	33	sd	su
4	6	1	63	63	an	211	co	211	ip	1953	33	sd	su
		2	5	63	fd	202	co	202	op	1952	33	sd	su
		3	63	63	fd	211	co	211	ip	1953	33	sd	su
5	291	1	63	5	cn	202	op	202	co	1955	33	sd	un
		2	5	63	fd	202	co	202	op	1951	33	sd	su

		3	5	63	fd	202	co	202	op	1953	33	sd	su
		4	63	63	fd	211	co	211	co	1955	33	sc	su
		5	63	28	cn	207	op	207	op	1955	33	sd	su
		6	72	63	se	211	op	211	co	1955	33	sd	su
6	5	1	11	41	se	206	op	206	co	1956	33	sd	su
		2	20	39	se	204	co	204	ip	1955	16	sd	su
		3	20	39	fd	204	co	204	ip	1955	16	sd	su
		4	61	11	cn	203	op	203	co	1955	33	sd	su
7	27	1	19	39	fd	204	co	204	ip	1956	16	sd	su
		2	11	41	se	206	op	206	co	1955	33	sd	su
		3	11	50	fd	203	co	203	co	1956	33	sd	su
		4	20	41	fd	204	co	204	ip	1956	33	sd	su
		5	45	41	an	206	co	206	ip	1956	33	un	su
		6	20	15	cn	203	op	203	co	1956	19	sd	su
		7	15	39	fd	203	co	203	op	1956	19	sd	su
		8	70	39	cn	206	op	206	co	1956	18	sd	un
		9	70	71	cb	206	op	206	op	1956	18	sd	un
		10	61	11	cn	203	co	203	op	1955	33	sd	su
		11	11	80	fd	203	co	203	dp	1956	33	sd	su
		12	11	45	cn	206	op	206	co	1956	33	sd	su
		13	11	80	fd	203	co	203	dp	1956	33	sd	su
		14	11	41	se	206	op	206	co	1956	33	sd	su
8	25	1	20	39	fd	204	co	204	ip	1957	16	un	su
9	2	1	75	80	cb	212	ip	212	dp	1956	32	sd	su
		2	11	45	fd	203	co	203	ip	1956	32	sd	su
		3	45	11	cn	203	ip	203	co	1956	32	sd	su
10	121	1	77	39	cn	206	op	206	co	1947	39	sd	su
		2	55	82	cb	211	co	211	dp	1950	33	sd	fa
		3	5	63	fd	202	co	202	op	1951	33	sd	su
		4	4	63	fd	202	co	202	op	1951	38	sd	su

		5	63	5	cn	202	op	202	co	1955	33	sd	fa
		6	26	5	cn	202	op	202	co	1955	33	fo	fa
		7	15	21	fd	203	co	203	op	1956	19	sd	su
		8	20	15	cn	203	op	203	co	1956	19	sd	su
		9	61	11	cn	203	op	203	co	1955	33	sd	su
		10	11	41	fd	203	co	203	ip	1956	33	sd	su
		11	90	4	cn	202	op	202	co	1960	48	sd	su
		12	69	4	cn	202	op	202	co	1960	48	sd	su
11	9	1	60	11	cn	203	op	203	co	1955	33	sd	un
		2	5	80	fd	202	co	202	dp	1957	33	fo	fa
		3	5	80	fd	202	co	202	dp	1955	33	fo	fa
12	7	1	5	14	an	202	co	202	ip	1956	51	un	su
		2	14	15	cn	203	co	203	co	1956	51	un	su
		3	11	41	se	203	co	203	ip	1956	32	sd	su
13	3	1	11	41	se	203	co	203	ip	1957	32	sd	su
14	2	1	11	41	se	203	co	203	ip	1955	32	un	un
15	1	1	75	76	cb	212	ip	212	op	1956	19	sd	su
		2	20	39	fd	204	co	204	ip	1956	33	sd	su
16	1	1	75	76	cb	212	ip	212	op	1955	33	sd	un
		2	61	11	cn	203	op	203	co	1955	33	sd	un
17	1	1	75	76	cb	212	ip	212	op	1956	19	sd	su
		2	11	41	fd	203	co	203	ip	1956	19	sd	su
		3	11	41	se	203	co	203	ip	1956	19	sd	su
18	35	1	63	63	an	211	co	211	ip	1954	33	sd	un
		2	55	80	cb	211	co	211	dp	1950	33	sd	fa
19	4	1	61	61	cb	211	co	211	ip	1957	33	sd	su
		2	61	11	cn	203	op	203	co	1956	33	sd	su
20	3	1	55	76	cn	211	co	211	op	1950	33	sd	su
		2	55	80	cb	211	co	211	dp	1950	33	sd	fa
		3	5	63	fd	202	co	202	op	1953	33	sd	su

		4	5	63	fd	202	co	202	op	1951	33	sd	fa
		5	63	5	cb	202	op	202	co	1955	33	sd	un
		6	61	80	cb	211	co	211	dp	1955	33	sd	su
		7	85	80	cb	211	co	211	dp	1955	33	fo	su
21	1	1	45	63	cn	211	op	211	co	1953	38	sd	su
		2	63	63	an	211	co	211	ip	1953	38	sd	su
		3	63	63	fd	211	co	211	ip	1953	38	un	un
22	1	1	61	71	cb	211	co	211	op	1960	33	sd	un
		2	61	11	cn	203	op	203	co	1955	33	sd	su
23	2	1	60	71	cb	211	co	211	op	1954	19	sd	su
24	6	1	61	71	cb	211	co	211	op	1955	33	sd	su
		2	47	61	cn	211	op	211	co	1955	33	sd	su
25	1	1	71	60	cn	211	op	211	co	1954	19	sd	su
26	3	1	61	61	cb	211	co	211	ip	1955	33	sd	su
		2	61	61	ab	211	co	211	dp	1955	33	sd	su
		3	61	61	fd	211	co	211	ip	1955	33	sd	su
		4	61	61	fd	211	co	211	co	1955	33	sd	su
		5	61	61	fd	211	co	211	co	1955	33	sc	su
		6	61	61	an	211	co	211	ip	1955	33	sd	su
27	1	1	61	11	cn	203	op	203	co	1955	33	sd	su
		2	61	61	an	211	co	211	co	1955	33	sd	su
28	5	1	61	61	cn	211	co	211	co	1955	33	sd	su
		2	65	65	an	211	co	211	ip	1955	48	sd	un
		3	65	6	cn	202	op	202	ip	1955	48	sd	un
		4	61	71	cn	211	co	211	op	1955	33	un	un
		5	61	11	cn	203	co	211	op	1955	33	sd	su
29	1	1	63	5	cn	202	op	202	co	1955	33	sd	un
		2	63	63	fd	211	co	211	ip	1955	33	sd	su
30	6	1	63	45	an	211	co	211	ip	1954	33	sd	su
		2	45	63	cn	211	op	211	co	1954	33	sd	su

		3	63	45	fd	211	co	211	op	1954	33	sd	su
31	6	1	63	63	cn	211	ip	211	co	1954	33	sd	su
		2	63	63	an	211	co	211	ip	1954	33	sd	su
32	6	1	63	63	cn	211	ip	211	co	1953	33	sc	su
33	12	1	63	63	cn	211	ip	211	co	1954	33	sd	su
34	2	1	45	82	cb	211	co	211	dp	1954	33	sd	su
		2	45	82	cb	211	co	211	dp	1954	33	sd	su
35	2	1	45	82	cb	206	co	206	dp	1957	33	un	su
36	2	1	45	82	cb	206	co	206	dp	1957	33	sd	un
37	5	1	45	80	cb	206	co	206	dp	1958	48	un	un
		2	45	80	cb	206	co	206	dp	1958	33	un	un
38	1	1	75	80	cb	212	ip	212	dp	1957	33	un	un
		2	45	11	cn	203	op	203	co	1957	33	un	un
39	1	1	75	80	cb	212	ip	212	dp	1956	33	un	su
		2	11	41	se	203	co	203	op	1956	33	sd	su
		3	45	21	cn	204	op	204	co	1956	33	sd	su
40	186	1	65	87	cb	211	ip	211	dp	1958	48	sd	un
41	1	1	75	80	cb	212	ip	212	dp	1954	33	fo	un
42	2	1	63	80	cb	211	co	211	dp	1954	33	un	su
		2	5	5	cn	202	co	202	co	1951	33	sd	su
		3	5	63	fd	202	co	202	op	1951	33	sc	su
		4	5	63	an	202	co	202	op	1955	33	sd	su
		5	63	86	cb	202	op	202	dp	1955	33	sd	un
43	2	1	61	11	cn	203	op	203	co	1956	33	un	su
		2	11	80	fd	203	co	203	dp	1956	33	sd	su
		3	71	61	cn	211	op	211	co	1956	24	un	un
		4	61	88	cn	211	op	211	co	1956	24	sd	un
		5	61	61	cn	211	co	211	co	1956	33	sd	su
		6	61	11	cn	203	op	203	co	1956	33	sd	su
		7	61	61	fd	211	co	211	co	1956	33	sd	su

44	6	1	11	80	fd	203	co	203	dp	1956	33	sd	su
		2	11	80	fd	206	co	206	ip	1956	33	sd	su
45	189	1	61	11	cn	203	op	203	co	1960	33	sd	un
		2	11	45	an	203	co	203	ip	1960	33	sd	su
		3	45	11	cn	203	op	203	co	1961	33	sd	su
46	2	1	75	80	cb	212	ip	212	dp	1955	33	fo	un
		2	85	80	fd	211	co	211	dp	1955	33	fo	un
47	3	1	63	63	an	211	co	211	ip	1953	33	un	su
48	29	1	45	11	cn	203	op	203	co	1961	33	sd	un
		2	11	45	cn	206	op	206	co	1961	33	un	su
49	6	1	66	22	cn	204	op	204	co	1955	19	sd	su
		2	20	22	cn	204	co	204	co	1952	19	sd	fa
		3	71	22	cn	204	co	204	co	1952	19	fo	fa
		4	66	66	cn	211	op	211	co	1954	19	sd	un
50	8	1	40	11	fd	203	ip	203	co	1956	33	sd	su
		2	50	80	fd	211	co	211	dp	1956	33	sd	su
51	1	1	41	45	cn	206	ip	206	co	1960	33	un	un
52	1	1	75	80	cb	212	ip	212	dp	1956	19	sd	su
		2	20	39	se	204	co	204	ip	1956	16	un	su
		3	20	39	fd	204	co	204	ip	1956	16	sd	su
		4	45	39	an	206	co	206	ip	1956	23	un	su
		5	20	39	an	204	co	204	ip	1955	18	fb	su
		6	20	39	an	204	co	204	ip	1956	18	fo	un
		7	67	22	cn	204	co	204	ip	1956	19	sd	su
53	10	1	65	5	cn	202	op	202	co	1958	48	sd	su
54	4	1	41	80	cb	206	ip	206	dp	1956	33	sd	su
55	4	1	15	80	fd	203	co	203	dp	1956	19	sd	su
		2	15	22	fd	203	co	203	op	1956	19	sd	su
		3	20	15	cn	203	op	203	co	1956	19	sd	su
		4	67	22	cn	204	op	204	co	1956	19	sc	su



56	2	1	61	80	cb	211	co	211	dp	1955	33	sd	su
57	5	1	60	80	cb	211	co	211	dp	1950	33	sd	un

### CODING TABLE FOR PERIOD 3

**Table K.3. Coding table for period 3.**

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crd	Aud Pos	Yr	Iss	Leg	Imp
1	5	1	26	46	cn	202	op	202	ip	1962	24	un	un
		2	46	27	cn	207	op	207	co	1963	24	un	un
2	13	1	67	46	cn	202	op	202	ip	1962	24	un	un
		2	46	27	cn	207	op	207	co	1963	24	un	un
3	5	1	5	84	fd	202	co	202	dp	1961	48	sd	su
		2	5	6	an	202	co	202	ip	1961	48	un	su
		3	6	69	cn	211	op	211	co	1961	48	un	su
		4	69	6	cn	202	op	202	ip	1961	48	un	un
4	4	1	6	5	cn	202	ip	202	co	1967	48	sd	un
5	28	1	50	50	cn	206	co	206	co	1962	21	un	un
		2	20	39	fd	204	co	204	ip	1962	16	un	un
		3	20	39	se	204	co	204	ip	1962	16	un	un
		4	11	41	fd	203	co	203	ip	1962	32	un	un
		5	11	41	se	203	co	203	ip	1962	32	un	un
		6	5	46	se	202	co	202	ip	1962	47	un	un
		7	5	84	fd	202	co	202	dp	1961	48	un	su
		8	50	46	fd	206	co	206	ip	1962	48	sd	su
		9	50	39	fd	206	co	206	ip	1962	17	sd	su
		10	64	39	cn	206	op	206	co	1962	17	sd	su
		11	50	21	cn	204	ip	204	co	1962	17	sd	fa

		12	20	39	fd	204	co	204	ip	1962	17	sd	fa
		13	6	46	an	202	ip	202	ip	1962	48	un	su
		14	6	46	an	202	ip	202	ip	1963	49	un	su
		15	6	46	se	202	ip	202	ip	1963	49	un	su
		16	6	46	an	202	ip	202	ip	1962	48	un	su
6	26	1	20	39	se	204	co	204	ip	1961	16	un	su
		2	20	39	fd	204	co	204	ip	1961	16	un	su
		3	11	41	se	203	co	203	ip	1961	32	un	su
		4	11	41	fd	203	co	203	ip	1961	32	un	su
		5	20	39	fd	204	co	204	ip	1961	13	un	su
		6	5	84	fd	202	co	202	dp	1961	48	un	su
		7	5	46	an	202	co	202	ip	1961	48	un	su
		8	6	46	se	202	ip	202	ip	1961	48	un	su
		9	6	84	ab	202	ip	202	dp	1961	48	un	su
		10	46	6	cn	202	ip	202	ip	1961	48	un	su
		11	11	45	an	203	co	203	ip	1961	33	un	su
		12	45	11	cn	203	ip	203	co	1961	33	un	un
		13	50	39	an	206	co	206	ip	1961	17	un	su
7	11	1	6	41	an	202	ip	202	ip	1963	48	un	su
		2	6	46	se	202	ip	202	ip	1963	47	un	un
		3	6	39	se	202	ip	202	ip	1963	47	un	su
		4	6	41	se	202	ip	202	ip	1963	48	un	su
8	4	1	71	21	cn	204	co	204	co	1963	24	sd	su
9	2	1	20	39	an	204	ip	204	ip	1965	24	un	su
10	21	1	70	39	an	206	op	206	co	1970	21	sd	su
		2	70	39	cn	206	op	206	co	1970	21	sd	su
		3	11	41	se	203	co	203	ip	1970	32	un	su
		4	2	41	se	201	ip	201	ip	1970	26	un	su
		5	20	39	an	204	co	204	ip	1970	16	un	su
		6	39	21	cn	204	ip	204	co	1970	16	sd	un

		7	11	41	fd	203	co	203	ip	1970	32	sd	su
		8	41	11	cn	203	ip	203	co	1970	32	sd	su
		9	6	46	se	202	ip	202	ip	1970	47	un	su
		10	11	69	se	203	co	203	op	1970	38	un	su
		11	11	82	cb	203	co	203	dp	1970	38	un	un
11	121	1	61	11	cn	203	op	203	co	1961	33	sd	un
		2	11	45	an	203	co	203	ip	1961	38	un	su
		3	45	11	cn	203	ip	203	co	1961	33	sd	un
		4	44	11	cn	203	ip	203	co	1967	33	sd	su
		5	11	41	fd	203	co	203	ip	1969	33	sd	su
		6	11	41	se	203	co	203	ip	1969	32	sd	su
		7	6	41	se	201	ip	201	ip	1969	26	un	su
		8	4	84	fd	202	co	202	dp	1961	48	un	su
12	2	1	6	6	cn	202	ip	202	ip	1966	48	sd	un
13	11	1	6	46	an	202	ip	202	ip	1962	24	un	su
		2	46	51	cn	202	ip	202	ip	1962	24	un	su
		3	46	51	cn	202	ip	202	ip	1964	23	un	su
		4	46	82	cb	202	ip	202	dp	1965	23	un	su
		5	46	81	cb	202	ip	202	dp	1965	24	sd	un
		6	51	46	cn	202	ip	202	ip	1965	23	sd	su
14	1	1	38	44	cn	206	ip	206	co	1966	33	sd	su
15	2	1	89	6	cn	202	ip	202	ip	1967	48	sd	fa
16	2	1	41	71	cn	203	ip	203	op	1969	24	sd	fa
17	1	1	6	6	an	202	ip	202	ip	1966	48	un	su
18	3	1	65	65	cn	211	op	211	co	1968	48	sd	un
19	4	1	65	70	cn	211	ip	211	op	1968	48	fo	un
20	1	1	41	50	cn	206	ip	206	co	1967	38	un	un
21	1	1	30	46	cn	202	op	202	ip	1966	13	un	su
		2	46	29	cn	202	ip	202	op	1966	13	un	su
		3	20	51	se	208	co	208	ip	1966	13	un	su

22	7	1	41	44	cn	206	ip	206	co	1968	33	sd	un
23	5	1	46	82	cb	202	ip	202	dp	1968	48	sd	un
24	6	1	65	46	cn	202	op	202	ip	1968	48	sd	un
		2	46	82	cb	202	ip	202	dp	1968	48	sd	su
25	4	1	65	46	cn	202	op	202	ip	1968	38	un	su
		2	46	82	cb	202	ip	202	dp	1968	38	sd	su
		3	46	51	cn	206	op	206	co	1968	38	sd	un
		4	52	51	an	206	co	206	co	1968	32	un	un
		5	40	65	cn	211	op	211	ip	1968	38	sd	su
26	2	1	50	11	fd	206	co	206	op	1968	33	un	su
		2	11	50	fd	203	co	203	op	1968	33	sd	su
		3	44	6	cn	202	ip	202	ip	1968	26	un	su
		4	6	41	an	202	ip	202	ip	1968	26	un	su
27	1	1	44	82	cb	203	ip	203	ip	1968	32	sd	su
		2	11	41	fd	203	co	203	op	1968	32	sd	su
		3	41	6	cn	202	ip	202	ip	1968	26	un	su
28	1	1	65	46	cn	202	op	202	ip	1967	38	un	su
		2	46	71	cn	202	ip	202	op	1967	38	un	su
29	1	1	65	46	cn	202	op	202	ip	1967	38	un	su
		2	46	71	cn	202	ip	202	op	1967	38	un	su
30	3	1	71	41	cn	203	op	203	ip	1969	33	un	un
		2	11	69	fd	203	co	203	op	1969	38	un	su
31	1	1	71	41	cn	203	op	203	ip	1969	33	un	su
32	1	1	46	46	cn	202	ip	202	ip	1968	38	sd	un
33	1	1	52	44	cn	202	ip	202	ip	1968	38	sd	un
34	1	1	71	46	cn	202	ip	202	ip	1967	38	sd	su
35	5	1	65	65	fd	211	ip	211	ip	1967	38	sd	su
		2	46	65	cn	202	ip	202	co	1968	38	sd	su
36	5	1	65	65	fd	211	co	211	ip	1968	48	sd	su
		2	65	65	cn	211	ip	211	co	1968	48	sd	su

37	107	1	44	29	cn	208	op	208	co	1963	24	sd	su
		2	44	27	cn	207	op	207	co	1963	24	sd	su
		3	26	46	fd	207	co	207	op	1963	24	sd	su
		4	46	28	cn	207	op	207	co	1963	24	sd	su
		5	67	28	cn	207	op	207	co	1965	24	sd	su
		6	26	28	fd	207	co	207	co	1966	24	sd	su
38	27	1	69	6	cn	202	op	202	ip	1967	48	un	un
39	57	1	6	69	cn	202	ip	202	op	1967	48	sd	su
		2	69	6	cn	202	op	202	ip	1967	48	un	un
40	7	1	11	41	an	203	co	203	ip	1966	38	sd	su
		2	44	11	cn	203	ip	203	co	1966	38	sd	un
41	5	1	11	41	an	203	co	203	ip	1966	38	sd	su
		2	41	11	cn	203	ip	203	co	1966	38	sc	su
42	8	1	11	41	se	203	co	203	ip	1964	32	fb	su
		2	20	39	se	204	co	204	ip	1964	16	fo	su
		3	6	41	se	202	ip	202	ip	1963	47	sd	su
43	1	1	46	42	cn	202	ip	202	ip	1967	48	un	un
44	30	1	69	6	cn	202	op	202	ip	1967	48	un	un
45	3	1	44	28	cn	207	op	207	co	1963	24	sd	su
		2	26	44	cn	206	op	206	co	1963	24	sd	su
46	2	1	72	27	cn	207	op	207	co	1964	24	sd	su
		2	26	51	se	207	co	207	ip	1964	24	sd	su
		3	6	51	se	202	ip	202	ip	1964	26	sd	su
		4	51	6	cn	202	ip	202	ip	1964	26	sd	su
		5	6	51	fd	202	ip	202	ip	1964	26	sd	su

## CODING TABLE FOR PERIOD 4

**Table K.4. Coding table for period 4.**

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	64	1	51	6	cn	202	ip	202	ip	1977	48	sd	su
		2	2	6	an	201	co	202	ip	1977	26	sd	su
		3	6	96	ab	202	ip	202	dp	1977	48	sd	su
		4	6	6	cn	202	ip	202	ip	1977	26	sd	su
2	1	1	66	66	cn	211	op	211	co	1973	33	sd	fa
		2	75	80	cb	212	ip	212	dp	1973	33	fo	fa
3	122	1	3	95	fd	201	co	201	dp	1970	26	un	su
		2	6	96	se	202	ip	202	dp	1970	26	un	su
		3	6	96	ab	202	ip	202	dp	1970	26	un	su
4	3	1	18	5	cn	202	op	202	co	1978	6	un	un
5	53	1	17	80	fd	203	co	203	dp	1974	6	fo	fa
		2	17	80	fd	203	co	203	dp	1978	6	fo	fa
		3	5	83	fd	202	co	202	dp	1972	6	un	su
6	3	1	41	11	cn	203	co	203	ip	1971	33	sd	fa
7	21	1	11	69	an	203	co	203	op	1970	38	un	su
		2	41	80	cb	206	ip	206	dp	1971	33	sd	un
8	3	1	92	41	cn	203	ip	203	ip	1978	92	fo	fa
9	2	1	71	6	cn	202	op	202	ip	1975	33	sd	fa
			71	11	cn	203	op	203	co	1975	33	fo	fa
10	118	1	91	39	cb	206	co	206	dp	1970	38	un	un
		2	41	82	cb	203	ip	203	dp	1970	38	un	un
11	10	1	41	91	cn	206	ip	206	co	1976	33	sd	fa
12	91	1	11	80	fd	203	co	203	co	1972	6	sc	su
		2	17	80	fd	203	co	203	dp	1972	6	sd	su
		3	78	69	cn	211	op	211	co	1973	6	sd	fa

		4	69	69	fd	211	co	211	co	1973	6	sd	su
13	10	1	41	11	cn	203	ip	203	co	1976	33	sd	fa
14	3	1	51	46	cn	202	ip	202	ip	1979	38	un	un
15	1	1	92	51	cn	206	op	206	co	1970	33	sd	un
16	2	1	51	46	cn	202	ip	202	ip	1979	38	fo	fa
17	1	1	92	93	cn	206	op	206	co	1971	33	un	fa
18	2	1	41	11	cn	203	op	203	co	1976	33	sd	un
19	1	1	92	51	cn	206	op	206	co	1970	33	sd	su
		2	71	67	cn	211	op	211	co	1970	33	sd	su
20	1	1	92	51	cn	206	op	206	co	1971	33	fo	fa
21	1	1	92	51	cn	206	op	206	co	1970	33	fo	fa
22	1	1	92	51	cn	206	op	206	co	1971	33	sd	fa
23	4	1	92	51	cn	206	op	206	co	1971	33	fo	fa
24	1	1	92	93	cn	206	op	206	co	1971	33	un	su
25	1	1	11	41	an	203	co	203	ip	1971	32	un	un
		2	11	41	se	203	co	203	ip	1971	32	un	un
		3	11	41	an	203	op	203	ip	1971	33	sd	fa
26	2	1	65	96	cb	206	op	206	dp	1971	48	sd	un
27	1	1	92	93	cn	206	co	206	op	1971	33	un	fa
28	3	1	41	11	cn	203	ip	203	co	1970	33	sd	un
		2	41	82	cb	203	ip	203	dp	1970	33	sd	un
29	1	1	6	41	an	202	ip	202	ip	1976	26	sd	su
		2	11	6	cn	202	ip	202	ip	1976	26	sd	su
		3	41	6	cn	202	ip	202	ip	1976	26	sd	su
30	1	1	71	51	cn	206	co	206	co	1976	38	sd	su
		2	11	6	cn	202	ip	202	ip	1976	26	sd	su
		3	11	69	fd	203	co	203	op	1976	38	sd	su
31	1	1	94	94	an	211	ip	211	ip	1977	38	un	su
		2	11	69	fd	203	co	203	op	1977	38	sd	su
32	7	1	69	69	cn	203	op	203	op	1978	38	un	su

33	1	1	51	41	cn	203	op	203	ip	1970	38	sd	su
34	1	1	6	11	fd	202	ip	202	ip	1976	26	sd	su
		2	6	11	se	202	ip	202	ip	1976	26	sd	su
35	1	1	50	82	cb	203	ip	203	dp	1976	32	sd	un
		2	41	11	cn	203	ip	203	co	1976	32	sd	un
		3	67	11	cn	203	co	203	co	1976	32	sd	un
36	2	1	11	69	fd	202	ip	202	op	1977	38	sd	su
		2	6	41	se	202	ip	202	ip	1977	47	un	su
		3	6	96	ab	202	ip	202	dp	1977	48	un	su
37	2	1	6	11	an	202	ip	202	ip	1978	38	fb	su
38	2	1	6	11	an	202	ip	202	ip	1977	38	sd	su
39	1	1	6	11	an	202	ip	202	ip	1977	38	un	su
40	1	1	69	51	cb	206	op	206	co	1978	38	sd	un
		2	51	69	cn	211	op	211	co	1978	38	sd	un
41	2	1	11	41	fd	203	co	203	ip	1976	32	fo	su
		2	6	11	cn	203	op	203	co	1976	33	sd	un
42	1	1	11	41	cn	202	ip	202	ip	1976	26	sd	su
43	1	1	11	6	cn	202	ip	202	ip	1976	26	sd	su
44	1	1	51	69	cn	211	op	211	co	1979	38	sd	un
45	2	1	51	69	cn	211	op	211	co	1979	38	sd	un
46	1	1	11	41	fd	203	co	203	ip	1976	32	fo	fa
		2	71	11	cn	203	op	203	co	1976	32	sd	fa
47	1	1	69	51	cn	206	op	206	co	1979	38	sd	un
		2	52	69	cn	211	op	211	co	1979	38	sd	un
48	2	1	11	82	cb	202	ip	202	dp	1977	38	sd	su
49	2	1	78	11	cn	203	op	203	co	1976	33	sd	un
50	1	1	78	11	cn	203	op	203	co	1976	33	sd	un
51	12	1	6	96	ab	202	ip	202	dp	1978	48	un	su
		2	6	6	cn	202	ip	202	ip	1975	48	sd	su
		3	6	96	fd	202	ip	202	dp	1977	48	sd	su



		4	6	96	se	202	ip	202	se	1977	48	sd	su
52	5	1	78	69	cn	211	op	211	co	1978	33	sd	un
53	120	1	69	11	cn	203	op	203	co	1970	33	un	fa
54	54	1	6	96	cb	202	ip	202	dp	1974	48	sd	un
55	10	1	11	6	cn	202	ip	202	ip	1976	26	sd	su
56	188	1	69	11	cn	203	op	203	co	1978	38	sd	un
57	2	1	66	11	cn	203	op	203	co	1973	33	sd	fa
58	1	1	69	11	cn	203	op	203	co	1978	38	sd	un
59	1	1	75	80	cb	212	ip	212	dp	1979	33	fo	un
60	14	1	6	96	se	202	ip	202	dp	1978	47	un	su
61	5	1	65	6	cn	202	op	202	ip	1971	48	sd	un
		2	71	11	cn	203	op	203	co	1971	33	sd	fa

## CODING TABLE FOR PERIOD 5

Table K.5. Coding table for period 5.

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	7	1	39	21	cn	204	ip	204	co	1986	16	fo	un
		2	41	11	cn	203	ip	203	co	1986	32	fo	un
		3	20	39	fd	204	co	204	ip	1986	16	sd	su
		4	11	41	fd	203	co	203	ip	1986	32	sd	su
		5	6	46	se	202	ip	202	ip	1986	47	un	su
2	9	1	39	6	cn	202	ip	202	ip	1987	26	sd	su
		2	39	72	cn	211	op	211	co	1987	12	sd	su
		3	6	46	an	202	ip	202	ip	1987	33	sd	su
		4	11	41	se	203	co	203	ip	1987	32	un	su
		5	6	39	se	202	ip	202	ip	1987	47	un	su

		6	20	39	se	204	co	204	ip	1987	16	un	su
3	5	1	20	39	se	204	co	204	ip	1988	16	un	su
		2	11	41	se	203	co	203	ip	1988	32	un	su
		3	6	39	se	202	ip	202	ip	1988	48	un	su
4	5	1	40	50	cn	206	co	206	co	1989	16	sd	un
		2	20	39	se	204	co	204	ip	1989	16	un	su
		3	11	41	se	203	co	203	ip	1989	32	un	su
		4	6	39	se	202	ip	202	ip	1989	47	un	su
5	7	1	14	11	cn	203	co	203	co	1991	33	sd	su
		2	11	13	fd	203	co	203	ip	1991	33	sd	su
		3	20	39	se	204	co	204	ip	1991	16	un	su
		4	11	41	se	203	co	203	ip	1991	32	un	su
		5	6	39	se	202	ip	202	ip	1991	47	un	su
6	6	1	32	41	cn	206	op	206	co	1991	33	sd	su
		2	101	6	cn	202	op	202	ip	1992	49	sd	un
		3	102	95	cb	211	co	211	dp	1992	27	un	un
		4	20	39	se	204	co	204	ip	1992	16	fo	su
		5	11	41	se	203	co	203	ip	1992	32	sd	su
		6	11	13	fd	203	co	203	ip	1991	3	un	su
		7	72	16	se	211	co	211	op	1991	5	sd	su
		8	6	39	se	202	ip	202	ip	1992	47	un	su
7	3	1	33	33	cn	211	ip	211	co	1992	44	sd	su
8	3	1	13	82	ab	203	ip	203	dp	1992	31	sd	su
9	10	1	33	33	cn	211	ip	211	co	1992	31	sd	su
		2	33	13	cn	203	op	203	ip	1992	31	sd	su
10	1	1	13	33	cn	211	op	211	co	1992	31	sd	un
11	4	1	13	104	cn	203	ip	203	ip	1992	31	sd	su
		2	33	13	cn	203	op	203	ip	1992	31	sd	su
12	4	1	13	82	ab	203	ip	203	dp	1992	31	sd	su
13	2	1	69	39	an	211	co	211	ip	1993	42	un	su

14	2	1	13	80	cb	203	ip	203	dp	1993	35	sd	su
15	6	1	6	66	fd	202	ip	202	op	1992	48	sd	su
		2	33	82	cb	211	co	211	dp	1993	48	sd	un
16	10	1	13	80	cb	203	ip	203	dp	1993	31	un	su
		2	13	33	cn	211	op	211	co	1993	46	sd	su
		3	33	55	cn	211	op	211	co	1993	1	un	su
17	4	1	13	82	ab	203	ip	203	dp	1993	31	sd	su
18	93	1	14	80	cb	202	ip	202	dp	1991	37	sd	su
		2	14	11	cn	203	co	203	co	1991	5	sd	su
		3	14	82	cb	203	co	203	dp	1991	37	sd	su
19	1	1	46	82	ab	202	ip	202	dp	1989	51	un	su
20	13	1	41	11	cn	203	ip	203	co	1989	33	sd	su
		2	11	41	an	203	co	203	ip	1989	33	sd	su
21	27	1	39	80	cb	206	co	206	dp	1990	51	sd	su
		2	49	21	cn	204	op	204	co	1990	16	sd	su
		3	49	11	cn	203	op	203	co	1990	32	sd	su
		4	20	39	fd	204	co	204	ip	1990	16	sd	su
		5	20	39	se	204	co	204	ip	1990	16	sd	su
		6	11	41	fd	203	co	203	ip	1990	32	sd	su
		7	11	41	se	203	co	203	ip	1990	32	sd	su
22	1	1	33	82	cb	211	co	211	dp	1991	37	sd	su
23	1	1	39	39	an	206	co	206	ip	1989	23	un	su
24	12	1	41	11	cn	203	ip	203	co	1988	32	sd	su
		2	11	41	an	203	co	203	ip	1988	32	sd	su
25	2	1	40	82	cb	206	co	206	dp	1990	33	sd	su
		2	33	33	fd	211	co	211	co	1991	37	sd	su
		3	11	13	fd	203	co	203	ip	1991	3	sd	su
26	1	1	75	80	cb	212	ip	212	dp	1991	3	un	su
		2	13	11	cn	203	ip	203	co	1991	32	sd	un
27	1	1	33	33	fd	211	co	211	co	1991	37	sd	su

28	5	1	6	39	se	202	ip	202	ip	1991	47	un	su
		2	46	43	cn	206	ip	206	co	1991	33	un	un
29	1	1	75	80	cb	212	ip	212	dp	1990	33	sd	un
		2	40	50	cn	206	co	206	co	1990	38	sd	un
		3	50	40	fd	206	co	206	co	1988	38	sd	su
		4	40	11	cn	203	op	203	co	1990	33	sd	un
30	1	1	75	11	cn	203	op	203	co	1990	32	sd	su
		2	75	80	cb	212	co	212	dp	1990	32	sd	su
31	16	1	14	80	cb	203	co	203	dp	1990	33	un	su
32	1	1	75	80	cb	212	ip	212	dp	1991	32	sd	un
		2	33	33	fd	211	co	211	co	1991	37	sd	su
		3	14	11	cn	203	co	203	co	1991	32	sd	un
33	3	1	46	43	cn	206	ip	206	co	1989	33	un	un
34	44	1	6	4	cn	202	ip	202	co	1991	48	sd	un
35	1	1	52	51	an	206	co	206	co	1989	23	sd	su
36	9	1	34	34	cn	206	co	206	co	1990	37	sd	su
		2	14	77	sb	212	op	212	co	1992	51	fb	su
		3	14	11	cn	203	co	203	co	1991	3	sd	su
		4	11	13	fd	203	co	203	ip	1991	3	sd	su
37	16	1	46	38	cn	206	ip	206	co	1991	37	un	su
		2	14	34	cn	211	op	211	co	1991	33	sd	su
		3	34	34	cb	211	co	211	co	1991	33	sd	su
38	4	1	46	6	cn	202	ip	202	ip	1991	38	un	un
39	3	1	46	38	cn	206	ip	206	co	1991	37	sd	su
		2	33	82	cb	211	co	211	dp	1991	37	sd	su
40	4	1	46	39	cn	206	ip	206	ip	1991	38	un	un
		2	33	82	cb	211	co	211	dp	1991	37	sd	su
41	6	1	46	43	cn	206	ip	206	co	1988	33	sd	su
		2	11	41	an	203	co	203	ip	1988	33	sd	su
42	1	1	94	46	cn	206	op	206	ip	1990	33	sd	un

43	1	1	38	46	an	206	co	206	ip	1989	33	un	su
44	2	1	38	43	cn	206	co	206	co	1988	33	sd	un
45	8	1	11	41	fd	203	co	203	ip	1987	32	sd	su
		2	11	41	se	203	co	203	ip	1987	32	sd	su
46	2	1	33	46	cn	206	op	206	ip	1991	37	sd	su
		2	33	82	cb	211	co	211	dp	1991	37	sd	su
47	2	1	14	80	cb	203	co	203	dp	1992	31	sd	su
		2	11	51	se	203	co	203	ip	1992	31	sd	su
48	1	1	6	39	se	202	ip	202	ip	1991	47	sd	su
49	1	1	75	80	cb	212	ip	212	dp	1988	45	un	su
		2	51	80	cb	206	co	206	dp	1988	45	fo	su
		3	6	96	se	202	ip	202	dp	1988	45	sd	su
		4	51	96	fd	206	co	206	dp	1991	45	sd	su
50	1	1	51	13	cn	203	op	203	ip	1992	13	sd	un
		2	13	11	cn	203	ip	203	co	1992	51	sd	un
51	105	1	14	11	cn	203	co	203	co	1990	33	sd	su
52	3	1	13	41	an	203	ip	203	ip	1992	39	un	su
53	2	1	72	11	fd	211	co	211	op	1991	5	sd	su
		2	72	11	se	211	co	211	op	1991	5	sd	su
54	4	1	14	77	sb	212	op	212	co	1992	35	sd	su
		2	51	13	cn	203	op	203	ip	1992	39	sd	su
		3	13	51	fd	203	ip	203	op	1992	39	sd	su
		4	33	13	cn	203	op	203	op	1992	31	sd	un
		5	6	6	fd	202	ip	202	ip	1992	48	sd	su
55	2	1	13	80	cb	203	ip	203	dp	1992	43	sd	su
56	3	1	13	13	cn	203	ip	203	ip	1992	31	sd	su
57	4	1	13	104	cn	203	op	203	ip	1992	31	sd	un
58	2	1	51	13	cn	203	op	203	ip	1992	33	sd	su
		2	13	82	cb	203	ip	203	dp	1992	33	sd	su
		3	11	13	se	203	co	203	ip	1992	31	sd	su

59	3	1	13	82	ab	203	ip	203	dp	1992	31	sd	su
		2	33	6	cn	202	op	202	ip	1992	45	fo	un
60	4	1	51	13	cn	203	op	203	ip	1992	31	sd	su
		2	6	39	se	202	ip	202	ip	1992	26	sd	su
		3	13	34	cn	211	op	211	co	1992	39	sd	un
		4	13	10	fd	203	ip	203	ip	1992	40	fo	su
61	3	1	13	51	cn	206	op	206	co	1992	39	fo	un
62	2	1	13	39	cn	206	op	206	co	1991	31	sd	su
63	8	1	51	13	cn	203	op	203	ip	1992	33	sd	un
		2	33	13	cn	203	op	203	ip	1991	31	sd	un
64	1	1	14	80	cb	203	co	203	dp	1991	33	sd	su
		2	75	80	cb	212	ip	212	dp	1991	33	sd	su
65	8	1	100	100	cb	211	co	211	co	1991	47	sd	un
66	37	1	40	80	cb	206	co	206	dp	1990	33	sd	un
67	10	1	11	13	se	203	co	203	ip	1992	31	sd	su
		2	13	51	cn	206	op	206	co	1992	39	sd	un
68	13	1	72	13	se	211	co	211	op	1992	12	sd	su
		2	13	72	cn	211	ip	211	co	1992	3	sd	su
		3	13	33	cn	211	op	211	co	1992	39	sd	su
69	1	1	75	80	cb	212	ip	212	dp	1990	16	fo	su
		2	43	80	cb	204	ip	204	dp	1990	16	fo	su
70	5	1	43	40	cn	206	co	206	co	1989	38	sd	un
71	9	1	33	13	fd	211	co	211	op	1992	31	sd	su
		2	13	82	ab	203	ip	203	dp	1992	31	sd	su
72	9	1	33	6	cn	202	op	202	ip	1992	48	sd	un
73	15	1	39	51	cn	206	op	206	co	1992	44	sd	su
74	14	1	55	80	cb	211	co	211	dp	1992	1	sd	su

## CODING TABLE FOR PERIOD 6

**Table K.6. Coding table for period 6.**

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	4	1	13	41	an	203	ip	203	ip	1993	43	sd	su
		2	20	39	se	204	co	204	ip	1993	16	sd	su
		3	11	41	se	203	co	203	ip	1993	32	sd	su
		4	6	46	se	202	ip	202	ip	1993	47	sd	su
2	4	1	41	82	fd	203	ip	203	dp	1994	44	sd	su
		2	31	39	an	209	co	209	ip	1994	15	sd	su
		3	5	80	fd	202	co	202	ip	1994	1	sd	su
		4	41	72	cn	211	op	211	co	1994	44	sd	su
		5	41	11	cn	203	ip	203	co	1994	44	sd	su
		6	20	39	se	204	co	204	ip	1994	16	sd	su
		7	11	41	se	203	co	203	ip	1994	41	sd	su
		8	6	46	se	202	ip	202	ip	1994	47	sd	su
3	1	1	20	80	fd	204	co	204	dp	1994	7	un	su
		2	11	80	fd	203	co	203	dp	1994	7	un	su
		3	4	31	fd	202	co	202	ip	1994	7	un	su
4	11	1	64	5	cn	202	op	202	co	1993	1	sd	su
5	3	1	74	32	cn	205	op	205	co	1994	15	sd	su
6	4	1	75	80	cb	212	ip	212	dp	1994	42	sd	su
7	4	1	32	80	cb	205	co	205	dp	1994	37	sd	su
		2	32	32	fd	205	co	205	co	1994	37	sd	su
		3	32	97	cn	202	op	202	ip	1994	37	sd	su
8	5	1	13	72	cn	211	op	211	co	1994	44	sd	su
		2	32	31	cn	209	op	209	co	1994	15	sd	su
		3	51	98	cn	202	op	202	ip	1994	46	sd	su
		4	98	96	fd	202	ip	202	dp	1994	46	sd	su

		5	32	31	cn	209	op	209	co	1994	15	sd	su
		6	32	80	cb	205	co	205	dp	1994	15	sd	su
		7	13	31	cn	209	op	209	co	1994	15	sd	su
9	5	1	7	13	se	202	ip	202	ip	1994	40	un	su
		2	13	72	cn	211	op	211	co	1994	44	sd	su
		3	33	33	fd	211	co	211	co	1994	37	sd	su
10	15	1	13	98	cn	202	op	202	ip	1994	46	sd	su
		2	13	80	cb	202	ip	202	dp	1994	46	sd	su
		3	74	13	cn	203	op	203	ip	1994	44	sd	su
11	2	1	32	31	cn	209	op	209	co	1994	15	sd	su
12	4	1	33	33	cn	211	co	211	co	1994	37	sd	su
13	4	1	32	31	cn	209	op	209	co	1994	15	sd	su
14	8	1	32	31	cn	209	op	209	co	1994	15	sd	su
15	4	1	32	82	cb	205	co	205	dp	1994	15	sd	su
16	3	1	32	32	cn	205	co	205	co	1994	15	sd	su
17	1	1	75	80	cb	212	ip	212	dp	1994	1	un	su
		2	31	82	fd	209	co	209	dp	1994	15	sd	su
		3	31	54	se	209	co	209	op	1994	15	un	un
		4	31	81	cb	209	co	209	cb	1994	15	un	su
		5	5	80	fd	202	co	202	cb	1993	1	sd	su
18	1	1	75	80	cb	212	ip	212	dp	1994	1	fo	su
19	1	1	32	32	cn	205	co	205	co	1994	15	sd	su
20	4	1	5	80	fd	202	co	202	dp	1993	1	sd	su
21	1	1	33	33	cn	211	ip	211	ip	1994	15	sd	su
22	3	1	33	82	fd	211	co	211	dp	1994	37	fb	su
23	2	1	33	33	cn	211	ip	211	ip	1993	37	sd	su
		2	33	33	fd	211	co	211	co	1993	37	sd	su
		3	33	72	cn	211	op	211	co	1993	31	sd	un
		4	33	6	cn	202	op	202	ip	1993	48	sd	su
24	1	1	33	48	fd	210	op	210	co	1994	44	sd	su



25	2	1	51	33	cn	211	op	211	co	1994	37	sd	su
26	3	1	33	64	cn	211	op	211	co	1993	1	sd	su
		2	64	33	cn	212	op	212	co	1993	1	sd	su
27	2	1	13	82	cb	203	ip	203	dp	1994	37	un	un
28	1	1	33	33	cn	211	ip	211	co	1994	15	sd	su
29	1	1	33	80	cb	211	ip	211	dp	1994	15	sd	su
30	1	1	33	33	an	211	co	211	co	1994	37	un	un
31	1	1	33	82	ab	211	co	211	dp	1994	37	sd	su
32	2	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
		2	11	80	fd	203	co	203	dp	1994	1	sd	su
33	3	1	75	80	cb	212	ip	212	dp	1994	15	sd	su
		2	31	82	fd	209	co	209	dp	1994	15	sd	su
34	2	1	13	51	cn	206	op	206	co	1993	24	sd	su
		2	40	40	cn	206	op	206	co	1993	24	sd	su
35	3	1	13	74	cn	212	op	212	co	1994	24	un	un
		2	13	74	cn	212	op	212	co	1994	44	un	su
36	2	1	14	13	an	203	ip	203	ip	1994	5	sd	su
		2	13	13	cn	203	ip	203	ip	1994	15	un	un
		3	71	31	cn	209	op	209	co	1994	15	sd	su
37	2	1	13	82	cb	203	ip	203	dp	1994	5	un	su
38	2	1	13	82	fd	203	ip	203	dp	1994	44	sd	su
39	2	1	33	82	cb	211	co	211	dp	1993	44	sd	su
40	1	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
		2	97	80	ab	202	ip	202	dp	1994	1	sd	su
41	2	1	74	41	cn	206	op	206	co	1993	44	sd	su
42	1	1	32	31	cn	209	op	209	co	1994	15	sd	su
43	19	1	46	82	fd	202	ip	202	dp	1993	41	fo	su
		2	32	31	cn	209	op	209	co	1994	15	sd	su
		3	31	32	fd	209	co	209	ip	1994	15	sd	su
44	4	1	51	80	fd	206	co	206	dp	1994	37	sd	su

45	15	1	32	31	cn	209	op	209	co	1994	15	sd	su
46	9	1	13	72	cn	211	op	211	co	1994	44	sd	su
		2	72	48	fd	211	co	211	ip	1994	44	sd	su
47	1	1	75	80	cb	212	ip	212	dp	1994	15	fo	su
		2	31	54	fd	209	co	209	ip	1994	15	sd	su
		3	31	51	se	209	co	209	ip	1994	15	sd	su
		4	43	80	cb	209	ip	209	dp	1994	15	fo	un
48	2	1	32	82	cb	205	co	205	dp	1994	15	sd	su
		2	31	32	fd	209	co	209	ip	1994	15	sd	su
		3	31	32	an	209	co	209	ip	1994	15	sd	su
49	1	1	32	82	cb	205	co	205	dp	1994	15	sd	su
50	1	1	32	82	cb	205	co	205	dp	1994	15	sd	su
		2	32	32	cn	205	co	205	co	1994	15	sd	su
51	1	1	33	82	cb	211	co	211	dp	1994	15	sd	su
52	8	1	74	32	cn	205	op	205	co	1994	15	sd	su
53	6	1	46	64	cn	211	op	211	co	1993	15	sd	su
54	4	1	74	32	cn	205	op	205	co	1994	15	sd	su
55	3	1	74	33	fd	211	op	211	co	1994	15	sd	su
56	3	1	74	33	cn	211	op	211	ip	1994	15	sd	su
57	3	1	74	32	cn	205	op	205	co	1994	15	sd	su
58	1	1	74	33	cn	211	op	211	co	1994	15	sd	su
59	14	1	39	13	cn	203	op	203	ip	1993	1	sd	su
		2	64	46	cn	206	op	206	co	1993	1	sd	su
60	1	1	32	51	an	205	co	205	ip	1994	32	sd	su
61	2	1	32	5	cn	202	op	202	co	1994	15	sd	su
62	1	1	32	31	cn	209	op	209	co	1994	15	sd	su
		2	32	51	an	205	co	205	ip	1994	15	sd	su
63	1	1	32	82	ab	205	co	205	dp	1994	15	sd	su
64	3	1	32	82	ab	205	co	205	dp	1994	15	sd	su
		2	51	80	cb	206	co	206	dp	1994	15	sd	su

65	4	1	32	32	an	205	co	205	ip	1994	15	sd	su
66	1	1	32	5	cn	202	op	202	co	1994	15	sd	su
67	1	1	31	33	cn	211	op	211	co	1994	15	sd	su
		2	33	82	ab	211	co	211	dp	1994	15	sd	su
68	8	1	51	98	cn	202	op	202	ip	1994	46	sd	su
69	1	1	31	32	se	209	co	209	ip	1994	15	sd	su
		2	31	32	fd	209	co	209	ip	1994	15	sd	su
70	6	1	32	80	cb	205	co	205	dp	1994	15	sd	su
71	2	1	51	51	fd	206	co	206	ip	1994	15	sd	su
72	1	1	32	82	cb	205	co	205	dp	1994	15	sd	su
73	1	1	6	96	ab	202	ip	202	dp	1994	48	sd	su
		2	37	6	cn	202	ip	202	ip	1994	41	un	su
74	2	1	13	33	cn	211	op	211	co	1994	33	un	un
		2	13	82	ab	203	ip	203	dp	1994	44	sd	su
75	1	1	13	13	an	203	ip	203	ip	1994	33	un	su
		2	74	13	cn	203	op	203	ip	1994	44	sd	su
76	1	1	55	80	cb	211	co	211	dp	1993	1	sd	su
		2	13	82	cb	203	ip	203	dp	1993	1	fo	su
77	3	1	5	80	cb	202	co	202	dp	1993	1	fo	su
		2	71	5	cn	202	op	202	co	1993	1	sd	fa
		3	5	5	fd	202	co	202	co	1993	1	fo	su
78	3	1	14	13	an	203	co	203	ip	1994	3	sd	su
79	1	1	13	31	cn	209	op	209	co	1994	15	sd	su
80	5	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
81	1	1	55	13	cn	203	op	203	ip	1994	1	sd	su
		2	11	80	fd	203	co	203	dp	1994	1	sd	su
		3	13	11	cn	203	op	203	co	1994	1	sd	su
82	3	1	32	80	cb	205	co	205	dp	1994	15	sd	su
		2	32	31	cn	209	op	209	co	1994	15	sd	su
83	1	1	33	33	an	211	ip	211	ip	1994	15	sd	su

		2	33	31	cn	209	op	209	co	1994	37	sd	su
		3	33	80	cb	211	ip	211	dp	1994	15	sd	su
84	2	1	32	32	cn	205	co	205	co	1994	15	sd	su
85	1	1	33	11	cn	203	op	203	co	1994	1	sd	su
		2	11	80	fd	203	co	203	dp	1994	1	sd	su
		3	11	13	an	203	co	203	ip	1994	15	sd	su
		4	33	33	an	211	co	211	ip	1994	15	sd	su
		5	33	13	cn	203	op	203	ip	1994	15	sd	su
		6	13	33	cn	211	op	211	ip	1994	15	sd	su
		7	33	33	cn	211	ip	211	co	1994	15	sd	su
		8	33	33	an	211	ip	211	ip	1994	15	sd	su
86	1	1	33	33	fd	211	ip	211	ip	1994	15	un	su
87	2	1	33	82	cb	211	co	211	dp	1993	1	sd	su
88	3	1	32	31	cn	209	op	209	co	1994	15	sd	su
		2	32	13	cn	203	op	203	ip	1994	15	sd	su
89	8	1	32	31	cn	209	ip	209	co	1994	13	fb	un
		2	32	82	ab	205	co	206	dp	1994	13	fb	su
		3	32	28	cn	207	op	207	co	1994	13	sd	su
90	1	1	5	23	cn	204	op	204	co	1994	1	sd	su
		2	31	31	fd	209	co	209	ip	1994	15	sc	su
91	3	1	5	82	cb	202	co	202	dp	1994	1	sd	su
92	2	1	5	51	cn	206	op	206	co	1994	15	sd	su
93	3	1	5	51	cn	206	op	206	co	1993	15	sd	su
94	3	1	5	55	cn	211	op	21	co	1994	1	sd	su
95	1	1	33	13	cn	203	op	203	ip	1994	15	sd	su
96	15	1	20	39	an	204	co	204	ip	1993	1	fb	su
97	6	1	33	33	an	211	ip	211	ip	1994	15	sd	su
98	5	1	33	51	cn	206	op	206	co	1994	15	sd	su
		2	51	33	cn	211	op	211	ip	1994	15	sd	su
99	3	1	33	33	fd	211	ip	211	ip	1994	15	sd	su

100	5	1	33	33	fd	211	ip	211	ip	1994	15	sd	su
101	2	1	33	33	cn	211	ip	211	co	1994	15	sd	su
102	6	1	32	31	cn	209	op	209	co	1994	44	sd	su
103	2	1	64	33	cn	211	op	211	co	1993	1	un	su
		2	33	33	fd	211	co	211	ip	1993	1	sd	su
		3	33	64	cn	211	op	211	co	1993	1	sd	su
104	1	1	33	82	cb	211	co	211	dp	1994	15	sd	su
105	1	1	33	82	cb	211	co	211	dp	1993	1	fo	su
106	2	1	46	13	cn	203	op	203	ip	1994	13	fo	un
107	6	1	33	33	fd	211	co	211	co	1993	3	sd	su
		2	33	11	cn	203	op	203	co	1993	3	sd	un
108	1	1	75	103	cb	212	ip	212	dp	1994	25	sd	fa
		2	71	103	cb	206	co	206	dp	1994	25	sd	fa
109	1	1	75	80	cb	212	ip	212	dp	1994	15	un	un
		2	39	31	cn	209	op	209	co	1994	15	sd	fa
110	1	1	75	80	cb	212	ip	212	dp	1994	7	un	su
		2	31	31	fd	209	co	209	co	1994	7	sd	su
111	5	1	72	48	se	211	co	211	ip	1994	44	sd	su
		2	32	31	cn	209	op	209	co	1994	44	sd	su
		3	51	98	cn	202	op	202	ip	1994	46	sd	su
		4	98	96	fd	202	ip	202	dp	1994	46	sd	su
		5	32	80	cb	205	co	205	dp	1994	15	sd	su
		6	32	31	cn	209	op	209	co	1994	15	sd	su
112	14	1	74	82	cb	212	co	212	dp	1994	44	sd	su
		2	13	82	ab	203	ip	203	dp	1993	31	sd	su
		3	72	39	se	211	co	211	ip	1993	44	sd	su
113	2	1	13	13	fd	203	ip	203	ip	1994	15	sd	su
		2	13	33	cn	211	op	211	co	1994	37	sd	su
114	2	1	13	72	cn	211	op	211	co	1994	44	sd	su
		2	33	33	fd	211	co	211	co	1994	37	sd	su

115	2	1	13	98	cn	202	ip	202	ip	1994	46	sd	su
		2	13	80	cb	202	ip	202	dp	1994	46	sd	su
		3	74	13	cn	203	op	203	ip	1994	44	sd	su
		4	13	13	cn	203	ip	203	ip	1994	15	fo	su
116	10	1	33	72	cn	211	co	211	co	1994	44	sd	su
117	3	1	33	13	cn	203	op	203	ip	1993	31	sd	su
		2	13	33	fd	203	ip	203	op	1993	32	sc	su
118	2	1	13	72	cn	211	op	211	co	1993	44	sd	su
		2	5	39	se	202	co	202	ip	1993	42	sd	su
		3	6	11	an	202	ip	202	ip	1993	48	sd	un
119	2	1	13	82	cb	203	ip	203	dp	1993	44	sd	su
		2	11	39	se	203	co	203	ip	1993	42	sd	su
120	1	1	39	80	cb	204	ip	204	dp	1994	15	sd	su
		2	20	39	se	204	co	204	ip	1994	16	sd	su
		3	11	41	se	203	co	203	ip	1994	4	sd	su
		4	6	46	se	202	ip	202	ip	1994	47	sd	su
121	7	1	33	31	cn	209	op	209	co	1994	37	sd	su
		2	33	33	fd	211	co	211	co	1994	37	sc	su
		3	13	72	cn	211	op	211	co	1994	44	sd	su
122	14	1	13	33	cn	211	op	211	co	1994	1	sd	su
		2	33	74	cn	212	op	212	co	1994	44	sd	su
123	3	1	33	33	cn	211	co	211	co	1994	44	sd	su
124	5	1	33	82	fd	211	co	211	dp	1994	15	sc	su
125	2	1	72	13	se	211	co	211	ip	1994	3	sd	su
		2	6	13	se	202	ip	202	ip	1994	3	sd	su
126	2	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
127	6	1	78	82	cb	203	ip	203	dp	1994	44	sd	su
		2	13	72	cn	211	op	211	co	1994	44	sd	su
128	18	1	5	80	fd	202	co	202	dp	1993	1	sd	su
129	5	1	33	33	fd	211	co	211	co	1994	15	sd	su

130	10	1	33	13	cn	203	op	203	ip	1994	15	sd	su
131	1	1	75	80	cb	212	ip	212	dp	1994	1	fo	su
		2	26	80	fd	207	co	207	dp	1994	1	fo	su
		3	26	11	cn	203	op	203	co	1994	1	fo	su
132	10	1	55	33	cn	211	op	211	co	1994	1	sd	su
133	1	1	33	13	cn	203	op	203	ip	1994	15	sd	su
134	1	1	33	33	fd	211	co	211	co	1994	15	sd	su
135	3	1	33	82	cb	211	co	211	dp	1993	1	sd	su
136	8	1	32	31	cn	209	op	209	co	1994	15	sd	su
137	3	1	33	31	cn	209	op	209	co	1994	15	sd	su
138	2	1	32	82	se	205	co	205	ip	1994	15	sd	su
		2	32	31	cn	209	op	209	co	1994	15	sd	su
139	2	1	33	31	cn	209	op	209	co	1994	15	sd	su
140	2	1	5	5	cn	202	co	202	co	1993	1	sd	su
		2	5	80	cb	202	co	202	dp	1993	1	fb	fa
141	29	1	51	33	cn	211	ip	211	co	1994	15	sd	su
142	3	1	33	82	cb	211	co	211	dp	1993	1	un	su
143	2	1	31	32	an	209	co	209	op	1994	15	un	su
144	5	1	55	80	cb	211	co	211	dp	1994	1	sd	su
145	1	1	33	80	cb	211	ip	211	dp	1993	33	sd	su
146	10	1	33	82	cb	211	co	211	dp	1993	5	sd	su
		2	33	11	cn	203	op	203	co	1993	5	sd	su
		3	33	82	cb	211	co	211	dp	1993	44	sd	su
147	2	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
148	1	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
149	5	1	75	80	cb	212	ip	212	dp	1993	1	sd	su
		2	5	5	fd	202	co	202	co	1993	1	sd	su
150	2	1	75	80	cb	212	ip	212	dp	1994	1	sd	su
		2	11	80	fd	203	co	203	dp	1994	1	sd	su
151	1	1	75	80	cb	212	ip	212	dp	1994	15	fo	su

		2	31	31	fd	209	co	209	ip	1994	15	fo	su
		3	31	31	se	209	co	209	ip	1994	15	fo	su
152	1	1	32	32	cn	205	co	205	co	1994	37	sd	su
153	8	1	99	80	cb	203	co	203	dp	1994	1	sd	su
154	2	1	33	33	cn	211	ip	211	ip	1994	15	sd	su
155	2	1	33	33	cn	211	ip	211	ip	1994	15	sd	su
156	14	1	51	32	cn	205	co	205	co	1994	15	sd	su
157	1	1	32	32	fd	205	co	205	co	1994	15	sd	su
158	1	1	75	80	cb	212	ip	212	dp	1993	1	fb	su
		2	71	5	cn	202	op	202	co	1993	1	sd	su
		3	5	5	cn	202	co	202	co	1993	1	sd	su
159	1	1	11	31	cn	209	op	209	co	1994	15	sd	su
160	5	1	43	31	cn	209	op	209	co	1994	15	sd	su
161	3	1	33	31	cn	209	op	209	co	1994	15	sd	su
162	11	1	33	72	cn	211	op	211	co	1993	31	sd	un
		2	64	33	cn	211	op	211	co	1993	1	sd	su
163	3	1	33	11	cn	203	op	203	co	1993	5	sd	su
		2	33	64	cn	211	op	211	co	1993	1	sd	su
164	1	1	32	31	cn	209	op	209	co	1994	15	sd	su

## CODING TABLE FOR PERIOD 7

Table K.7. Coding table for period 7.

No.	Pgs.	Sgmt	Actro	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	1	1	46	51	an	202	ip	202	ip	1994	13	sd	su
2	19	1	41	80	cb	203	ip	203	dp	1995	44	sd	su
		2	39	80	cb	204	ip	204	dp	1995	42	sd	su



		3	31	39	se	209	co	209	ip	1995	15	sd	su
		4	20	39	se	204	co	204	ip	1995	16	sd	su
		5	11	41	se	203	co	203	ip	1995	32	sd	su
		6	6	46	se	202	ip	202	ip	1995	47	sd	su
3	28	1	41	48	an	206	co	206	ip	1996	44	sd	su
4	24	1	41	80	cb	203	ip	203	dp	1997	44	sd	su
5	283	1	69	32	cn	205	op	205	co	1996	33	sd	su
		2	51	69	cn	211	op	211	co	1996	33	sd	su
6	6	1	31	32	an	209	co	209	ip	1995	33	sd	su
7	1	1	75	80	cb	212	ip	212	dp	1997	44	sd	su
8	1	1	75	80	cb	212	ip	212	dp	1997	15	fo	fa
		2	51	80	cb	206	co	206	dp	1997	15	fo	fa
9	1	1	32	32	cn	205	co	205	co	1994	15	sd	un
10	5	1	32	51	an	205	op	205	ip	1997	10	sd	su
		2	52	32	cn	205	ip	205	co	1997	36	fo	fa
11	7	1	31	32	fd	209	co	209	ip	1996	34	sd	su
		2	31	32	an	209	co	209	ip	1997	34	sd	su
		3	32	93	an	205	co	205	ip	1996	34	sd	su
		4	32	32	cn	205	co	205	co	1996	36	sd	su
		5	52	32	cn	205	op	205	co	1996	34	fo	fa
12	7	1	32	31	cn	209	ip	209	co	1996	34	sd	su
13	5	1	32	31	cn	209	ip	209	co	1996	15	sd	su
		2	31	32	an	209	co	209	ip	1996	34	sd	su
		3	32	32	cn	205	ip	205	ip	1996	36	sd	su
14	9	1	32	32	an	205	co	205	ip	1997	10	sd	su
		2	32	32	cn	205	co	205	co	1997	36	sd	su
		3	52	32	cn	205	op	205	co	1997	36	fo	fa
15	7	1	32	32	cn	205	co	205	co	1997	44	sd	su
16	6	1	32	32	cn	205	co	205	co	1997	36	sd	su
17	5	1	32	32	cn	205	co	205	co	1997	36	sd	su

18	6	1	32	32	fd	205	co	205	co	1996	36	sc	su
19	5	1	32	32	fd	205	co	205	co	1996	36	sc	su
		2	52	32	cn	205	ip	205	co	1996	36	fo	fa
20	7	1	32	32	cn	205	co	205	co	1996	36	sd	su
21	7	1	52	31	cn	209	op	209	co	1996	34	fo	fa
		2	32	32	an	205	co	205	ip	1996	33	sd	su
		3	32	32	an	205	co	205	ip	1996	44	sd	su
		4	32	32	se	205	co	205	ip	1996	34	sd	su
22	10	1	32	48	cn	210	ip	210	co	1996	44	sd	su
		2	32	13	cn	203	op	203	ip	1996	3	sd	su
		3	31	32	an	209	co	209	ip	1996	11	sd	su
		4	32	32	an	205	co	205	ip	1996	10	un	su
23	11	1	32	31	fd	209	ip	209	co	1996	15	sd	su
		2	32	32	cn	205	co	205	co	1996	34	sd	su
		3	32	32	cn	205	co	205	co	1996	36	sd	su
24	10	1	32	32	an	205	co	205	ip	1996	44	sd	su
		2	51	32	cn	205	op	205	co	1996	15	fo	fa
		3	75	80	cb	212	ip	212	dp	1996	15	fo	fa
		4	32	32	cn	205	co	205	co	1996	36	sd	su
25	7	1	31	32	an	209	co	209	ip	1996	11	sd	su
		2	32	32	an	205	co	205	ip	1996	44	un	su
		3	51	32	cn	205	ip	205	co	1996	15	sd	su
26	3	1	31	32	fd	209	co	209	ip	1996	34	fo	su
		2	32	32	fd	205	co	205	co	1996	34	sd	su
		3	32	31	cn	209	ip	209	co	1996	34	sd	su
		4	52	32	cn	205	op	205	co	1996	34	fo	fa
		5	71	32	cn	205	op	205	co	1996	29	fo	fa
27	6	1	48	32	fd	210	co	210	ip	1996	44	sd	su
		2	32	32	cn	205	co	205	co	1996	36	sd	su
28	7	1	32	32	an	205	co	205	ip	1996	44	un	su

		2	32	32	fd	205	co	205	co	1996	36	sd	su
29	5	1	32	32	cn	205	co	205	co	1997	36	sd	su
		2	52	32	cn	205	op	205	co	1997	36	fo	fa
30	1	1	32	32	fd	205	ip	205	co	1997	36	sd	su
		2	32	32	cn	205	op	205	co	1997	36	fo	fa
31	5	1	32	32	cn	205	co	205	co	1997	36	sd	su
		2	71	32	cn	205	op	205	co	1997	36	fo	fa
32	4	1	77	32	cn	205	op	205	co	1996	15	sd	su
		2	32	32	fd	205	co	205	ip	1996	30	sc	su
33	4	1	32	82	cb	205	co	205	dp	1996	30	un	su
34	4	1	32	82	fd	205	co	205	dp	1996	30	sd	su
		2	32	32	an	205	co	205	ip	1996	30	sd	su
		3	32	32	an	205	co	205	ip	1996	10	un	su
		4	31	32	an	209	co	209	ip	1996	11	sd	su
		5	32	82	cb	205	co	205	dp	1996	36	un	su
35	4	1	32	32	fd	205	co	205	ip	1996	34	sd	su
		2	32	31	cn	209	ip	209	co	1996	34	sd	un
		3	32	32	cn	205	co	205	co	1996	36	sd	su
36	6	1	6	51	an	202	ip	202	ip	1997	48	sd	su
		2	6	51	se	202	ip	202	ip	1997	47	sd	su
		3	32	82	cb	205	co	205	dp	1997	44	sd	su
37	4	1	26	51	se	207	co	207	ip	1997	13	sd	su
38	4	1	75	80	cb	212	ip	212	dp	1997	36	sd	su
		2	32	32	fd	205	co	205	ip	1997	36	sd	su
39	7	1	72	48	se	203	op	203	ip	1994	44	sd	su
		2	31	32	se	209	co	209	ip	1994	15	sd	su
40	8	1	32	13	se	205	co	205	ip	1996	9	sd	su
41	17	1	32	31	cn	209	ip	209	co	1995	11	sd	su
		2	31	32	se	209	co	209	ip	1995	15	sd	su
		3	32	51	an	205	co	205	ip	1995	15	sd	su

42	4	1	32	51	fd	205	co	205	ip	1995	30	sd	su
43	2	1	72	48	se	211	co	211	ip	1994	44	sd	su
		2	13	48	an	203	ip	203	ip	1994	44	sd	su
44	1	1	31	32	se	209	co	209	ip	1997	15	sd	su
45	9	1	13	32	cn	205	op	205	co	1995	9	sd	su
		2	32	13	se	205	co	205	ip	1995	9	sd	su
46	1	1	75	80	cb	212	ip	212	dp	1997	36	fo	su
		2	51	31	cn	209	op	209	co	1997	36	fo	fa
47	1	1	75	80	cb	212	ip	212	dp	1994	15	sd	su
		2	31	32	fd	209	co	209	ip	1994	15	sd	su
48	1	1	75	80	cb	212	ip	212	dp	1995	34	fo	un
		2	31	32	an	209	co	209	ip	1995	34	fo	su
		3	51	32	cn	205	ip	205	co	1995	34	sd	su
49	1	1	75	80	cb	212	ip	212	dp	1996	15	un	un
50	1	1	75	80	cb	212	ip	212	dp	1995	11	fo	fa
51	1	1	75	80	cb	212	ip	212	dp	1997	32	sd	su
		2	11	41	se	203	co	203	ip	1997	32	sd	su
		3	71	11	cn	203	op	203	co	1997	32	sd	su
		4	49	80	cb	211	co	211	dp	1997	32	sd	su
		5	31	48	se	209	co	209	ip	1997	44	sd	su
		6	72	48	se	211	co	211	ip	1997	12	sd	su
52	1	1	75	80	cb	212	ip	212	dp	1997	21	sd	su
53	3	1	13	48	an	210	co	210	ip	1995	44	sd	su
54	4	1	31	32	se	209	co	209	ip	1995	15	sd	su
		2	31	32	an	209	co	209	ip	1995	34	fo	fa
55	4	1	32	31	cn	209	ip	209	co	1995	15	sd	su
		2	32	77	se	205	co	205	ip	1995	30	un	su
		3	48	82	fd	210	co	210	dp	1995	44	sd	su
56	4	1	31	93	fd	209	co	209	op	1996	15	fo	fa
		2	32	51	fd	205	co	205	ip	1996	11	fo	fa

		3	74	32	cn	205	op	205	co	1996	36	sd	su
57	5	1	31	32	an	209	co	209	ip	1995	30	un	su
		2	48	82	fd	210	co	210	dp	1995	44	sd	su
58	4	1	4	5	cn	202	co	202	co	1995	49	un	un
		2	51	32	cn	205	ip	205	co	1995	34	fo	fa
59	3	1	31	32	an	209	co	209	ip	1995	11	sd	su
		2	72	48	se	211	co	211	ip	1995	44	fo	su
60	2	1	51	32	cn	205	ip	205	co	1997	36	fo	fa
61	1	1	75	80	cb	212	ip	212	dp	1997	44	un	un
62	1	1	14	48	an	203	co	203	ip	1997	44	fo	su
63	2	1	75	80	cb	212	ip	212	dp	1997	21	fo	un
		2	71	48	cn	210	op	210	op	1997	44	fo	su
64	1	1	32	31	cn	209	ip	209	co	1995	34	sd	su
		2	32	51	an	205	co	205	ip	1995	34	sd	su
		3	32	51	se	205	co	205	ip	1995	34	sd	su
65	9	1	32	51	an	205	co	205	ip	1995	34	un	un
		2	51	32	cn	205	ip	205	co	1994	34	sd	su
66	8	1	48	51	fd	210	co	210	ip	1996	44	sd	su
		2	48	51	an	210	ip	210	ip	1996	44	sd	su
		3	48	48	cn	210	co	210	co	1996	44	sd	su
67	7	1	48	51	an	210	ip	210	ip	1996	44	un	su
68	7	1	32	48	fd	209	op	209	co	1996	44	fo	un
69	8	1	48	51	fd	210	co	210	ip	1996	44	sd	su
70	9	1	48	51	an	210	co	210	ip	1996	44	sd	su
71	8	1	48	51	an	210	co	210	ip	1996	44	sd	su
		2	51	48	cn	210	ip	210	co	1996	44	fo	su
72	14	1	11	48	se	203	co	203	ip	1997	44	sd	su
		2	51	48	cn	210	op	210	co	1997	44	sd	fa
		3	48	51	fd	210	co	210	op	1997	44	sd	su
73	1	1	48	48	fd	210	co	210	co	1995	44	sd	su

74	1	1	48	48	an	210	co	210	co	1995	44	un	su
75	2	1	48	48	cn	210	op	210	co	1994	44	sd	su
76	3	1	32	48	se	205	co	205	ip	1996	44	sd	su
77	3	1	74	48	cn	210	op	210	co	1995	44	sd	su
78	2	1	48	48	cn	210	co	210	co	1995	44	sd	su
79	7	1	48	72	cn	211	op	211	co	1994	44	sd	su
80	1	1	48	48	fd	210	co	210	ip	1995	44	sd	su
		2	48	105	cb	210	co	210	dp	1995	44	un	su
		3	48	74	se	210	co	210	ip	1995	44	sd	su
		4	48	48	cn	210	op	210	co	1995	44	sd	su
81	1	1	75	80	cb	212	ip	212	dp	1995	11	fo	fa
82	3	1	16	11	cn	203	ip	203	co	1997	44	sd	su
83	1	1	72	48	se	211	co	211	ip	1995	44	sd	su
84	16	1	52	32	cn	205	ip	205	co	1996	10	fo	su
		2	52	31	cn	209	ip	209	co	1996	34	fo	su
		3	52	32	cn	205	ip	205	co	1996	30	fo	su
85	1	1	75	80	cb	212	ip	212	dp	1995	15	sd	su
86	11	1	32	41	fd	205	co	205	ip	1997	44	sd	su
87	5	1	32	32	cn	205	co	205	co	1997	36	sd	su
		2	51	32	cn	205	ip	205	co	1997	36	sd	su
88	19	1	32	32	fd	205	co	205	ip	1995	34	sd	su
89	15	1	32	31	cn	209	ip	209	co	1995	34	sd	fa
		2	31	32	fd	209	co	209	ip	1995	34	fo	fa
		3	72	48	se	211	co	211	ip	1995	44	sd	su
		4	32	72	cn	211	op	211	co	1995	44	sd	su
90	9	1	32	51	se	205	co	205	ip	1996	10	fb	su
91	13	1	51	32	cn	205	ip	205	co	1997	30	sd	su
92	2	1	32	80	cb	205	co	205	dp	1994	15	sd	su
		2	32	31	cn	209	ip	209	co	1994	34	sd	su
93	2	1	46	32	cn	205	op	205	co	1995	30	sd	su

94	2	1	6	32	cn	205	op	205	co	1997	36	sd	su
95	2	1	32	51	cn	206	op	206	co	1996	36	sd	su
		2	52	51	fd	206	co	206	ip	1996	36	sd	su
96	8	1	46	39	an	206	ip	206	ip	1994	41	un	su
97	2	1	6	51	an	202	ip	202	ip	1995	15	sd	su
		2	46	31	cn	209	op	209	co	1996	36	sd	su
98	1	1	32	32	cn	205	co	205	co	1995	34	sd	su
99	1	1	32	13	fd	205	co	205	ip	1995	12	sd	su
		2	32	13	se	205	co	205	ip	1995	12	sd	su
100	13	1	46	38	cn	206	co	206	co	1997	36	sd	un
101	1	1	51	31	cn	209	ip	209	co	1997	15	sd	su
102	1	1	32	31	fd	209	ip	209	co	1997	15	sd	su
103	1	1	32	11	cn	203	op	203	co	1997	36	sd	su
104	1	1	32	51	cn	206	op	206	co	1997	36	sd	su
105	1	1	32	51	cn	206	op	206	co	1997	36	sd	su
106	5	1	32	32	an	205	co	205	co	1997	36	sd	su
107	2	1	32	32	fd	205	co	205	ip	1997	36	sd	su
		2	32	28	cn	207	op	207	co	1997	36	sd	un
108	1	1	51	51	fd	206	co	206	co	1997	30	sd	su
109	1	1	51	32	cn	205	ip	205	ip	1997	30	sd	su
110	1	1	75	80	cb	212	ip	212	dp	1997	30	sd	su
		2	32	75	cn	212	op	212	co	1997	30	sd	su
111	3	1	74	13	cn	203	op	203	ip	1994	34	sd	su
		2	75	80	cb	212	ip	212	dp	1994	34	fo	su
112	2	1	51	32	cn	205	ip	205	ip	1997	30	fo	un
113	1	1	52	32	fd	205	ip	205	co	1996	36	sd	su
114	3	1	43	31	cn	209	ip	209	co	1996	33	sd	su
115	2	1	43	32	cn	205	ip	205	co	1997	36	sd	su
116	1	1	31	32	an	209	co	209	ip	1997	34	sd	su
117	3	1	31	32	an	209	co	209	ip	1997	34	sd	su

118	5	1	32	31	cn	209	ip	209	co	1996	34	fo	un
119	2	1	32	51	an	205	co	205	ip	1996	34	sd	su
120	1	1	32	31	cn	209	ip	209	co	1996	15	sd	su
121	1	1	32	31	cn	209	ip	209	co	1996	15	sd	su
122	1	1	32	31	cn	209	ip	209	co	1996	11	sd	su
123	1	1	31	32	se	209	co	209	ip	1994	15	sd	su
		2	31	32	fd	209	co	209	ip	1994	15	sd	su
124	1	1	32	51	an	205	co	205	ip	1996	36	fo	fa
125	2	1	32	31	cn	209	ip	209	co	1996	11	sd	su
126	2	1	32	31	cn	209	ip	209	co	1997	34	sd	su
127	1	1	32	13	cn	203	op	203	ip	1996	30	sd	su
128	1	1	32	75	cn	212	op	212	co	1995	15	sd	su
129	4	1	51	32	cn	205	ip	205	co	1996	36	sd	un
130	3	1	64	32	cn	205	op	205	co	1994	34	sd	un
131	1	1	31	32	an	209	co	209	ip	1997	11	sd	su
132	1	1	31	32	fd	209	co	209	ip	1996	11	sd	su
133	1	1	31	32	an	209	co	209	ip	1996	11	sd	su
134	3	1	31	32	fd	209	co	209	ip	1996	11	sd	su
		2	31	32	an	209	co	209	ip	1996	11	sd	su
135	1	1	31	32	an	209	co	209	ip	1996	11	sd	su
136	1	1	31	32	an	209	co	209	ip	1996	11	sd	su
137	1	1	31	32	an	209	co	209	ip	1996	11	sd	su
138	1	1	32	31	cn	209	op	209	co	1997	30	fo	fa
		2	31	32	fd	209	co	209	ip	1997	36	sd	su
139	3	1	31	32	fd	209	co	209	ip	1995	15	sd	su
		2	31	32	se	209	co	209	ip	1995	15	sd	su
		3	31	32	an	209	ip	209	ip	1995	11	sd	su
140	1	1	31	32	fd	209	co	209	ip	1997	15	sd	su
		2	31	32	an	209	co	209	ip	1997	15	sd	su
141	1	1	31	32	an	209	co	209	ip	1997	15	sd	su



142	1	1	31	32	fd	209	co	209	ip	1997	15	sd	su
143	1	1	31	32	an	209	co	209	ip	1997	15	sd	su
144	1	1	31	32	an	209	co	209	ip	1997	15	fo	un
145	1	1	51	31	cn	209	op	209	co	1997	36	fo	fa
		2	31	32	an	209	co	209	ip	1997	30	sd	su
146	2	1	26	32	cn	205	op	205	co	1997	36	fo	fa
147	2	1	51	32	cn	205	ip	205	co	1996	36	fo	fa
148	1	1	51	32	cn	205	ip	205	co	1997	12	sd	su
149	1	1	51	32	fd	205	ip	205	co	1997	36	fo	fa
150	1	1	51	32	fd	205	ip	205	co	1996	36	sd	su
151	1	1	13	32	cn	205	op	205	co	1996	36	sd	su
152	1	1	31	32	an	209	co	209	ip	1996	30	fo	su
153	1	1	74	32	cn	205	ip	205	co	1997	30	sd	su
154	4	1	74	32	cn	205	ip	205	co	1996	36	sd	su
		2	51	32	cn	205	ip	205	co	1996	36	fo	un
155	2	1	26	32	cn	205	op	205	co	1997	30	fo	un
156	5	1	71	31	cn	209	op	209	co	1997	30	fo	fa
157	1	1	52	51	cn	205	ip	205	ip	1997	36	fo	fa
158	4	1	52	51	cn	205	ip	205	ip	1997	36	fo	un
159	1	1	52	51	cn	205	ip	205	ip	1997	36	fo	fa
160	1	1	51	31	cn	209	ip	209	co	1997	15	fo	fa
161	1	1	51	32	cn	205	ip	205	co	1997	36	sd	su
162	1	1	26	74	an	207	co	207	ip	1997	30	sd	un
		2	74	27	cn	207	ip	207	co	1997	36	fo	un
163	5	1	51	31	cn	209	op	209	co	1997	36	fo	fa
164	2	1	55	31	cn	209	op	209	co	1994	15	sd	su
165	1	1	32	32	cn	205	co	205	co	1995	30	sd	su
166	1	1	32	32	an	205	co	205	ip	1995	15	sd	su
167	1	1	32	31	cn	209	ip	209	co	1995	15	fo	su
168	2	1	51	32	cn	205	ip	205	co	1995	15	sd	fa

		2	32	51	fd	205	co	205	ip	1995	15	fo	su
169	1	1	51	32	cn	205	ip	205	co	1995	15	fo	fa
170	2	1	51	32	cn	205	ip	205	co	1995	15	sd	fa
171	1	1	51	32	cn	205	ip	205	co	1997	10	sd	su
172	1	1	52	32	cn	205	ip	205	ip	1997	36	sd	su
173	1	1	52	32	cn	205	ip	205	co	1996	36	sd	su
174	1	1	26	51	an	207	co	207	ip	1995	11	fo	su
		2	52	51	fd	206	co	206	ip	1995	36	sd	su
		3	51	32	cn	205	ip	205	co	1995	11	fo	su
175	1	1	51	32	cn	205	ip	205	co	1997	36	fo	un
176	1	1	51	32	cn	205	ip	205	co	1996	15	sd	su
177	1	1	51	51	fd	206	co	206	ip	1997	15	sd	su
		2	51	28	cn	207	ip	207	co	1997	15	sd	su
		3	51	32	cn	205	ip	205	co	1997	11	sd	su
178	1	1	51	32	cn	205	ip	205	co	1997	15	sd	su
179	1	1	32	32	cn	205	co	205	co	1994	34	fo	un
180	2	1	52	32	cn	205	op	205	co	1996	30	fo	un
181	3	1	52	51	cn	206	op	206	co	1997	36	fo	fa
182	3	1	74	31	cn	209	op	209	co	1997	30	sd	su
183	3	1	32	32	cn	205	co	205	co	1997	36	fo	un
184	3	1	32	32	cn	205	co	205	co	1994	34	sd	su
185	1	1	32	32	an	205	ip	205	ip	1997	36	fb	su
186	3	1	32	51	fd	205	co	205	ip	1996	36	sd	su
		2	32	51	an	205	ip	205	ip	1996	36	sd	su
187	2	1	32	32	an	205	ip	205	ip	1997	36	sd	su
188	2	1	32	32	cn	205	ip	205	ip	1997	36	sd	su
189	5	1	32	58	cn	211	op	211	co	1997	36	sd	un
190	1	1	32	51	an	205	ip	205	ip	1997	30	sd	su
191	1	1	32	51	an	205	ip	205	ip	1997	30	sd	su
192	2	1	32	31	cn	209	ip	209	co	1997	11	sd	su

193	1	1	32	51	an	205	co	205	ip	1997	36	sd	su
194	11	1	32	51	cn	206	op	206	co	1995	30	sd	su
195	1	1	32	28	cn	207	op	207	co	1997	36	sd	su
196	2	1	32	31	cn	209	ip	209	co	1996	30	sd	su
197	2	1	32	31	cn	209	ip	209	ip	1997	34	sd	su
198	1	1	32	31	cn	209	ip	209	co	1997	11	sd	su
199	1	1	32	31	cn	209	ip	209	co	1997	15	sd	un
200	3	1	32	31	cn	209	ip	209	co	1996	34	sd	su
201	3	1	31	32	an	209	co	209	ip	1997	34	sd	su
		2	32	32	cn	205	co	205	co	1997	34	sd	su
		3	32	32	fd	205	co	205	ip	1997	34	sd	su
202	1	1	32	32	fd	205	co	205	ip	1997	36	sd	su
		2	32	31	cn	209	ip	209	co	1997	36	sd	su
203	2	1	32	31	cn	209	ip	209	co	1997	15	fo	un
204	4	1	32	27	cn	207	op	207	co	1997	36	sd	su
205	3	1	32	13	cn	203	op	203	ip	1996	12	sd	su
206	1	1	32	6	cn	202	ip	202	ip	1997	36	sd	su
207	3	1	32	31	cn	209	ip	209	co	1997	34	sd	un
208	1	1	13	16	cn	203	ip	203	ip	1995	44	sd	su
209	1	1	32	51	an	205	ip	205	ip	1996	11	sd	su
210	1	1	32	51	an	205	ip	205	ip	1997	15	sd	su
211	1	1	32	51	fd	205	co	205	ip	1997	10	sd	su
212	3	1	13	11	cn	203	ip	203	co	1996	3	sd	un
213	1	1	32	27	cn	207	op	207	co	1996	13	sd	un
214	1	1	32	51	an	205	ip	205	ip	1997	36	sd	su
215	1	1	32	32	an	205	ip	205	ip	1996	30	sd	su
216	2	1	32	75	cn	212	op	212	co	1996	34	sd	su
217	1	1	32	75	cn	212	op	212	co	1997	36	fo	un
218	2	1	32	51	an	205	ip	205	ip	1997	36	sd	su
219	2	1	32	51	fd	205	ip	205	ip	1997	12	fo	fa

220	2	1	32	51	cn	205	ip	205	ip	1995	24	sd	su
221	1	1	32	51	an	205	ip	205	ip	1997	12	sd	su
222	2	1	32	51	fd	205	co	205	ip	1997	11	sd	su
223	3	1	32	51	an	205	ip	205	ip	1997	36	sd	su
224	1	1	17	51	cn	206	op	206	co	1997	36	sd	su
225	1	1	51	51	cn	205	co	205	co	1997	36	fo	un
226	1	1	31	51	fd	209	co	209	ip	1994	15	sc	su
		2	23	5	cn	202	op	202	co	1994	15	sd	su
227	3	1	5	31	cn	209	op	209	co	1995	11	fo	un
228	2	1	51	32	cn	205	ip	205	co	1997	36	fo	fa
229	1	1	51	32	cn	205	ip	205	ip	1996	36	fo	fa
230	1	1	26	27	cn	207	ip	207	co	1997	36	un	un
231	3	1	52	31	cn	209	ip	209	co	1997	15	sd	un
232	4	1	51	32	cn	205	ip	205	ip	1997	36	sd	su
233	2	1	26	51	an	207	co	207	ip	1997	36	fo	un
234	1	1	16	13	se	203	ip	203	ip	1996	3	sd	su
235	1	1	51	32	cn	205	ip	205	co	1996	23	sd	su
		2	51	51	fd	206	co	206	co	1996	23	sd	su
236	1	1	51	32	cn	205	ip	205	co	1996	36	sd	su
237	2	1	52	48	cn	210	ip	210	co	1997	44	fo	un
238	2	1	51	32	cn	205	ip	205	co	1996	10	sd	un
239	1	1	52	32	cn	205	ip	205	co	1996	36	fo	un
240	17	1	32	51	an	205	co	205	ip	1997	36	sd	su
241	1	1	52	32	cn	205	ip	205	co	1996	36	sd	su
242	1	1	52	32	cn	205	ip	205	co	1996	36	sd	su
243	1	1	51	32	cn	205	ip	205	co	1997	36	fo	su
244	1	1	26	32	cn	205	op	205	co	1997	36	fo	un
245	1	1	26	27	cn	207	ip	207	co	1997	36	sd	su
		2	26	27	cn	207	ip	207	co	1997	36	sd	su
246	1	1	52	32	cn	205	ip	205	co	1996	36	sd	su

247	1	1	52	32	cn	205	ip	205	co	1996	36	sd	su
248	1	1	52	32	cn	205	ip	205	co	1996	36	sd	su
249	2	1	52	32	cn	205	ip	205	co	1997	9	fo	un
250	1	1	32	32	cn	205	ip	205	ip	1997	36	sd	su
251	4	1	71	51	cn	205	op	205	ip	1997	36	sd	su
252	8	1	58	32	cn	205	op	205	co	1997	36	fo	su
253	19	1	51	32	cn	205	ip	205	co	1996	36	sd	su
254	2	1	75	80	cb	212	ip	212	dp	1995	1	fo	un
		2	32	80	cb	205	co	205	dp	1995	15	sd	su
255	1	1	75	80	cb	212	ip	212	dp	1997	36	sd	su
256	1	1	75	80	cb	212	ip	212	dp	1995	15	sd	su
257	25	1	75	87	cb	212	ip	212	dp	1997	48	sd	su
258	1	1	75	80	cb	212	ip	212	dp	1995	15	sd	su
259	4	1	75	103	cb	212	ip	212	dp	1995	42	sd	su
260	1	1	75	80	cb	212	ip	212	dp	1997	36	fo	un
261	2	1	75	80	cb	212	ip	212	dp	1997	36	un	su
262	4	1	31	31	cn	209	co	209	co	1997	34	sd	su
263	1	1	75	80	cb	212	ip	212	dp	1997	36	sd	su
		2	32	32	fd	205	co	205	ip	1997	36	sd	su
264	1	1	75	80	cb	212	ip	212	dp	1994	34	sd	su
265	12	1	52	32	cn	205	ip	205	co	1997	30	fo	fa
266	2	1	32	64	cn	211	op	211	co	1994	34	sd	su
267	5	1	31	32	an	209	co	209	ip	1995	34	fo	su
268	3	1	6	32	an	202	ip	202	ip	1996	36	sd	su
269	3	1	32	13	cn	203	op	203	ip	1996	5	sd	su
270	5	1	32	32	fd	205	co	205	ip	1996	36	sd	su
271	3	1	6	51	an	202	ip	202	ip	1995	15	un	su
272	3	1	31	32	an	209	co	209	ip	1995	11	sd	su
273	2	1	32	32	cn	205	co	205	co	1995	34	sd	su
274	3	1	32	31	cn	209	ip	209	co	1995	15	un	un

275	2	1	72	48	se	211	co	211	ip	1994	44	sd	su
276	4	1	32	51	an	205	co	205	ip	1997	30	sd	su
277	1	1	13	13	an	203	ip	203	ip	1996	3	sd	su
278	22	1	32	32	cn	205	ip	205	co	1996	36	sd	su
279	3	1	11	13	se	203	co	203	ip	1996	32	sd	su
280	4	1	32	32	cn	205	co	205	co	1996	36	sd	su
281	2	1	75	80	cb	212	ip	212	dp	1996	36	sd	su
282	1	1	48	51	fd	210	co	210	ip	1995	44	sd	su
283	12	1	74	32	cn	205	op	205	co	1995	38	sd	su
284	3	1	52	32	cn	205	ip	205	co	1997	36	sd	un
285	2	1	32	31	cn	209	ip	209	co	1994	34	sd	su
286	1	1	32	32	cn	205	co	205	co	1995	34	sd	un
287	1	1	75	80	cb	212	ip	212	dp	1995	15	sd	su
288	1	1	75	80	cb	212	ip	212	dp	1995	11	fo	fa
289	1	1	75	80	cb	212	ip	212	dp	1995	11	fo	fa
290	2	1	75	80	cb	212	ip	212	dp	1997	1	sd	su
291	1	1	75	80	cb	212	ip	212	dp	1995	11	sd	su
292	2	1	31	80	cb	209	co	209	dp	1996	15	un	su
		2	31	32	an	209	co	209	ip	1996	11	sd	su
		3	32	31	cn	209	ip	209	co	1996	11	sd	su
293	3	1	32	32	cn	205	co	205	co	1996	36	sd	su
		2	32	13	cn	203	op	203	ip	1996	5	sd	su
294	2	1	32	32	fd	205	co	205	ip	1996	36	sd	su
		2	11	48	fd	203	co	203	ip	1996	44	sd	su
		3	11	48	se	203	co	203	ip	1996	44	sd	su
295	2	1	13	48	an	203	ip	203	ip	1996	44	sd	su
296	3	1	31	32	fd	209	co	209	ip	1996	15	sd	su
297	3	1	32	51	an	205	co	205	ip	1996	36	sd	su
298	1	1	75	80	cb	212	ip	212	dp	1995	11	fo	fa
299	4	1	32	106	cn	202	ip	202	ip	1997	30	un	su

300	1	1	75	80	cb	212	ip	212	dp	1994	15	fo	un
301	2	1	48	80	cb	210	co	210	dp	1997	44	sd	su
302	2	1	48	31	cn	209	ip	209	co	1997	44	sd	su
303	2	1	72	48	se	211	co	211	ip	1997	44	sd	su
304	3	1	32	31	cn	209	ip	209	co	1996	11	sd	su
305	1	1	32	32	cn	205	co	205	co	1997	36	sd	su
306	1	1	32	32	cn	205	co	205	co	1997	36	sd	su
307	1	1	32	32	cn	205	co	205	co	1997	36	sd	su
308	2	1	32	32	cn	205	ip	205	co	1997	36	sd	su
309	1	1	32	80	cb	205	ip	205	dp	1997	36	sd	su
310	1	1	32	80	cb	205	ip	205	dp	1997	44	sd	su
311	2	1	32	80	cb	205	ip	205	dp	1997	36	sd	su
		2	32	32	fd	205	co	205	ip	1997	36	sd	su
		3	32	6	cn	202	ip	202	ip	1997	36	sd	su
312	1	1	32	82	cb	205	ip	205	dp	1997	36	sd	su
313	1	1	32	82	cb	205	ip	205	dp	1997	36	sd	su
314	1	1	32	82	cb	205	ip	205	dp	1997	36	sd	su
315	1	1	32	82	cb	205	co	205	dp	1997	36	sd	su
316	1	1	32	82	cb	205	ip	205	dp	1997	36	sd	su
317	1	1	32	82	cb	205	ip	205	dp	1997	44	sd	su
318	1	1	32	82	cb	205	ip	205	dp	1997	44	sd	su
319	1	1	32	82	cb	205	ip	205	dp	1997	44	sd	su
320	4	1	32	82	cb	205	co	205	dp	1996	36	sd	su
321	2	1	75	80	cb	212	ip	212	dp	1997	36	fo	fa
322	1	1	75	80	cb	212	ip	212	dp	1997	36	sd	su
323	1	1	13	48	an	203	ip	203	ip	1995	44	sd	su
324	1	1	75	80	cb	212	ip	212	dp	1995	15	sd	su
325	1	1	75	80	cb	212	ip	212	dp	1994	15	fo	fa
326	1	1	31	32	se	209	co	209	ip	1996	15	sd	su
327	26	1	65	65	cn	211	ip	211	co	1997	48	sd	su

		2	65	65	cn	211	ip	211	ip	1997	48	sd	su
		3	65	65	fd	211	co	211	co	1997	48	sd	su

## CODING TABLE FOR PERIOD 8

**Table K.8. Coding table for period 8.**

No.	Pgs.	Sgmt	Acto	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	2	1	32	32	an	205	ip	205	ip	2011	33	sd	su
2	242	1	74	32	cn	205	op	205	co	2001	33	sd	su
3	1	1	32	32	an	205	co	205	ip	2001	33	sd	su
4	1	1	32	32	an	205	ip	205	ip	2001	10	un	su
5	3	1	32	32	cn	205	co	205	co	2009	10	un	un
6	4	1	32	82	cb	205	ip	205	dp	1998	33	un	un
7	6	1	32	82	cb	205	ip	205	dp	1999	33	un	un
8	4	1	32	82	cb	205	ip	205	dp	1999	30	un	un
9	4	1	32	82	cb	205	ip	205	dp	2000	33	un	un
10	1	1	48	48	an	210	co	210	ip	1999	44	sd	su
11	53	1	17	16	fd	203	co	203	co	1998	6	sd	su
12	59	1	74	32	cn	205	op	205	co	2008	33	sd	un
13	3	1	32	28	cn	207	op	207	co	2001	33	sd	su
14	1	1	31	32	an	209	co	209	ip	2005	11	sd	su
15	16	1	31	41	se	209	co	209	ip	2000	15	sd	su
		2	6	41	se	202	ip	202	ip	2000	47	sd	su
		3	11	41	se	203	co	203	ip	2000	32	sd	su
		4	20	39	se	204	co	204	ip	2000	13	sd	su
16	31	1	39	39	cn	206	co	206	co	2010	23	sd	su
17	1	1	75	80	cb	212	ip	212	dp	2000	39	sd	su



18	85	1	74	39	cn	206	op	206	co	2009	23	sd	su
19	6	1	75	80	cb	212	ip	212	dp	2009	49	fo	fa
		2	5	96	fd	202	co	202	dp	2009	49	sd	su
		3	39	39	fd	206	co	206	ip	2009	23	un	un
20	3	1	75	80	cb	212	ip	212	dp	2011	13	sd	un
		2	20	39	fd	204	co	204	ip	2011	16	sd	su
21	2	1	75	80	cb	212	ip	212	dp	2003	49	fo	un
		2	32	80	cb	205	co	205	dp	2003	49	fo	un
22	4	1	20	39	fd	204	co	204	ip	2011	16	sd	su
23	10	1	77	39	se	212	co	212	ip	2002	16	sd	su
24	1	1	32	32	an	205	co	205	ip	2011	10	sd	su
25	1	1	75	80	cb	212	ip	212	dp	2009	34	un	un
26	1	1	75	80	cb	212	ip	212	dp	1999	32	sd	un
27	2	1	32	32	cn	205	co	205	co	2001	33	sd	su
28	5	1	32	6	cn	202	ip	202	ip	1998	53	sd	su
29	1	1	75	80	cb	212	ip	212	dp	1999	32	sd	su
		2	11	48	fd	203	co	203	ip	1999	32	sd	su
		3	11	48	se	203	co	203	ip	1999	32	sd	su
30	6	1	32	32	cn	205	co	205	co	2001	33	sd	un
31	2	1	32	32	an	205	co	205	co	2000	33	un	su
		2	32	32	an	205	co	205	co	2000	33	sd	su
32	3	1	32	32	cn	205	co	205	co	2000	33	sd	su
33	3	1	32	32	cn	205	co	205	co	2000	33	sd	su
		2	32	32	cn	205	co	205	co	2000	33	sd	un
34	3	1	32	32	cn	205	co	205	co	2001	33	sd	su
35	2	1	32	32	cn	205	co	205	co	1998	33	sd	su
36	6	1	32	32	cn	205	co	205	co	2001	10	sd	un
37	15	1	32	32	an	205	co	205	ip	2007	10	un	un
38	1	1	109	72	cn	211	op	211	co	2000	44	sd	un
39	1	1	32	32	cn	205	co	205	co	2008	44	sd	su

40	1	1	41	48	an	206	co	206	ip	1998	44	sd	su
41	10	1	48	82	cb	210	co	210	dp	1999	44	sd	su
42	1	1	75	80	cb	212	ip	212	dp	2007	15	un	un
		2	39	31	cn	209	ip	209	co	2007	15	sd	un
43	2	1	32	32	an	205	co	205	ip	2003	34	un	un
44	19	1	5	96	fd	202	co	202	dp	2003	48	un	su
		2	6	51	an	202	ip	202	ip	2003	49	un	un
45	7	1	32	32	cn	205	co	205	co	2001	10	fo	un
46	15	1	32	32	cn	205	co	205	co	2008	34	fo	fa
47	7	1	48	97	cn	202	op	202	ip	2002	44	sd	su
		2	48	48	cn	210	op	210	co	2002	44	sd	su
48	2	1	71	27	cn	207	op	207	co	2005	24	fo	fa
49	1	1	32	32	fd	205	co	205	co	2011	30	sd	su
		2	32	32	an	205	co	205	ip	2011	30	sd	su
50	2	1	6	32	an	202	ip	202	ip	2005	48	un	su
51	9	1	32	32	cn	205	co	205	co	2001	10	sd	fa
52	3	1	32	32	cn	205	co	205	co	2004	34	fo	un
53	1	1	32	32	an	205	co	205	ip	2010	34	fo	fa
		2	31	32	an	209	co	209	ip	2010	34	fo	su
54	1	1	32	32	cn	205	co	205	co	2004	34	sd	un
55	1	1	32	32	cn	205	ip	205	co	2002	10	fo	un
56	1	1	32	32	an	205	co	205	co	2001	10	un	un
57	1	1	32	32	an	205	co	205	co	2001	38	sd	su
58	4	1	32	32	an	205	co	205	ip	2005	34	sd	su
59	1	1	32	32	cn	205	co	205	co	2003	34	sd	un
60	1	1	32	48	cn	210	co	210	co	1999	44	sd	un
61	1	1	32	32	an	205	co	205	ip	1998	10	sd	su
62	1	1	48	14	cn	203	ip	203	co	1999	44	sd	su
63	2	1	75	80	cb	212	ip	212	dp	2009	15	sd	un
		2	32	31	cn	209	ip	209	co	2009	15	sd	un

64	2	1	75	80	cb	212	ip	212	dp	2009	34	un	un
		2	32	31	cn	209	ip	209	co	2009	34	sd	un
		3	5	96	fd	202	co	202	dp	2009	49	fo	un
		4	32	32	cn	205	co	205	co	2009	34	fo	un
		5	32	32	fd	205	co	205	ip	2009	34	sd	su
65	2	1	75	80	cb	212	ip	212	dp	2010	15	sd	su
		2	32	31	cn	209	ip	209	co	2010	33	sd	su
66	2	1	75	80	cb	212	ip	212	dp	2003	49	un	un
		2	5	96	fd	202	co	202	dp	2003	49	un	un
67	2	1	75	80	cb	212	ip	212	dp	2002	13	sd	su
		2	100	100	cn	211	co	211	co	2002	13	sd	su
68	1	1	75	80	cb	212	ip	212	dp	1999	44	un	un
		2	49	11	cn	203	op	203	co	1999	44	fo	su
69	2	1	75	80	cb	212	ip	212	dp	2010	49	un	un
		2	5	6	se	202	co	202	ip	2010	49	fo	un
70	2	1	75	80	cb	212	ip	212	dp	2010	23	sd	su
71	2	1	75	80	cb	212	ip	212	dp	2003	49	fo	un
		2	5	6	se	202	co	202	ip	2003	49	fo	fa
		3	32	31	cn	209	ip	209	co	2003	49	sd	su
72	2	1	75	80	cb	212	ip	212	dp	2009	34	fo	fa
		2	32	32	cn	205	ip	205	co	2009	34	fo	fa
73	1	1	75	80	cb	212	ip	212	dp	2009	34	fo	fa
		2	32	32	fd	205	co	205	ip	2009	34	sd	su
		3	32	32	se	205	co	205	ip	2009	34	sd	su
74	2	1	75	80	cb	212	ip	212	dp	2006	34	fo	un
		2	78	32	cn	205	op	205	co	2006	34	fo	un
		3	32	31	cn	209	ip	209	co	2006	15	sd	un
		4	31	32	se	209	co	209	ip	2006	15	un	su
		5	32	32	fd	205	co	205	ip	2006	34	sd	su
75	2	1	75	80	cb	212	ip	212	dp	2010	34	sd	su

		2	32	32	fd	205	co	205	ip	2010	34	sd	un
		3	31	32	fd	209	co	209	ip	2010	34	fo	fa
76	1	1	75	80	cb	212	ip	212	dp	2010	34	sd	su
		2	31	32	fd	209	co	209	ip	2010	34	fo	fa
		3	32	32	cn	205	co	205	co	2010	34	sd	su
		4	32	32	fd	205	co	205	ip	2010	34	sd	su
77	3	1	75	80	cb	212	ip	212	dp	2011	14	sd	su
		2	49	22	cn	204	op	204	co	2011	14	sd	su
78	1	1	75	80	cb	212	ip	212	dp	2007	15	sd	su
		2	32	31	cn	209	ip	209	co	2007	15	sd	su
		3	39	31	cn	209	ip	209	co	2007	15	sd	su
79	3	1	26	51	se	207	co	207	ip	2010	13	un	su
80	2	1	75	80	cb	212	ip	212	dp	2009	34	fo	un
		2	26	32	cn	205	op	205	co	2009	34	fo	un
		3	51	32	cn	205	ip	205	co	2009	34	fo	un
		4	32	32	cn	205	co	205	co	2009	34	fo	un
		5	32	32	fd	205	co	205	ip	2009	34	un	un
81	5	1	32	32	cn	205	ip	205	ip	2001	13	sd	un
82	1	1	75	80	cb	212	ip	212	dp	2009	34	sd	un
		2	31	32	se	209	co	209	ip	2009	15	sd	su
		3	31	32	fd	209	co	209	ip	2009	15	sd	su
		4	31	32	fd	209	co	209	ip	2009	34	fo	fa
83	1	1	75	80	cb	212	ip	212	dp	2007	15	sd	su
		2	31	32	se	209	co	209	ip	2007	15	sd	su
		3	31	32	fd	209	co	209	ip	2007	15	sd	su
84	1	1	74	80	cb	212	ip	212	dp	2009	23	sd	su
85	2	1	75	80	cb	212	ip	212	dp	2004	44	fo	un
		2	107	95	fd	201	co	201	dp	2003	25	sd	su
		3	108	3	cn	201	op	201	co	2003	25	fo	fa
86	2	1	75	80	cb	212	ip	212	dp	2005	23	fo	un

		2	11	11	cn	203	co	203	co	2005	44	fo	un
87	2	1	32	32	cn	205	co	205	co	2004	10	un	un
88	2	1	75	80	cb	212	ip	212	dp	1999	15	sd	su
		2	31	32	se	209	co	209	ip	1999	15	sd	su
		3	31	32	fd	209	co	209	ip	1999	15	sd	su
89	2	1	75	80	cb	212	ip	212	dp	2010	15	sd	su
		2	31	32	fd	209	co	209	ip	2010	15	sd	su
		3	31	32	se	209	co	209	ip	2010	15	sd	su
90	1	1	75	80	cb	212	ip	212	dp	2009	34	fo	fa
		2	31	32	fd	209	co	209	ip	2009	34	fo	fa
		3	31	32	se	209	co	209	ip	2009	34	fo	fa
91	1	1	75	80	cb	212	ip	212	dp	1998	15	un	su
		2	32	31	cn	209	ip	209	co	1998	15	sd	su
		3	31	32	se	209	co	209	ip	1998	15	sd	su
92	1	1	75	80	cb	212	ip	212	dp	2010	15	un	un
		2	31	39	se	209	co	209	ip	2010	15	sd	su
		3	31	32	fd	209	co	209	ip	2010	15	sd	su
		4	31	32	se	209	co	209	ip	2010	15	sd	su
93	1	1	75	80	cb	212	ip	212	dp	1998	34	fo	fa
		2	52	31	cn	209	op	209	co	1998	34	fo	fa
94	2	1	75	80	cb	212	ip	212	dp	2009	34	un	un
		2	32	32	fd	205	co	205	ip	2009	34	sd	su
		3	32	31	cn	209	ip	209	co	2009	34	sd	un
		4	5	6	se	202	co	202	ip	2009	49	un	su
95	55	1	32	32	cn	205	co	205	co	2002	52	sd	fa
96	1	1	14	48	an	203	co	203	ip	1998	44	sd	su
		2	48	48	an	206	co	206	ip	1998	44	sd	su
		3	48	48	se	210	co	210	ip	1998	44	sd	su
97	2	1	75	80	cb	212	ip	212	dp	2000	39	sd	su
98	1	1	10	110	se	203	ip	203	ip	1999	40	sd	su

		2	75	80	cb	212	ip	212	dp	1999	40	sd	su
99	2	1	75	80	cb	212	ip	212	dp	2010	34	fo	un
		2	6	32	fd	202	ip	202	ip	2010	49	fo	un
100	2	1	32	32	an	205	co	205	ip	2006	52	sd	su
101	16	1	32	32	cn	205	co	205	co	2002	52	sd	un
102	3	1	32	32	cn	205	co	205	co	2003	52	sd	fa
103	2	1	32	32	cn	205	co	205	co	2003	52	sd	fa
104	3	1	32	32	cn	205	co	205	co	2003	52	sd	fa
105	1	1	75	80	cb	212	ip	212	dp	2008	23	sd	un
106	1	1	32	32	fd	210	ip	210	ip	1998	44	sd	su
		2	48	32	an	210	co	210	ip	1998	44	sd	su
107	1	1	32	32	cn	205	co	205	co	2001	38	sd	su
108	1	1	75	80	cb	212	ip	212	dp	2000	24	sd	fa
		2	26	27	cn	207	co	207	co	2000	13	sd	fa
109	2	1	75	80	cb	212	ip	212	dp	2009	34	sd	su
		2	31	32	fd	209	co	209	ip	2009	34	sd	su
		3	31	32	se	209	co	209	ip	2009	34	sd	su
110	6	1	32	32	an	205	co	205	ip	2003	52	un	un

## CODING TABLE FOR PERIOD 9

**Table K.9. Coding table for period 9.**

No.	Pgs.	Sgmt	Actr	Aud	Pwr	Actr Crc	Actr Pos	Aud Crc	Aud Pos	Yr	Iss	Leg	Imp
1	1	1	32	31	cn	209	ip	209	co	2015	15	sd	su
2	27	1	39	41	fd	206	co	206	ip	2013	33	sd	su
		2	32	32	fd	205	co	205	ip	2013	33	sd	su
		3	113	80	cb	211	co	211	dp	2014	33	sd	un

3	2	1	32	32	cn	205	co	205	co	2015	52	sd	su
		2	90	32	cn	205	op	205	co	2015	48	un	un
		3	32	32	cn	205	ip	205	co	2015	52	fo	un
		4	32	32	fd	205	co	205	ip	2015	15	sd	su
4	2	1	32	32	cn	205	co	205	co	2015	30	sd	su
		2	32	32	cn	205	co	205	co	2015	52	fo	un
5	3	1	74	32	cn	205	op	205	co	2013	38	un	su
		2	113	113	an	211	co	211	co	2013	38	sd	su
6	1	1	32	32	cn	205	co	205	co	2015	30	sd	su
		2	32	32	fd	205	ip	205	ip	2015	30	sd	su
7	1	1	32	32	an	205	ip	205	ip	2015	52	un	su
8	4	1	75	80	cb	212	ip	212	dp	2014	38	sd	su
		2	113	113	cn	211	ip	211	co	2014	38	sd	su
9	2	1	51	80	cb	206	co	206	dp	2014	38	sd	su
10	2	1	32	32	cn	205	co	205	co	2015	30	sd	su
11	1	1	32	32	fd	205	co	205	ip	2013	38	sd	su
12	4	1	75	80	cb	212	ip	212	dp	2014	38	sd	su
		2	6	32	se	202	ip	202	ip	2014	49	fo	su
		3	26	51	fd	207	co	207	ip	2013	14	sd	su
		4	71	113	cn	211	op	211	co	2014	38	sd	un
13	2	1	51	80	cb	206	co	206	dp	2014	38	sd	su
14	4	1	113	113	cn	211	ip	211	co	2014	38	sd	su
		2	71	113	cn	211	op	211	ip	2014	38	sd	su
15	24	1	32	79	cn	213	co	213	co	2013	33	un	un
		2	31	31	cn	209	co	209	co	2012	33	sd	su
		3	31	32	an	209	co	209	ip	2012	33	sd	su
		4	6	41	se	202	ip	202	ip	2013	47	sd	su
16	4	1	113	80	cb	211	co	211	dp	2014	38	sd	un
17	4	1	75	80	cb	212	ip	212	dp	2013	14	sd	su
		2	26	51	fd	207	co	207	ip	2013	14	sd	su

18	1	1	113	113	an	211	co	211	ip	2014	38	sd	su
19	5	1	5	32	se	202	co	202	ip	2016	49	un	un
		2	32	32	cn	205	ip	205	co	2016	34	fo	un
		3	32	32	an	205	co	205	ip	2016	34	un	un
20	2	1	32	32	an	205	co	205	ip	2015	52	fo	su
21	5	1	5	32	se	202	co	202	ip	2016	49	sd	su
		2	77	32	cn	205	op	205	ip	2016	23	sd	un
		3	32	32	an	205	ip	205	ip	2016	34	sd	su
		4	31	32	an	209	co	209	ip	2016	34	sd	su
22	9	1	74	32	cn	205	op	205	ip	2016	13	sd	su
		2	32	32	an	205	ip	205	ip	2016	15	sd	su
23	17	1	74	32	cn	205	op	205	ip	2016	13	sd	su
		2	32	32	cn	205	ip	205	ip	2016	30	fo	fa
24	4	1	32	32	cn	205	ip	205	ip	2016	23	sd	un
25	3	1	32	32	cn	205	ip	205	co	2015	52	fo	su
		2	31	32	sb	209	co	209	ip	2015	11	fb	su
		3	31	32	an	209	co	209	ip	2015	11	fb	su
26	5	1	32	32	an	205	ip	205	ip	2015	52	un	su
		2	32	32	cn	205	ip	205	co	2015	52	fo	fa
27	7	1	32	32	cn	209	ip	209	co	2015	52	un	un
28	1	1	113	113	an	211	co	211	ip	2014	38	sd	su
29	1	1	113	80	cb	211	ip	211	dp	2014	38	sd	su
30	5	1	113	113	cn	211	co	211	co	2014	38	sd	su
31	3	1	113	113	cn	211	co	211	co	2014	38	sd	su
32	19	1	6	41	se	202	ip	202	ip	2015	54	sd	su
		2	32	32	an	205	ip	205	ip	2013	23	sd	su
		3	74	32	cn	205	op	205	co	2012	38	fo	fa
		4	32	32	se	205	co	205	ip	2015	34	sd	su
33	3	1	32	32	fd	205	co	205	ip	2015	52	fo	su
34	1	1	32	32	cn	205	ip	205	co	2016	30	sd	su



35	14	1	32	31	cn	209	ip	209	co	2015	15	sd	su
		2	6	32	an	202	ip	202	ip	2015	48	sd	su
		3	32	51	an	205	ip	205	ip	2015	24	sd	su
		4	41	51	an	206	ip	206	ip	2015	23	sd	su
36	18	1	97	32	an	202	ip	202	ip	2015	48	sd	su
37	4	1	32	32	cn	205	ip	205	co	2015	52	fo	fa
38	2	1	113	113	cn	211	op	211	ip	2014	52	fo	fa
39	8	1	32	32	an	205	co	205	ip	2015	52	fo	fa
40	2	1	32	51	an	205	ip	205	ip	2012	39	sd	su
		2	31	32	an	209	co	209	ip	2012	38	sd	su
41	20	1	31	32	an	209	co	209	ip	2012	33	fb	su
		2	51	51	fd	206	co	206	ip	2013	39	sd	su
		3	32	32	fd	205	co	205	ip	2015	52	fo	su
		4	32	32	an	205	ip	205	ip	2015	52	fo	su
		5	111	50	cn	206	co	206	co	2015	23	sd	su
		6	6	96	ab	202	ip	202	dp	2015	24	sd	su
42	5	1	113	80	cb	211	co	211	dp	2014	32	sd	fa
43	6	1	32	32	cn	205	ip	205	co	2016	30	sd	su
44	4	1	48	48	an	210	co	210	ip	2015	44	sd	su
45	9	1	32	32	se	205	ip	205	ip	2015	15	un	su
		2	32	32	an	205	co	205	ip	2015	52	fo	un
46	3	1	52	51	an	206	co	206	ip	2015	23	sd	su
47	5	1	32	32	cn	205	co	205	co	2013	34	fb	fa
48	8	1	32	32	an	205	co	205	ip	2015	30	fo	su
		2	32	32	sb	205	co	205	co	2014	34	fb	fa
49	7	1	32	32	an	205	co	205	ip	2015	30	sd	su
50	8	1	32	32	fd	205	co	205	ip	2015	52	fo	su
51	5	1	51	29	cn	208	op	208	ip	2015	39	sd	su
		2	32	32	cn	205	co	205	co	2015	33	sd	su
		3	32	32	an	205	ip	205	ip	2015	15	sd	su

52	10	1	32	32	cn	205	ip	205	co	2015	33	sd	su
53	6	1	113	113	an	211	co	211	ip	2014	38	un	su
54	6	1	113	113	an	211	co	211	ip	2013	38	sd	su
55	4	1	113	113	an	211	co	211	ip	2013	38	sd	su
56	1	1	31	31	cn	209	co	209	co	2012	30	sd	su
		2	31	32	an	209	co	209	ip	2012	11	sd	su
57	40	1	112	113	an	211	co	211	co	2014	38	sd	su
58	38	1	113	113	an	211	co	211	ip	2014	38	un	su
59	3	1	113	80	cb	211	ip	211	dp	2014	38	un	su
60	37	1	113	113	an	211	co	211	ip	2014	38	un	su
61	4	1	113	113	an	211	co	211	ip	2014	38	un	su
62	5	1	113	113	cn	211	ip	211	ip	2014	38	sd	un
		2	113	113	an	211	co	211	ip	2014	38	un	su
63	7	1	113	113	an	211	co	211	ip	2014	38	un	su
		2	113	113	cn	211	ip	211	co	2014	38	sd	su
64	5	1	113	113	an	211	co	211	ip	2013	38	un	su
		2	113	113	cn	211	ip	211	co	2013	38	sd	un
65	9	1	113	113	cn	211	co	211	co	2014	38	sd	su
		2	113	113	an	211	co	211	ip	2014	38	un	su
		3	113	113	cn	211	op	211	ip	2014	38	sd	un
66	8	1	113	113	an	211	co	211	ip	2014	38	un	su
		2	113	113	cn	211	ip	211	co	2014	38	sd	un
67	17	1	113	113	an	211	co	211	ip	2014	38	un	su
		2	113	113	cn	211	co	211	ip	2014	38	un	un
68		1	113	113	an	211	co	211	ip	2014	38	un	su
69	6	1	113	113	an	211	co	211	ip	2014	38	un	su
		2	113	113	cn	211	ip	211	co	2014	38	sd	un
70	9	1	75	80	cb	212	ip	212	dp	2014	38	sd	su
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		3	52	51	cn	206	co	206	co	2014	38	un	un

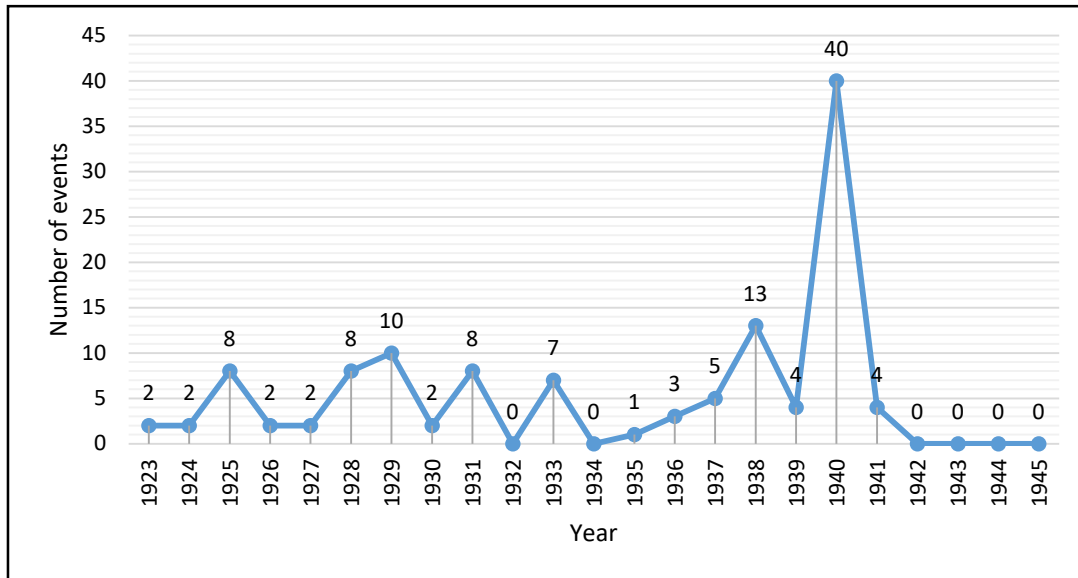
		4	31	39	se	209	co	209	ip	2014	15	sd	un
		5	31	32	se	209	co	209	ip	2014	15	sd	un
		6	26	51	fd	207	co	207	ip	2014	14	sd	un
71	4	1	113	27	cn	207	op	207	co	2014	38	sd	un
72	4	1	32	32	cn	205	co	205	co	2014	30	sd	su
		2	31	32	se	209	co	209	ip	2014	15	fo	su
		3	32	32	fd	205	co	205	co	2014	15	sd	fa
		4	32	32	fd	205	co	205	ip	2014	15	fb	su
		5	32	32	fd	205	co	205	ip	2014	15	sd	su
		6	113	32	cn	205	op	205	co	2014	52	fo	su
73	3	1	51	80	cb	206	co	206	dp	2014	38	sd	su
74	1	1	32	32	an	205	co	205	ip	2014	38	un	un
75	69	1	74	32	cn	205	op	205	co	2012	38	un	un
76	2	1	26	32	cn	205	op	205	co	2014	38	fo	un
77	8	1	31	80	cb	209	co	209	dp	2014	15	sd	su
		2	31	31	fd	209	co	209	ip	2014	15	sd	su
		3	31	32	se	209	co	209	ip	2014	15	sd	su
78	2	1	31	31	cn	209	co	209	co	2011	30	sd	su
79	14	1	31	74	cn	212	op	212	co	2011	30	sd	su
		2	74	31	cn	209	op	209	co	2011	30	sd	su
80	50	1	74	113	cn	211	op	211	co	2014	30	sd	su
81	2	1	74	32	cn	205	op	205	co	2012	30	sd	su
		2	6	32	an	202	ip	202	ip	2012	48	sd	su
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83	1	1	6	32	an	202	ip	202	ip	2012	48	sd	su
		2	6	46	an	202	ip	202	ip	2012	48	sd	su
84	9	1	32	32	an	205	co	205	ip	2015	30	sd	su
		2	32	32	fd	205	co	205	ip	2015	30	sd	su
85	4	1	51	114	cn	213	co	213	ip	2013	33	sd	su

86	1	1	51	113	cn	211	ip	211	co	2014	38	fo	un
		2	113	51	an	211	co	211	ip	2014	38	fo	su
87	3	1	112	113	cn	211	op	211	co	2014	33	sd	un
		2	113	113	cn	211	co	211	co	2014	33	sd	un
88	3	1	113	113	cn	211	co	211	co	2014	33	sd	su
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89	5	1	74	113	cn	211	op	211	co	2014	33	sd	su
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		3	113	113	cn	211	co	211	co	2014	33	sd	su
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91	5	1	113	113	cn	211	ip	211	co	2014	33	sd	su
92	1	1	51	80	cb	206	co	206	dp	2014	38	sd	su
93	5	1	75	80	cb	212	ip	212	dp	2014	14	fo	su
		2	26	51	fd	207	co	207	ip	2014	14	fo	fa
		3	26	51	fd	207	co	207	ip	2014	14	sd	su
94	4	1	32	32	an	205	co	205	ip	2014	34	un	un

## APPENDIX L: DATA DISPLAYS BY PERIOD

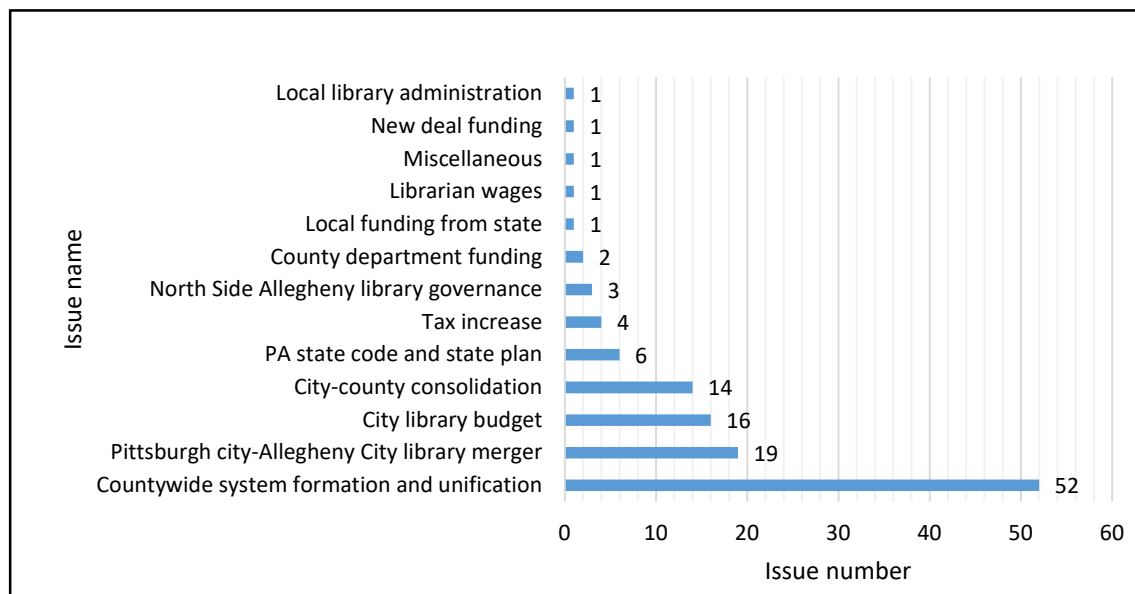
### PERIOD 1: 1924–1945

**Events.** A total of 121 communicative events were identified in period 1, including 2 events from 1923 that provide context for the case. The communicative events remained relatively constant from 1924 to 1939. Communication then surged in 1940 with N=40 events. This was the year when civil society groups jointly petitioned the Commissioners for a county library system (see section [4.1.2.1](#)). Following the peak of activity in 1940, communicative events dwindled. No communicative events occurred from 1942 to 1945 during the Second World War (see [Figure L.1](#)).



**Figure L.1. Number of communicative events per year in period 1.**

**Issues.** The most-discussed issue in period 1 was countywide system formation and unification (N=52), followed by merger of the old Allegheny library with the city system (N=19). The city library budget (N=16) and city-county consolidation (N=14) were also salient issues during period 1 (see [Figure L.2](#)).



**Figure L.2. Issue counts in period 1.**

The issue of countywide system formation and unification was relatively consistent over time, but it became especially prevalent in 1940 (see [Figure L.3](#)). The issue of the old Allegheny library merger was also relatively constant over time, but it peaked in 1938. These findings are consistent with the chronology developed in section [4.1](#). In 1938, civil society groups gathered petitions for the merger of the old Allegheny library, but in 1939 the mayor failed to act on the issue. This explains why the issue peaked in 1938 but disappeared afterward. In 1940, civil society groups petitioned for a countywide system, but their proposals were rejected by the County Commissioners in 1941. This explains the sharp rise in countywide system formation and unification as an issue in 1940 and its rapid fall in 1941 and thereafter.

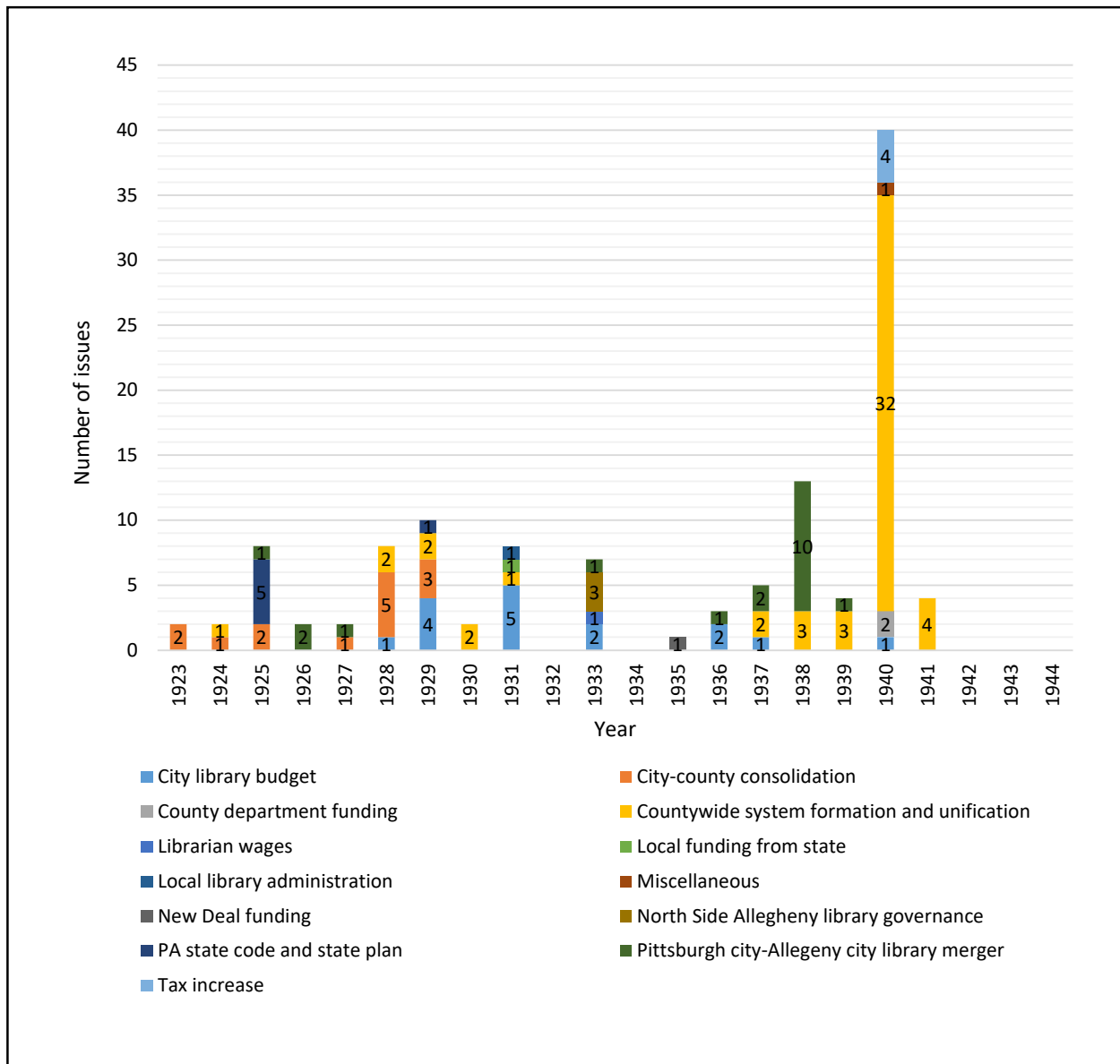
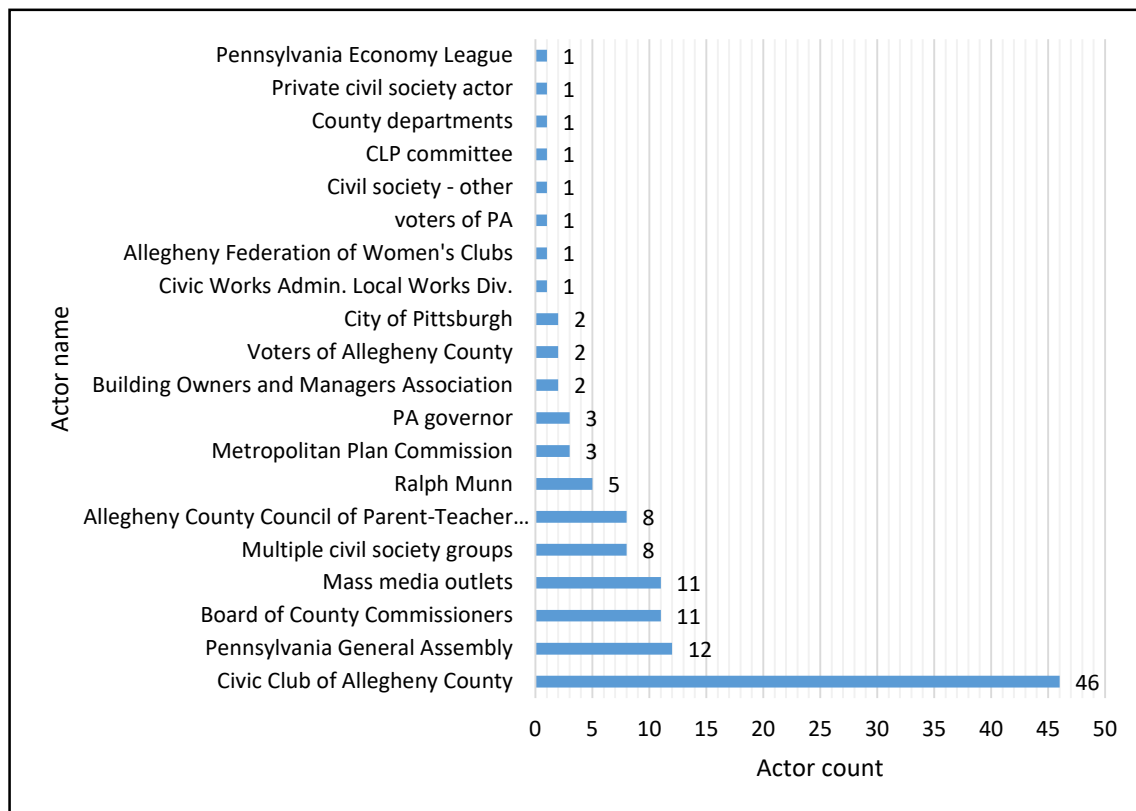


Figure L.3. Issue counts per year in period 1.

*Actors and audiences.* The Civic Club of Allegheny County was the most prevalent actor (N=46) in period 1, followed by the Pennsylvania General Assembly (N=12), the Board of

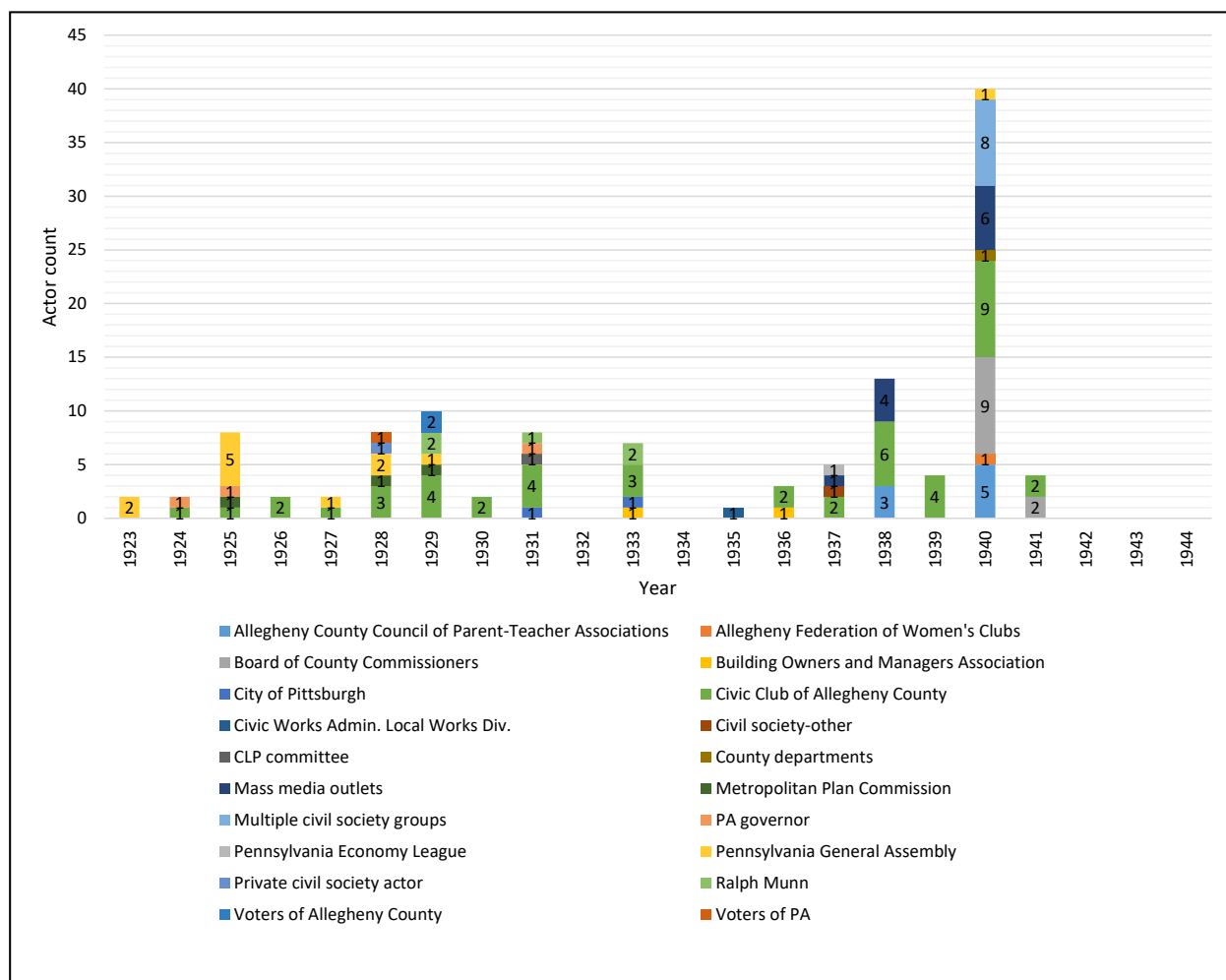


County Commissioners (N=11), and mass media outlets (N=11). [Figure L.4](#) also shows that several other civil society, government, and private actors were also active during period 1.



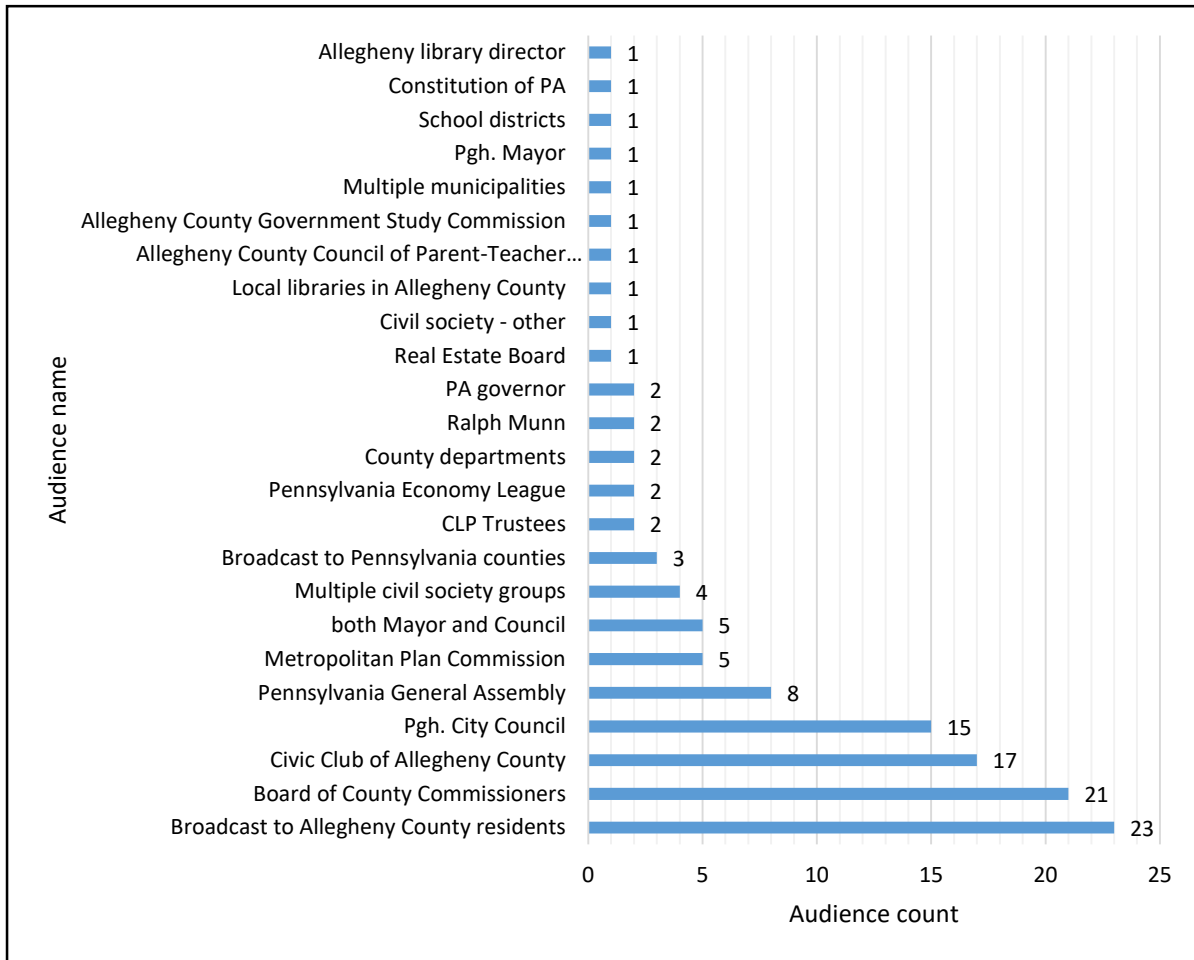
**Figure L.4. Actor counts in period 1.**

[Figure L.5](#) shows that the Civic Club of Allegheny County maintained a relatively constant presence throughout period 1. In 1940, the Civic Club was tied with the Board of County Commissioners for the most transmissions in a single year (N=9). That same year, multiple civil society groups (N=8), mass media outlets (N=6), and the Allegheny County Council of Parent-Teacher Associations (N=5) were also active.



**Figure L.5. Actor counts by year in period 1.**

[Figure L.6](#) shows that the most prevalent audiences in period 1 were broadcasts to Allegheny County residents (N=23), the Board of County Commissioners (N=21), the Civic Club of Allegheny County (N=17), and Pittsburgh City Council (N=15).



**Figure L.6. Audience counts in period 1.**

[Figure L.7](#) below shows that broadcasts to Allegheny County residents occurred relatively consistently, in 1925 (N=1), 1928 (N=1), 1929 (N=1), 1930 (N=2), 1931 (N=1), 1937 (N=1), 1938 (N=6), and 1940 (N=10). Transmissions to the Civic Club and to City Council also spread over several years. In contrast, transmissions to the County Commissioners clustered around 1940. These findings suggest that the Civic Club and City Council were targets for the issue of the library merger, and that this issue was a consistent and protracted one for civil society groups. With respect to the issue of a unified library system, the County Commissioners

were targeted heavily in a single burst. While neither initiative—for the library merger or for a unified county system—were implemented during period 1, the different patterns of audience engagement suggest that audiences may be targeted differently according to the issue, the nature of the audience, or other factors.

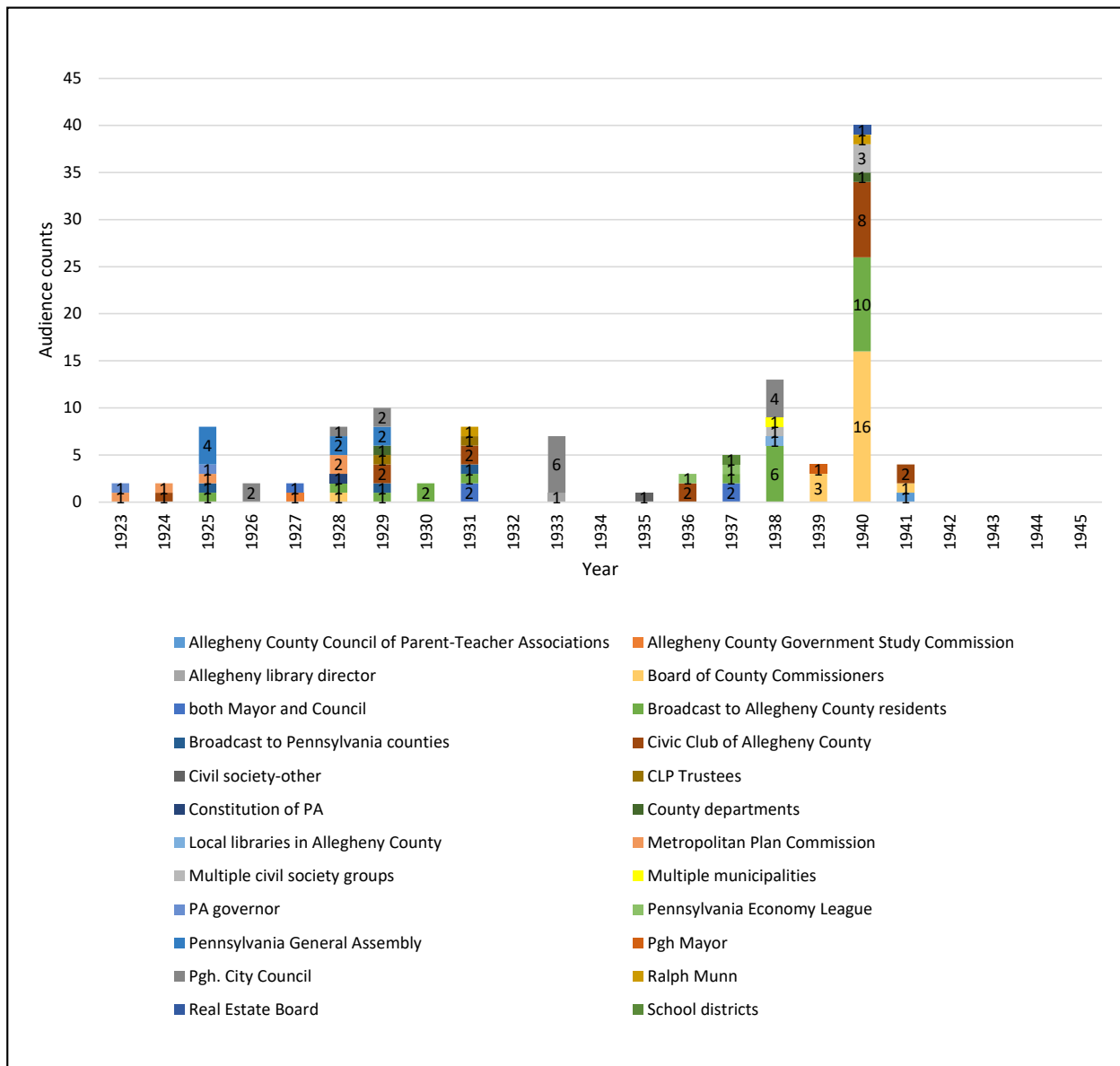
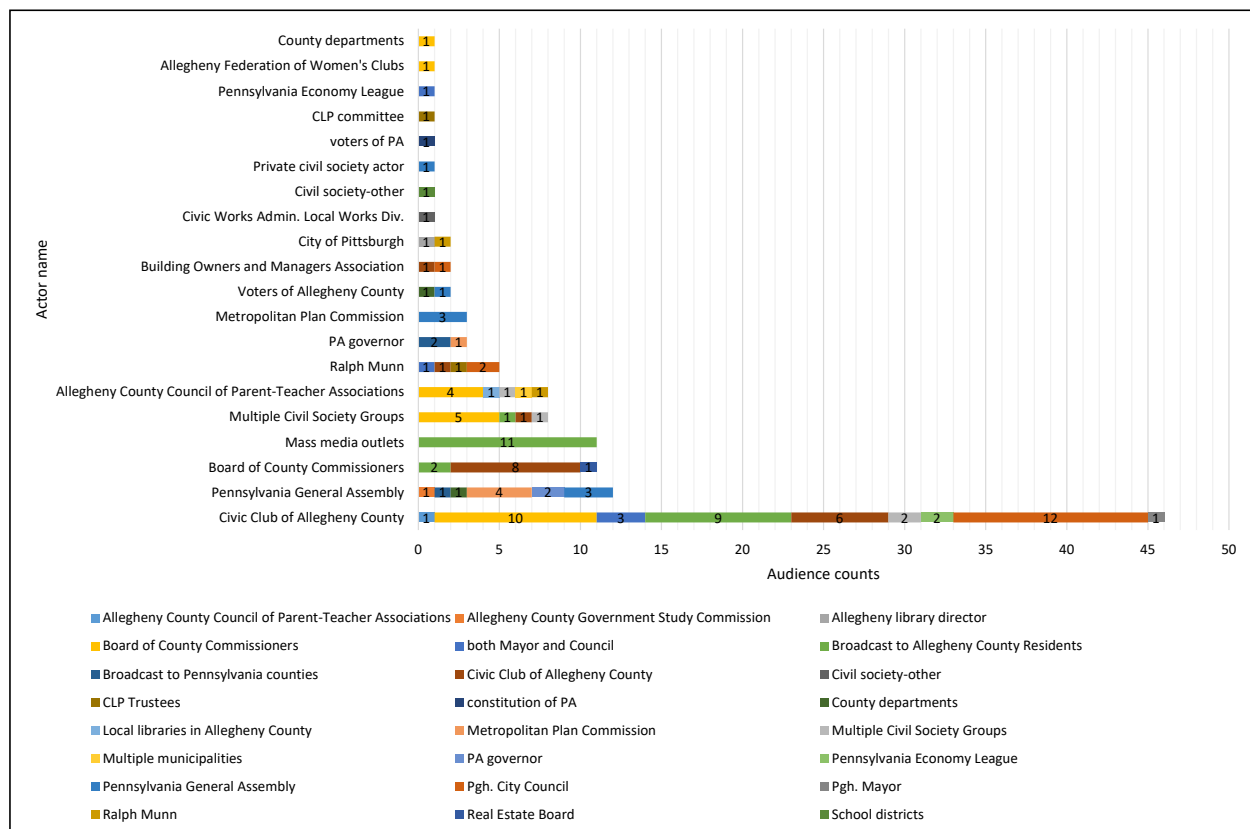


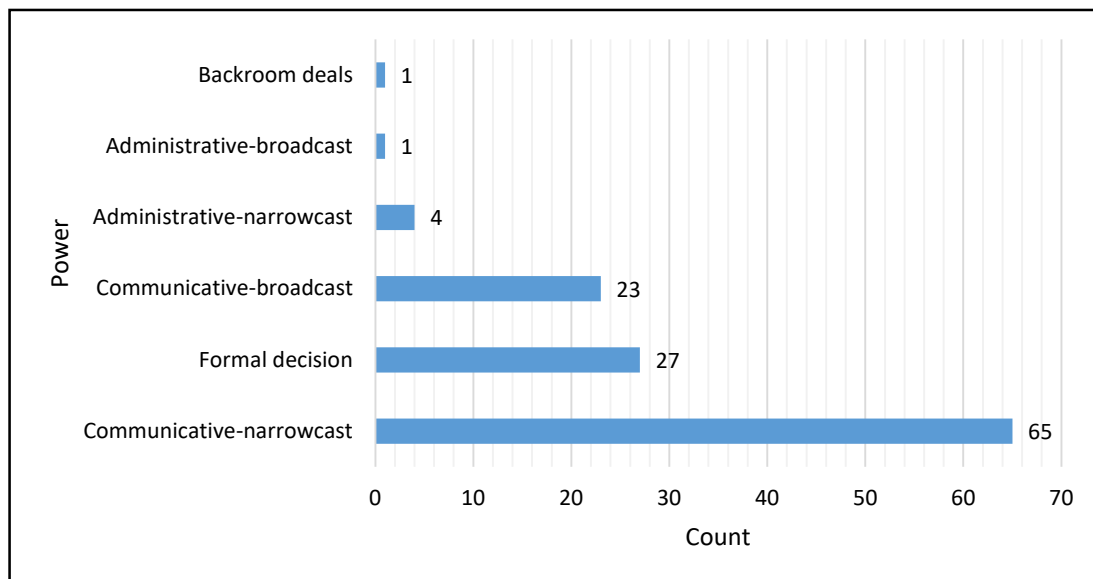
Figure L.7. Audience counts by year in period 1.

[Figure L.8](#) shows that the Civic Club targeted more audiences than any other actor. It targeted the Allegheny County Council of Parent-Teacher Associations (N=1), the County Commissioners (N=10), both Mayor and City Council (N=3), broadcasts to Allegheny County residents (N=9), itself (N=6), multiple civil society groups (N=2), Pennsylvania Economy League (N=2), Pittsburgh City Council (N=12), and Pittsburgh Mayor (N=1). These findings suggest that the Civic Club attempted to mobilize a coalition and it attempted to influence governmental decision-making bodies.

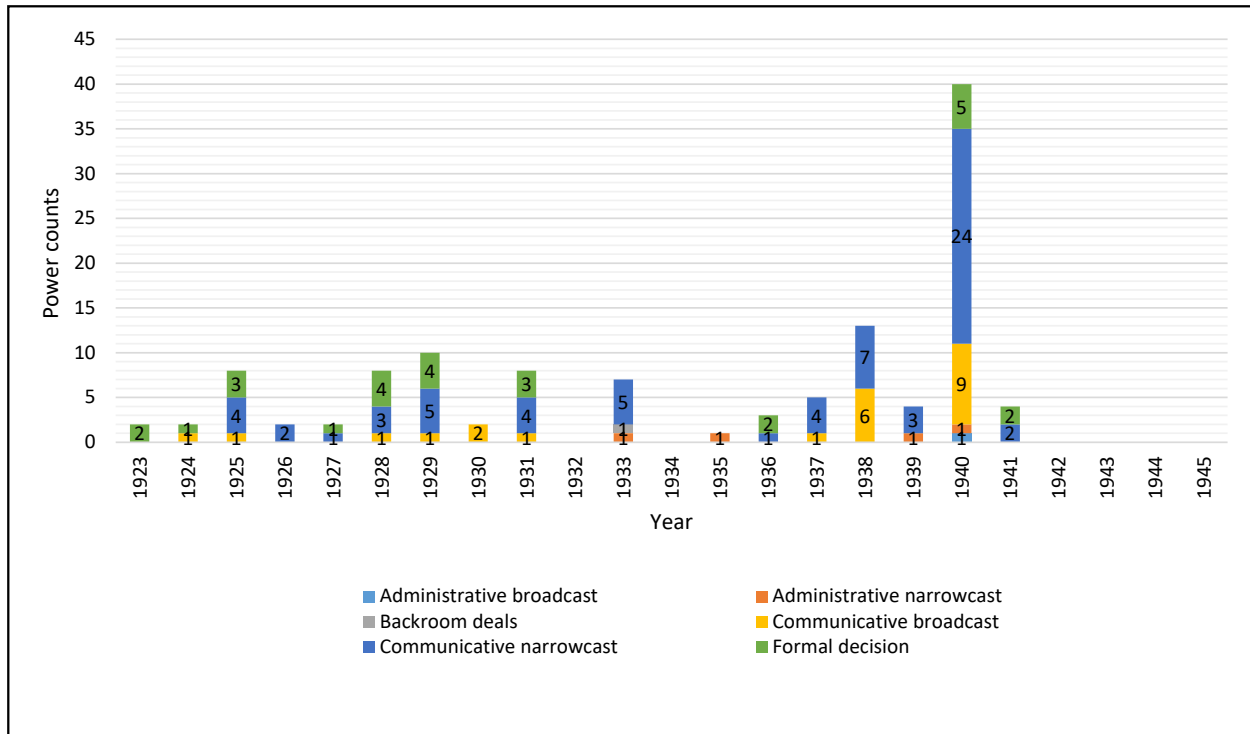


**Figure L.8. Actor and audience combinations in period 1.**

**Power.** [Figure L.9](#) shows that the most prominent types of power in period 1 were communicative power-narrowcast (N=65), followed by formal decision (N=27) and communicative power-broadcast (N=23). These 3 types of power occurred consistently throughout period 1 (see [Figure L.10](#)).

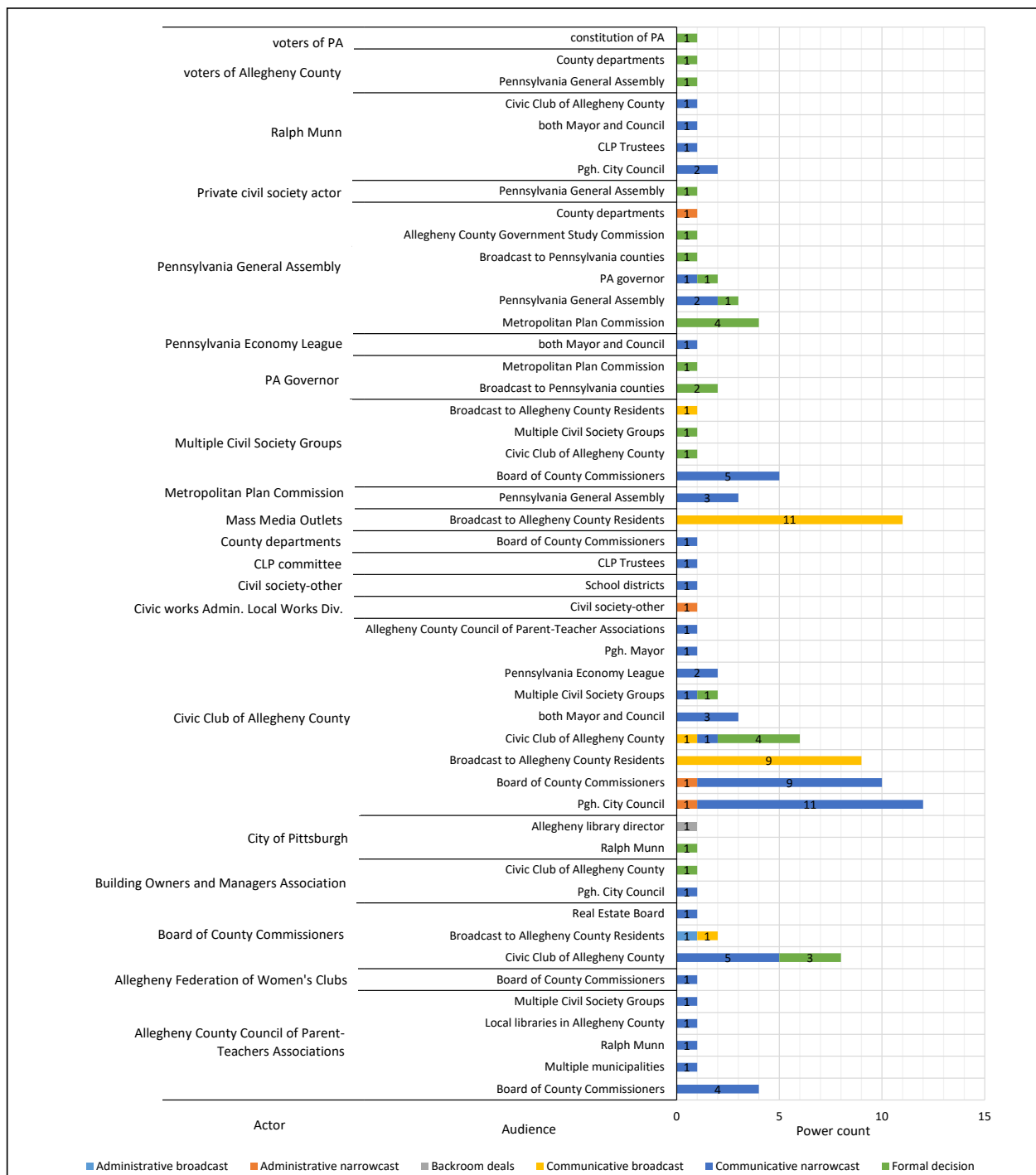


**Figure L.9. Power counts in period 1.**



**Figure L.10. Power counts by year in period 1.**

[Figure L.11](#) shows actor, audience, and power combinations in period 1. Communicative narrowcasts were sent by several notable actors. For example, Ralph Munn transmitted communicative narrowcasts to the Civic Club, the Mayor and City Council, and library trustees; the Civic Club transmitted communicative narrowcasts to other civil society groups, the Mayor and Council, and the County Commissioners; and the Allegheny County Council of Parent-Teacher Associations sent communicative narrowcasts to other civil society groups, local libraries, Ralph Munn of CLP, municipalities, and the County Commissioners. Formal decisions were transmitted between many actor-audience pairs. Communicative broadcasts were transmitted primarily by mass media outlets and the Civic Club to residents of Allegheny County.



**Figure L.11. Actor, audience, and power combinations in period 1.**



[Figure L.12](#) visualizes the actor-power relationships in period 1 in network graph form. The directions of the power transmissions are shown using curved edges that flow clockwise: the source and target of a clockwise curve indicate the actor and audience of the transmission. This graph shows how the Civic Club was both an active sender and receiver of multiple types of power, including communicative narrowcasts, formal decisions, and communicative broadcasts. The graph also shows that the Pennsylvania General Assembly was both a sender of formal decisions and a receiver of them. The Board of County Commissioners was a target for communicative narrowcasts, and the Allegheny County Council of Parent-Teacher Associations issued communicative narrowcasts.

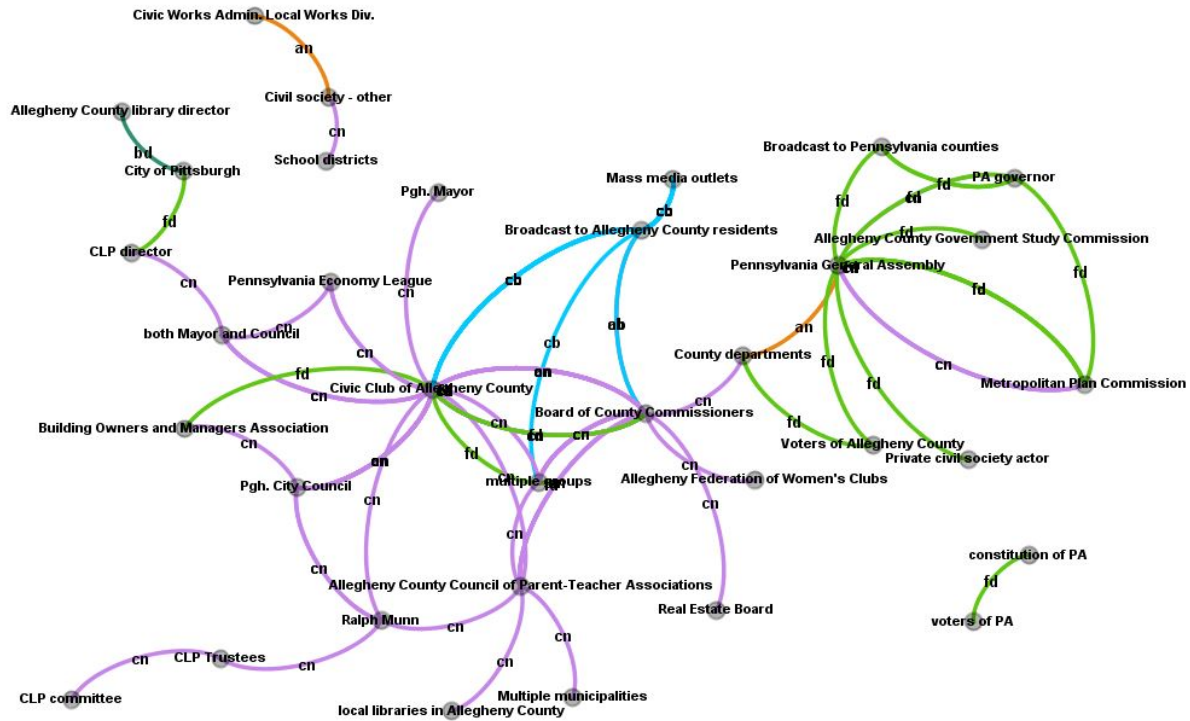
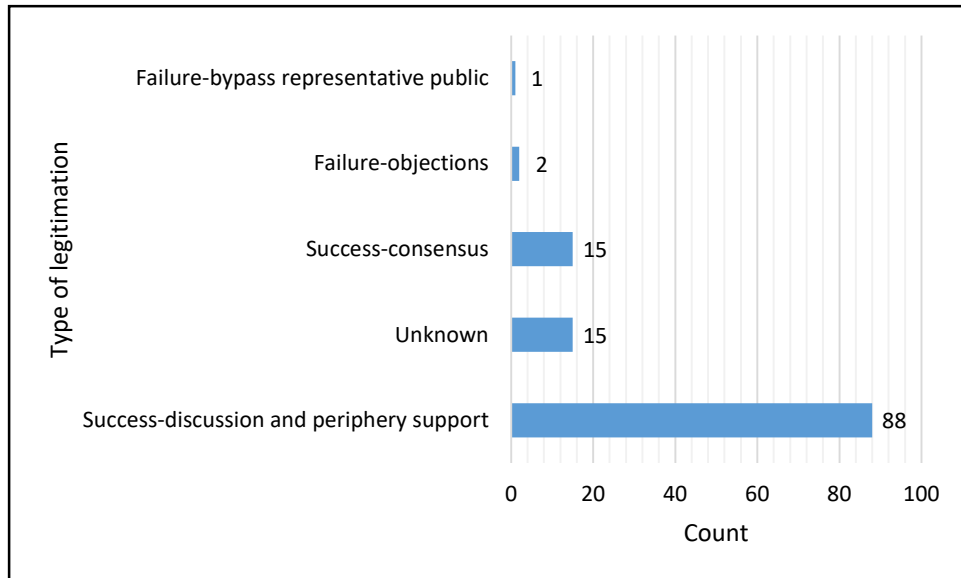
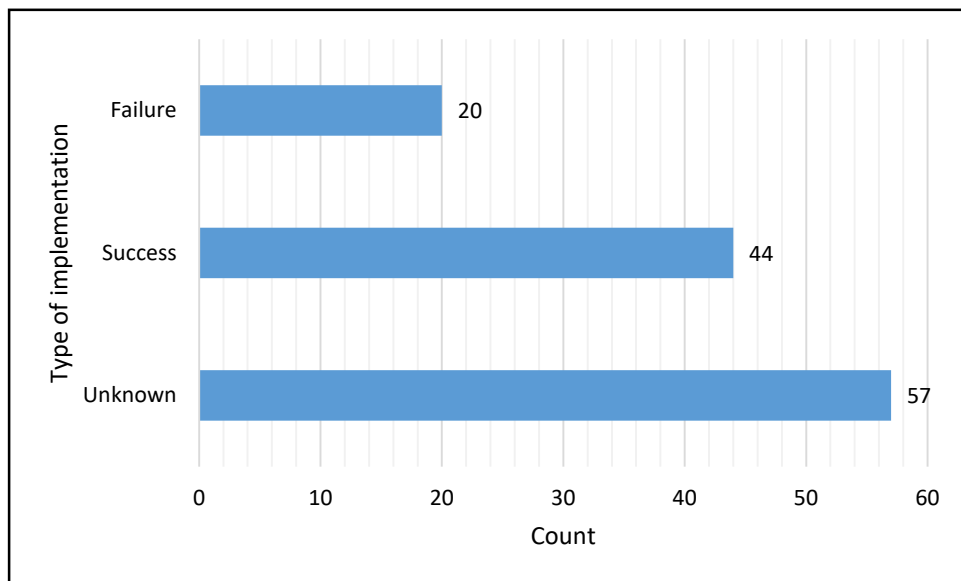


Figure L.12. Actor-audience-power graph for period 1.

***Legitimation and implementation.*** The large majority of communicative events in period 1 were legitimated, either by discussion and periphery support (N=88) or by consensus (N=15). Other communications failed to be legitimated either due to objections (N=2) or because they bypassed a representative public (N=1). For some communications (N=15), the legitimation status could not be determined (see [Figure L.13](#)). In terms of implementation, N=44 events were successful, N=20 events failed, and N=57 events were undetermined (see [Figure L.14](#)).

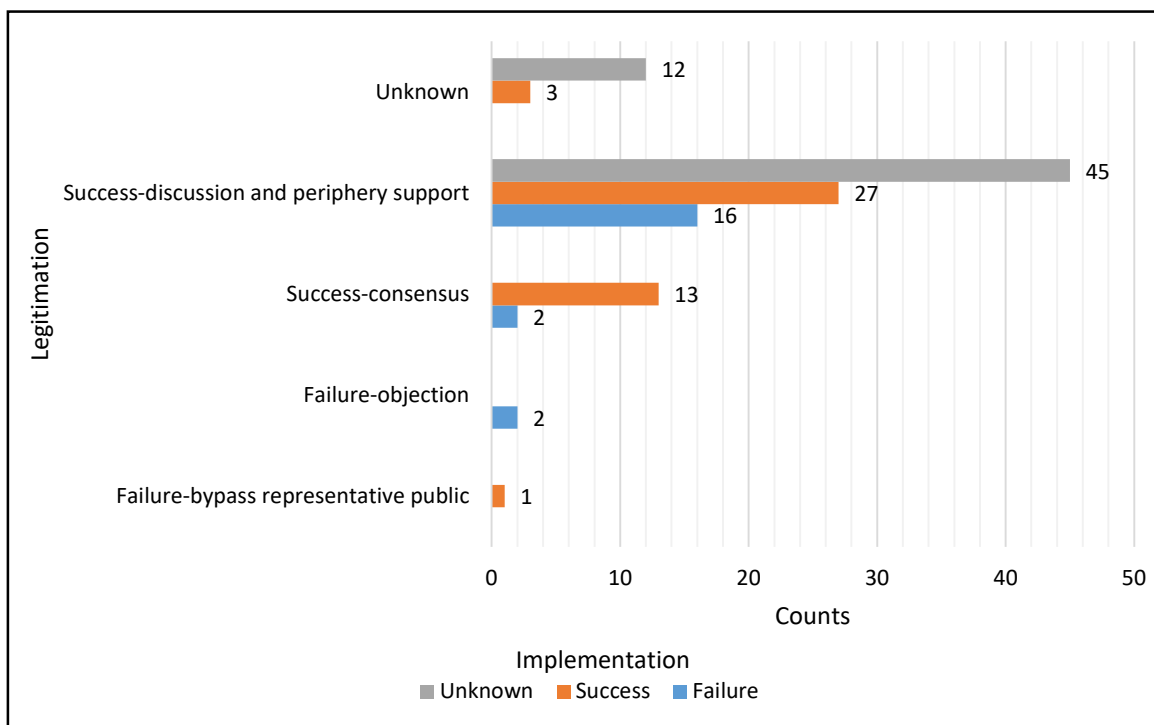


**Figure L.13. Legitimation counts in period 1.**



**Figure L.14. Implementation counts in period 1.**

[Figure L.15](#) shows that of the N=88 communicative events that were successfully legitimated through discussion or periphery support, N=27 transmissions were successfully implemented, N=16 failed to be implemented, and the implementation of N=45 transmissions could not be determined. Of the N=15 events where consensus was reached, N=13 were successfully implemented and N=2 failed. Some events that bypassed a representative public or had unknown legitimation were still successfully implemented, but all transmissions that failed legitimation due to objections also failed implementation.



**Figure L.15. Legitimation and implementation combinations in period 1.**

Legitimation and implementation combinations by year are shown in [Figure L.16](#). Successes in legitimation and implementation are relatively constant from the beginning of period 1 with some implementation failures interspersed. Implementation failures become more pronounced in the later years of period 1, from 1938 to 1940. These years correspond to the chronology developed in [Appendix F](#) where the Mayor and County Commissioners failed to implement issues despite their legitimation in the public sphere.

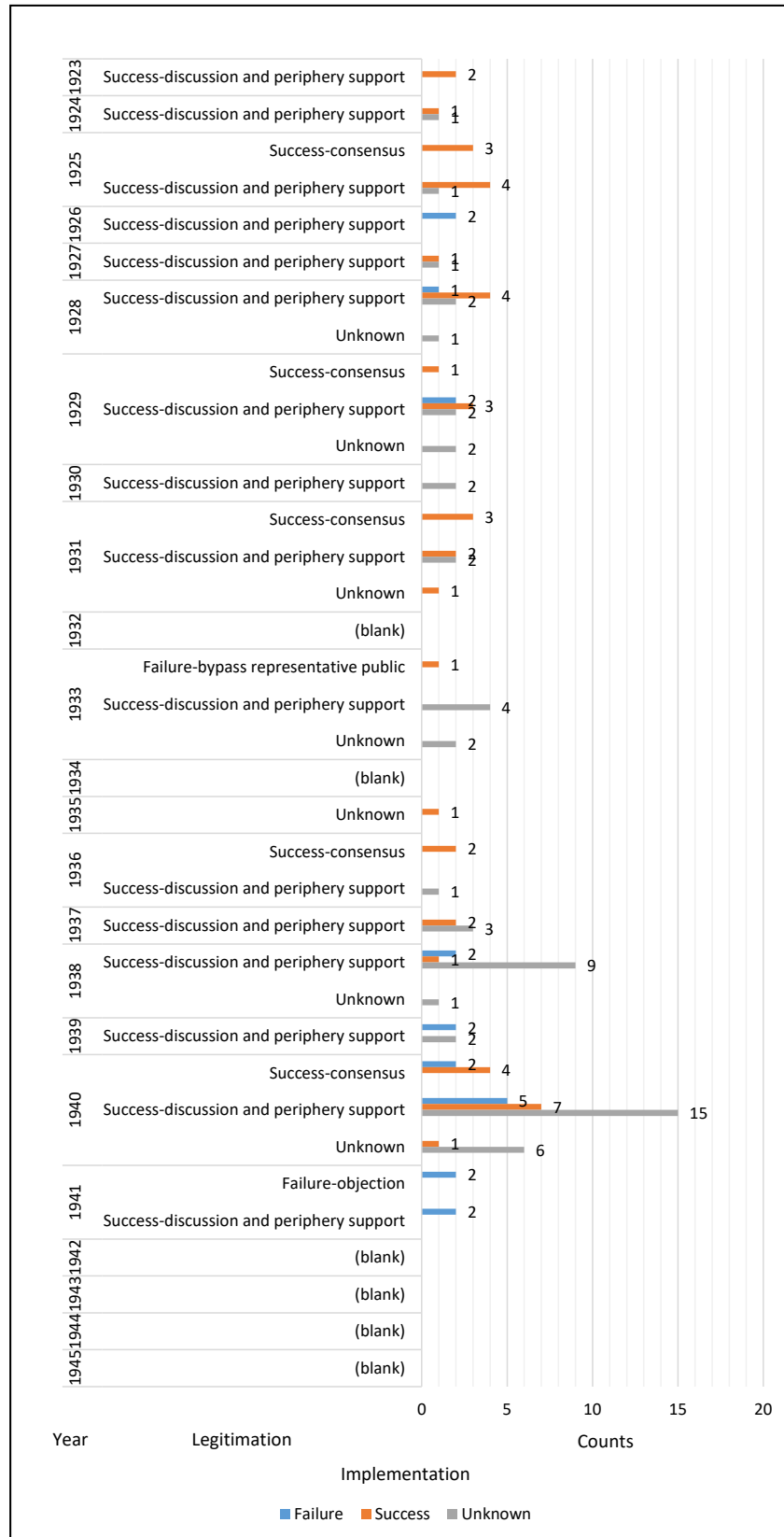
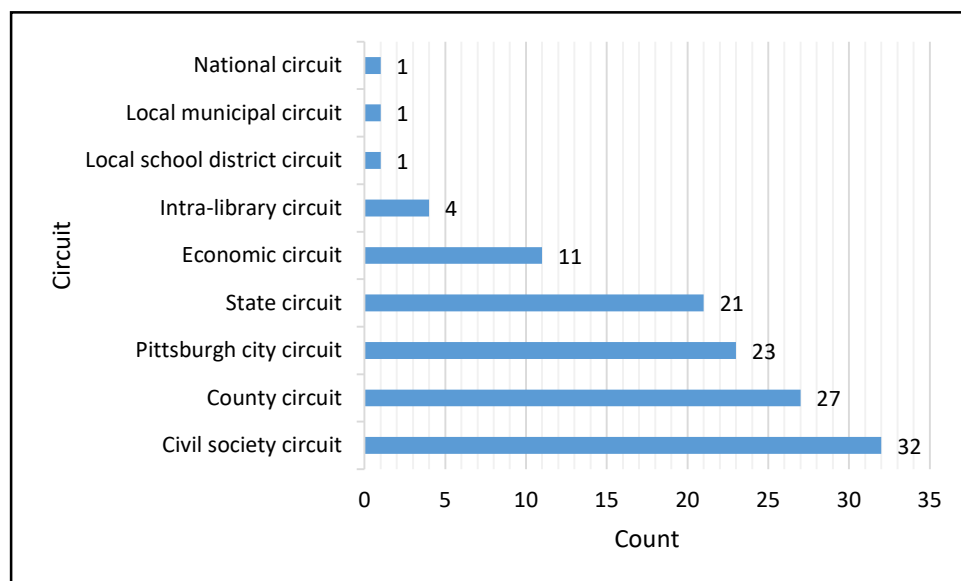
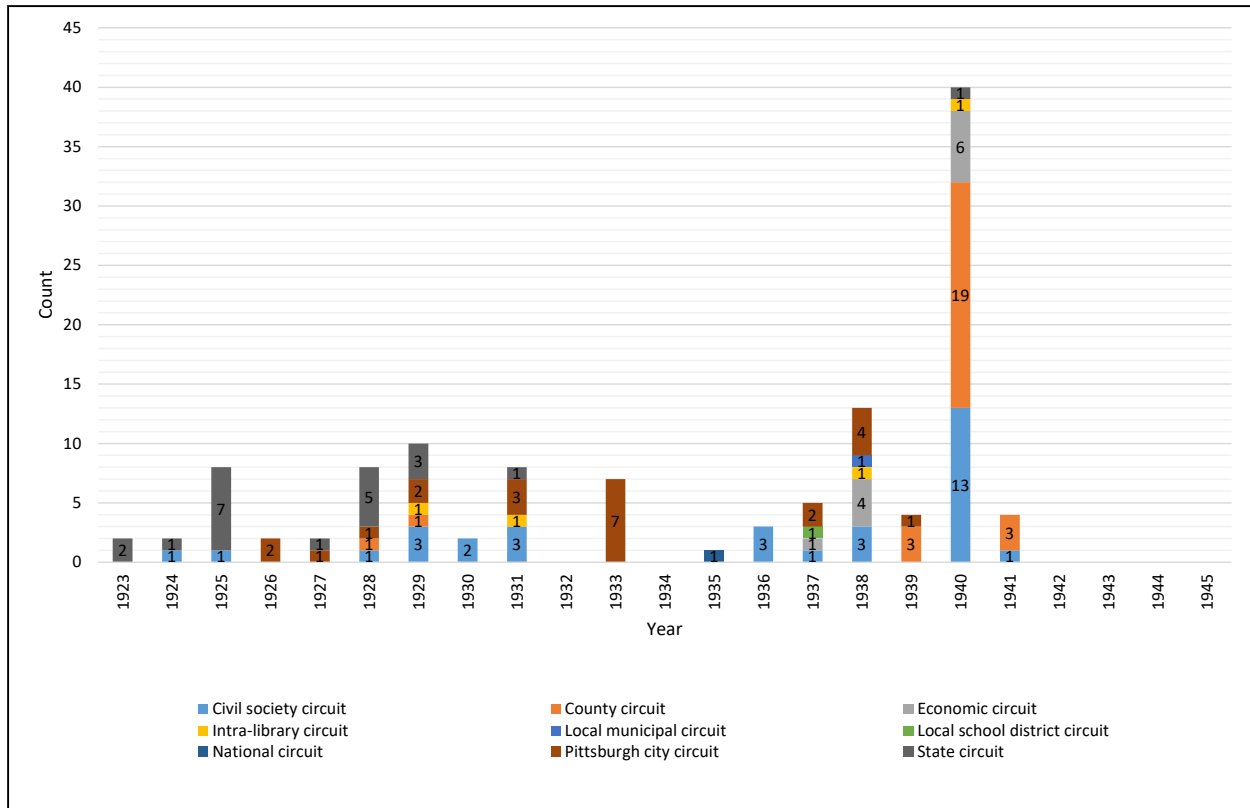


Figure L.16. Legitimation and implementation combinations by year in period 1.

**Circuits.** [Figure L.17](#) shows the active circuits in period 1: civil society (N=32), county (N=27), Pittsburgh city (N=23), state (N=21), economic (N=11), intra-library (N=4), local school district (N=1), local municipal (N=1), and national (N=1). As shown in [Figure L.18](#), the city circuit is active leading up to and culminating in 1938 when the library merger is denied. The county circuit is most active in 1940 when civil society groups petition for a unified library system. The civil society circuit is active throughout the years in period 1. The state circuit is active in the beginning years of period 1 when the issue of city-county consolidation is raised and the Metropolitan Plan Commission is formed.



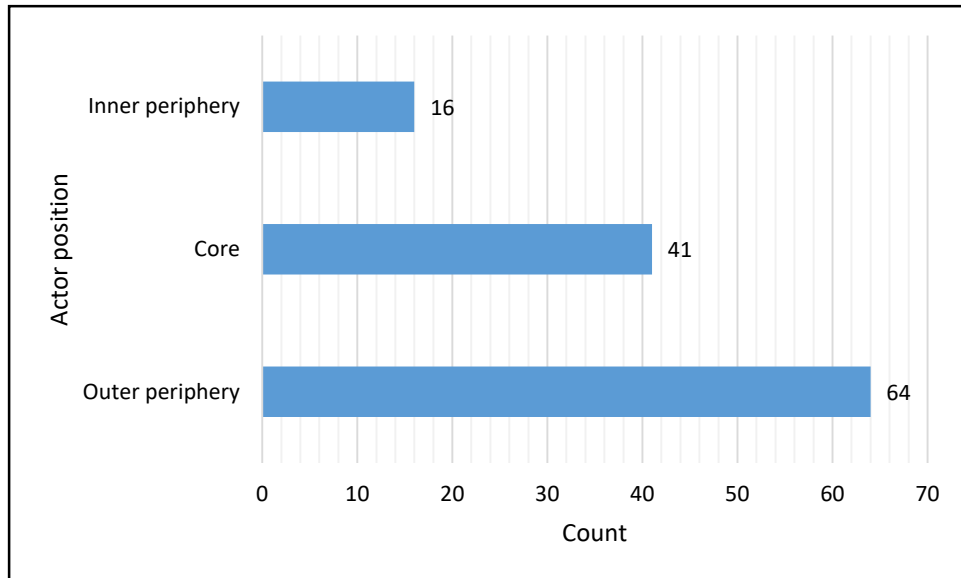
**Figure L.17. Circuits in period 1.**



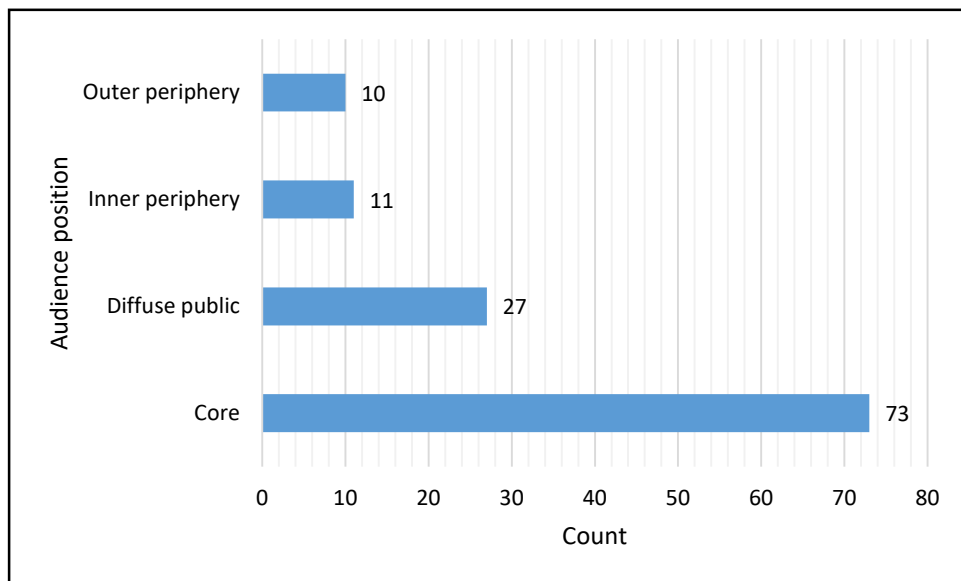
**Figure L.18. Circuits by year in period 1.**

[Figure L.19](#) shows that the outer periphery is the most active actor position in period 1, followed by the core and inner periphery. [Figure L.20](#) shows that the most active audience position in period 1 is core, then diffuse public, then inner periphery, then outer periphery. [Figure L.21](#) displays the actor position, audience position, and circuit combinations by year in period 1. Transmissions in the Pittsburgh city circuit typically travel from outer periphery to core. Transmission in the civil society circuit travel a variety of pathways. The state and county circuits also exhibit a variety of transmission pathways.





**Figure L.19. Actor positions in period 1.**



**Figure L.20. Audience positions in period 1.**

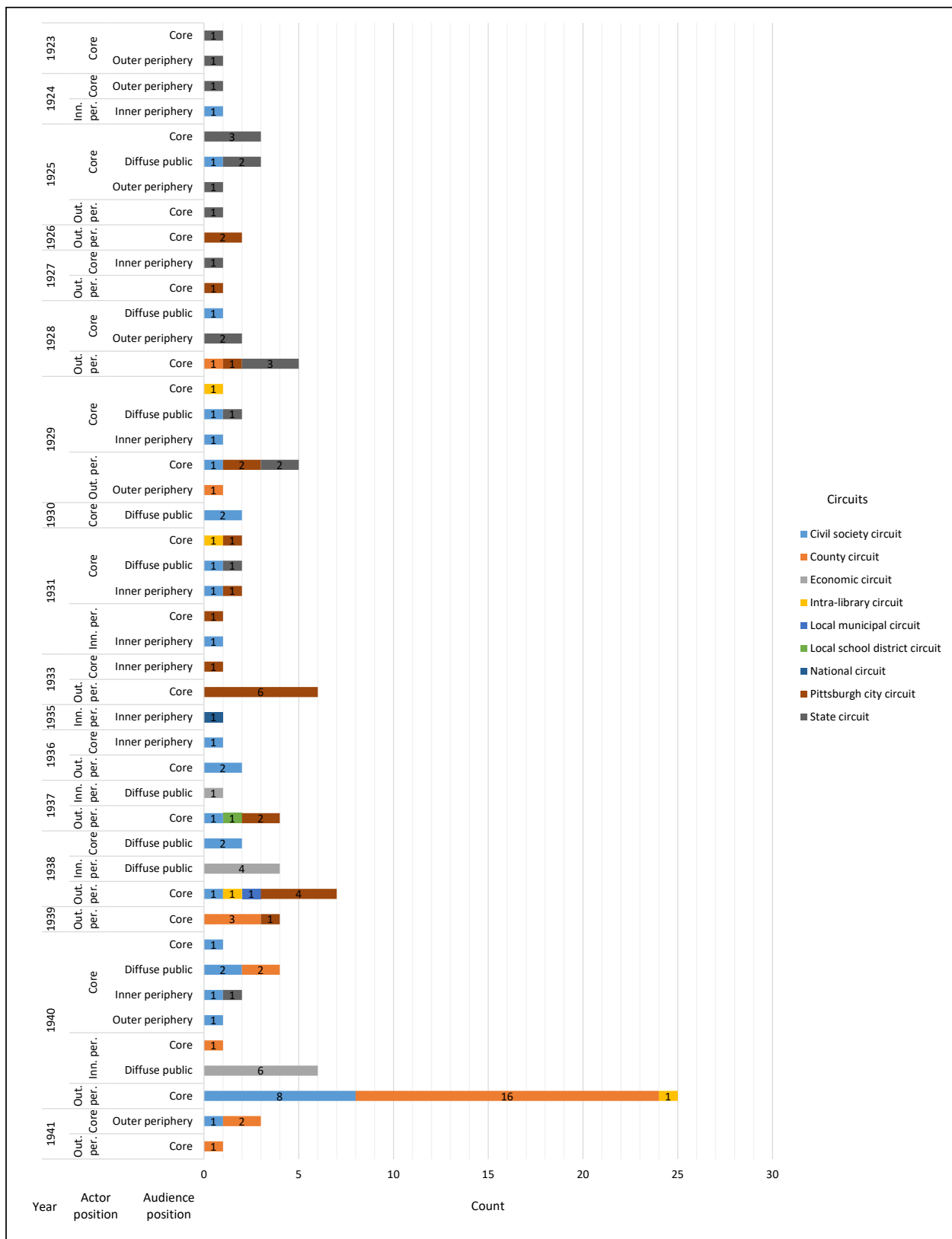


Figure L.21. Actor positions, audience positions, and circuits by year in period 1.

[Figure L.22](#) shows a tessellation, a graphical representation of the circuits, actors/audiences, and positions in period 1. The red nodes represent circuits, the gray nodes are actors and audiences, and the edges are circuit positions. Actor/audience nodes connected to circuit nodes via edges mean that those actor/audiences occupied one or more positions in that circuit during period 1. The clockwise curvature of the edges indicates whether a gray node occupied a position as an actor or as an audience in the circuit. Edges flow clockwise: an edge flowing toward the red circuit node from a gray node means that the gray node is an actor, and edges flowing away from the red circuit nodes mean that the connecting gray node is an audience. In the figure, the size of a node indicates the total number of transmissions flowing to or from that node. There are several prominent circuits that are visible: civil society, county, state, and Pittsburgh city. As indicated by the edges connecting these circuits to actors and audience nodes, many different actors and audiences occupy the positions in the circuits.

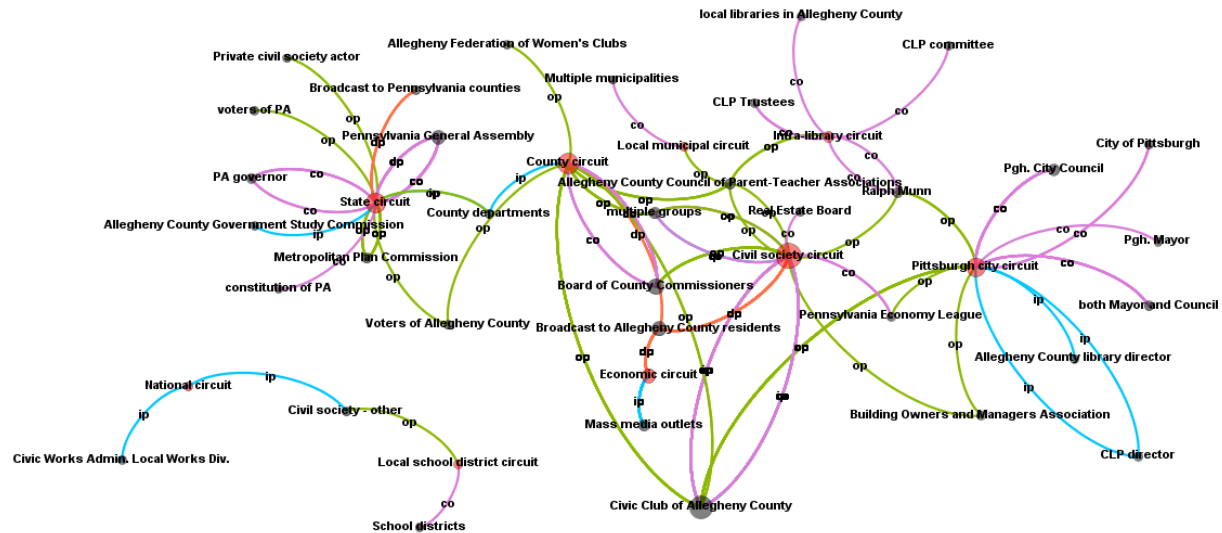
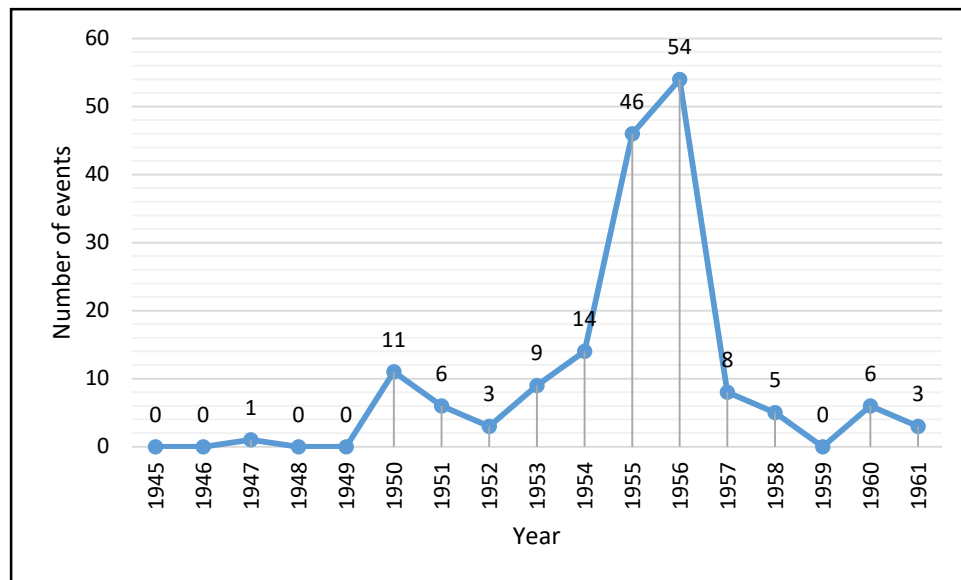


Figure L.22. Actor-circuit graph for period 1.

## PERIOD 2: 1945–1961

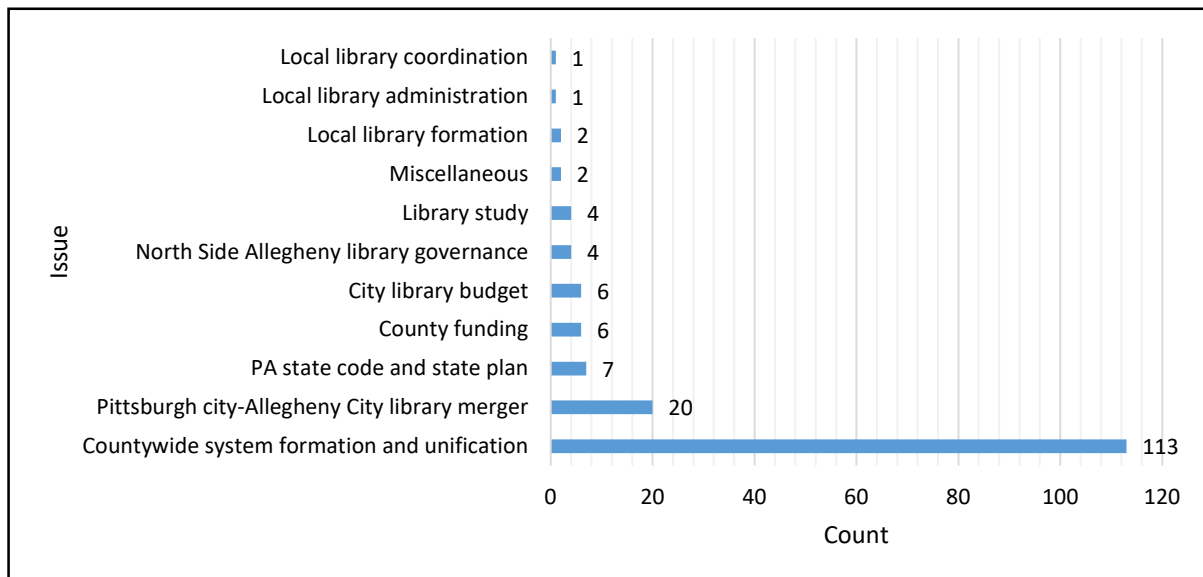
**Events.** A total of N=166 communicative events were identified in period 2. The period began with few events as the Second World War waned. There were three spikes in activity during the period (see [Figure L.23](#)). The first spike corresponded to an Allegheny County library survey sponsored by the Allegheny Conference on Community Development in 1950 and the Metropolitan Study Commission in 1951. Both included efforts to restructure Pittsburgh libraries into an integrated, countywide unit. The next spike from 1953 to 1958 corresponded to a combination of several major initiatives and changes. In terms of initiatives, there was the publication of a Home Rule Charter and the Munn Plan by the Metropolitan Study Commission in 1955, and there were efforts by the Library Planning Committee and other civil society groups to extend library services outside the city through funding by the County Commissioners. These

initiatives led in part to several major changes in 1956: the merger of the old Allegheny library with the city's Carnegie Library system; the establishment of the Carnegie Library of Pittsburgh as the county library; and the passing of the Library Services Act at the federal level. [Figure L.23](#) shows in a quantitative way that 1956 was a major year in terms of communicative events. The third spike occurred toward the end of period 2, in 1960 and 1961, as county civil society groups continued to advocate for an expansion of services, and as the Martin plan was discussed and ratified at the state level. These findings confirm the major events that were identified in the description and chronology in section [4.1.2](#).

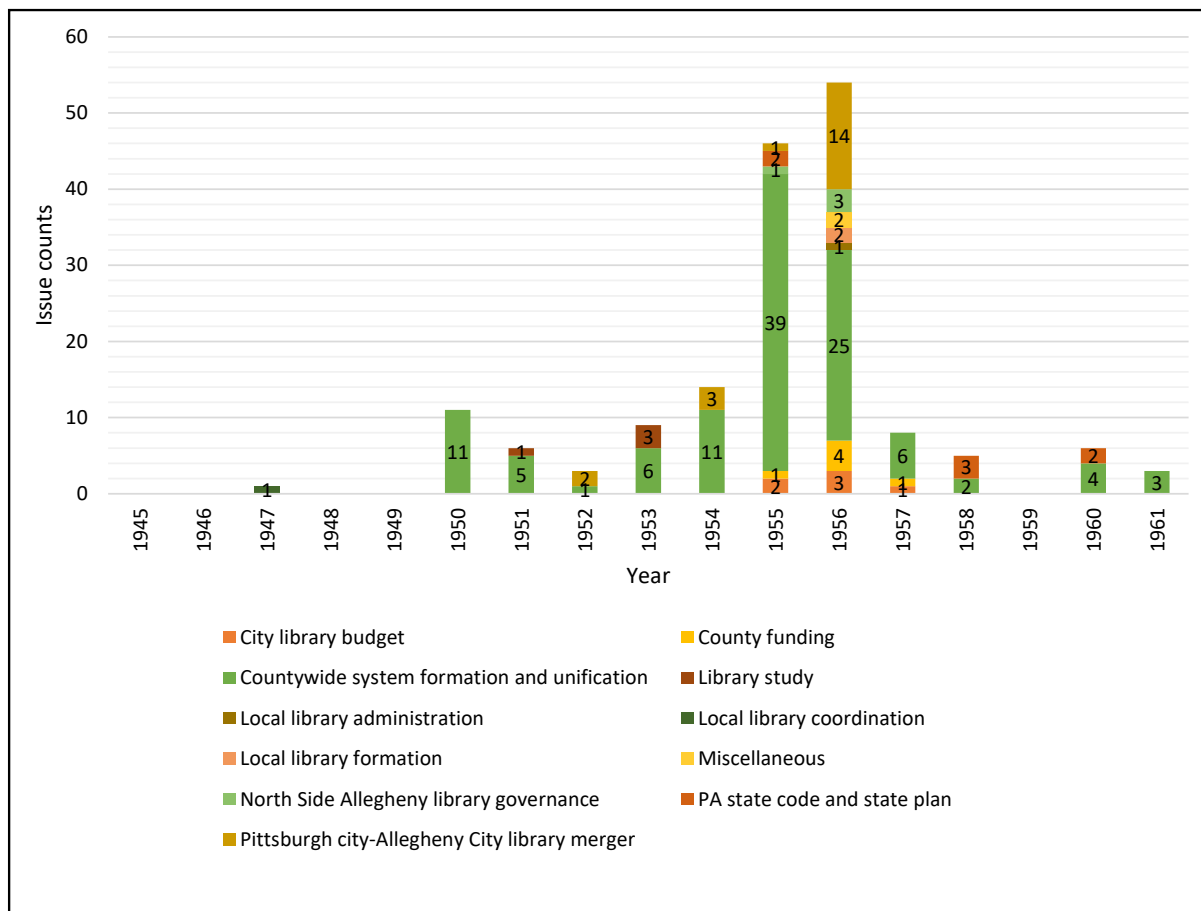


**Figure L.23. Number of communicative events per year in period 2.**

**Issues.** By far the most prevalent issue in period 2 was countywide system formation and unification with N=113 events (see [Figure L.24](#)). This issue was followed by Pittsburgh city-Allegheny city library merger (N=20), the PA state code and state plan (N=7), county funding (N=6), and the city library budget (N=6). In 11 out of the 12 years of period 2 where communicative events were identified, countywide system formation and unification was a significant issue (see [Figure L.25](#)). It was a significant issue in all three spikes in activity in period 2. The issue of the Pittsburgh city-Allegheny city library merger was also a prominent issue in the second spike 1956 (N=14), and the issue of the Pennsylvania state code and state plan contributed to the third spike in activity in 1960 (N=2).



**Figure L.24. Issue counts in period 2.**

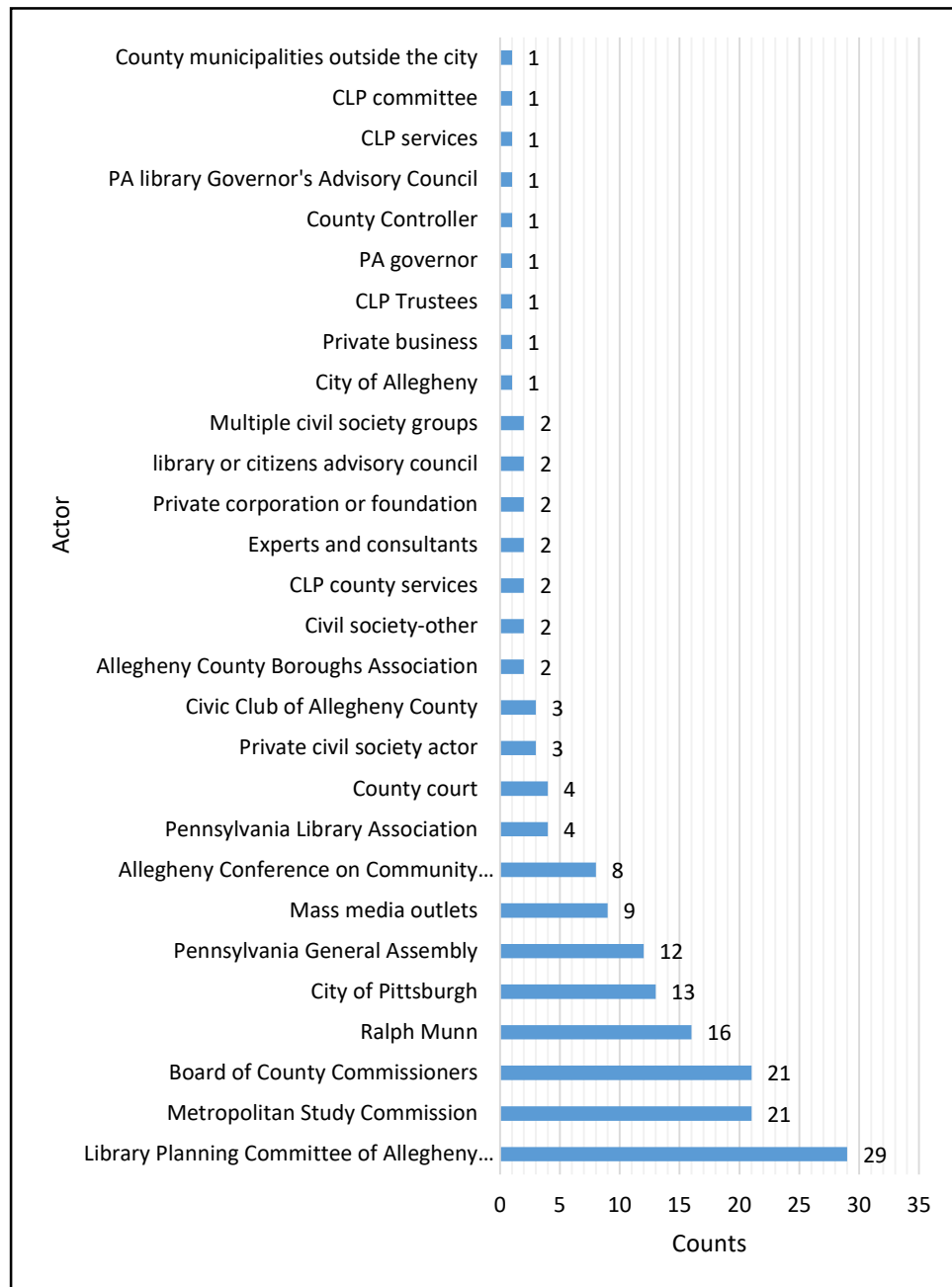


**Figure L.25. Issue counts by year in period 2.**

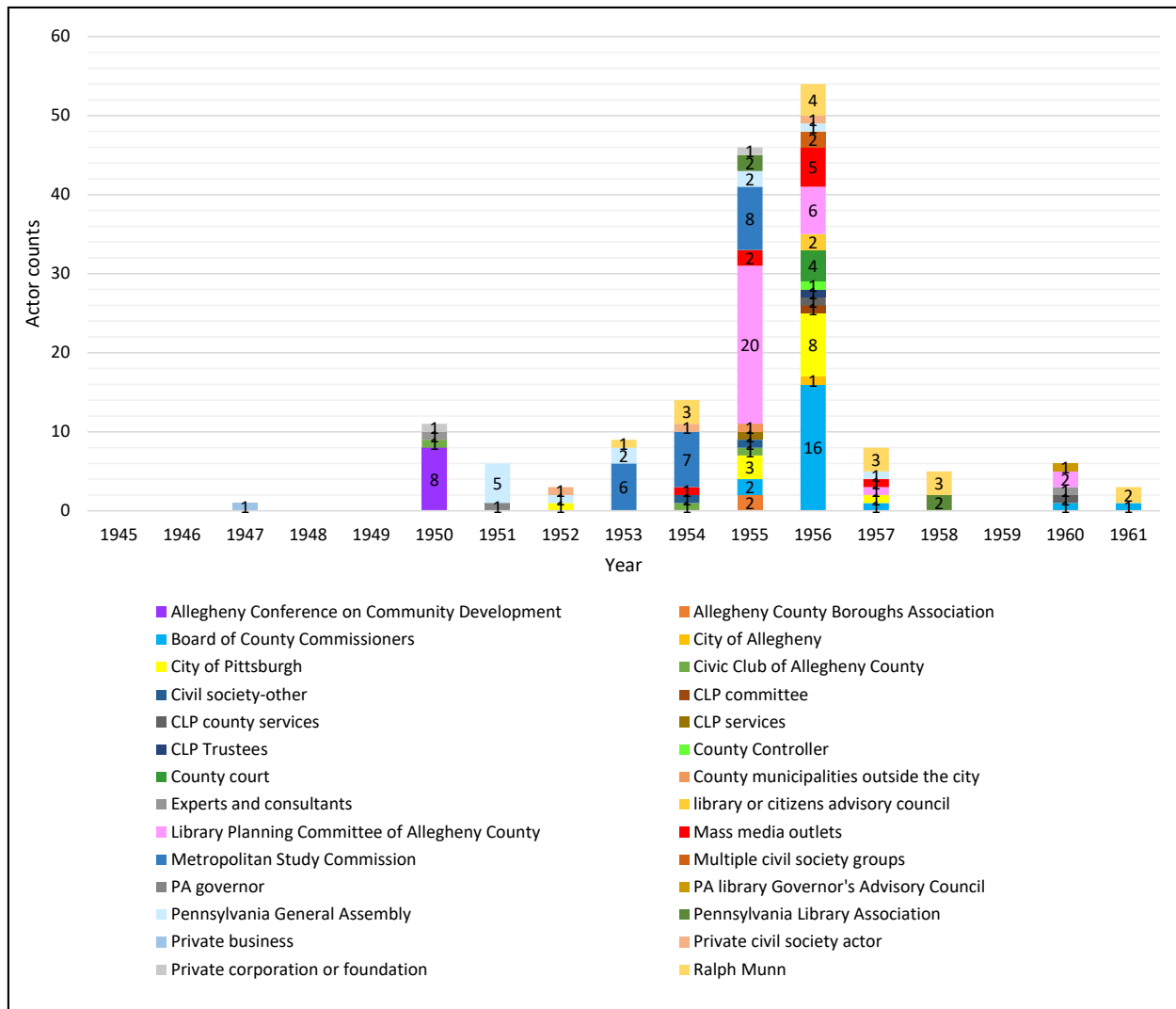
*Actors and audiences.* The most prominent actors in period 2 were the Library Planning Committee of Allegheny county (N=29), Metropolitan Study Commission (N=21), Board of County Commissioners (N=21), Ralph Munn (N=16), the City of Pittsburgh (N=13), and Pennsylvania General Assembly (N=12). A number of other county, civil society, and library actors were also active in period 2 (see [Figure L.26](#)). [Figure L.27](#) shows the activity of actors for each year in period 2. These findings can be interpreted together with the issues identified in [Figure L.25](#) and the description and chronology of period 2 laid out in section [4.1.2](#).

In 1950, the first peak of activity, Allegheny Conference on Community Development was the most prominent actor (N=8). It mobilized around the issue of countywide system formation and unification, and it prompted the General Assembly to implement a study commission. The following year, the Pennsylvania General Assembly was the most prominent actor (N=5). It formed the Metropolitan Study Commission. The years of 1953, 1954, and 1955 show a gradual build-up of activity by the Metropolitan Study Commission with N=6, N=7, and N=8 events, respectively. The Commission advocated for the issue of countywide system formation and unification. The years 1955 and 1956 were the second peak in activity when the Library Planning Committee of Allegheny County began to transmit impulses about countywide system formation and unification. In 1956, the County Commissioners (N=16) and the City of Pittsburgh (N=8) were prominent actors because they made formal decisions about countywide service extension and the merger of city libraries. In 1960, a constellation of several actors at both the county and state level advocated for a change in system structure. Pennsylvania libraries would welcome the Martin Plan in 1961, a plan that created library districts and established state funding and oversight. While the passing of the Martin Plan does not fall within period 2, formative events for the plan's implementation occur in period 2.



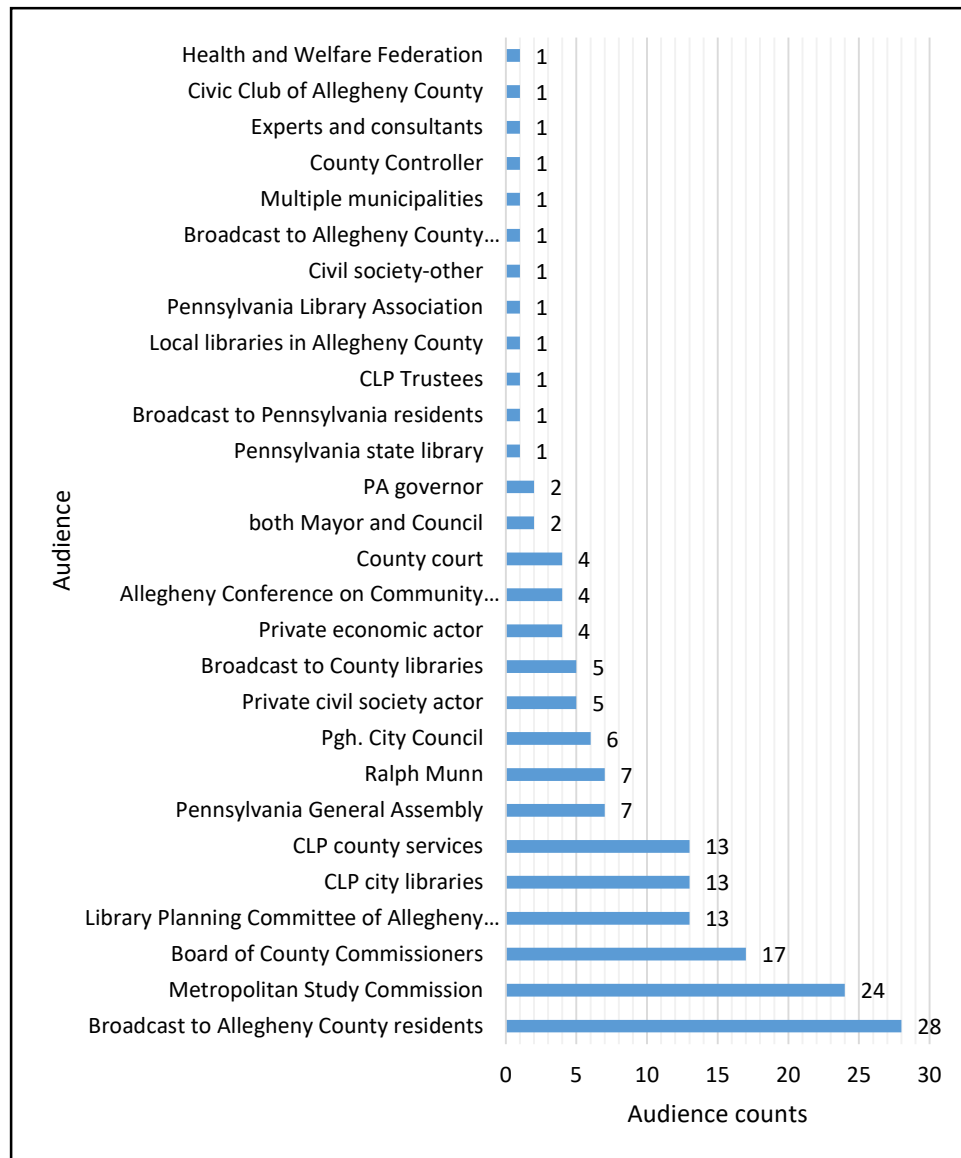


**Figure L.26. Actor counts during period 2.**



**Figure L.27. Actor counts by year in period 2.**

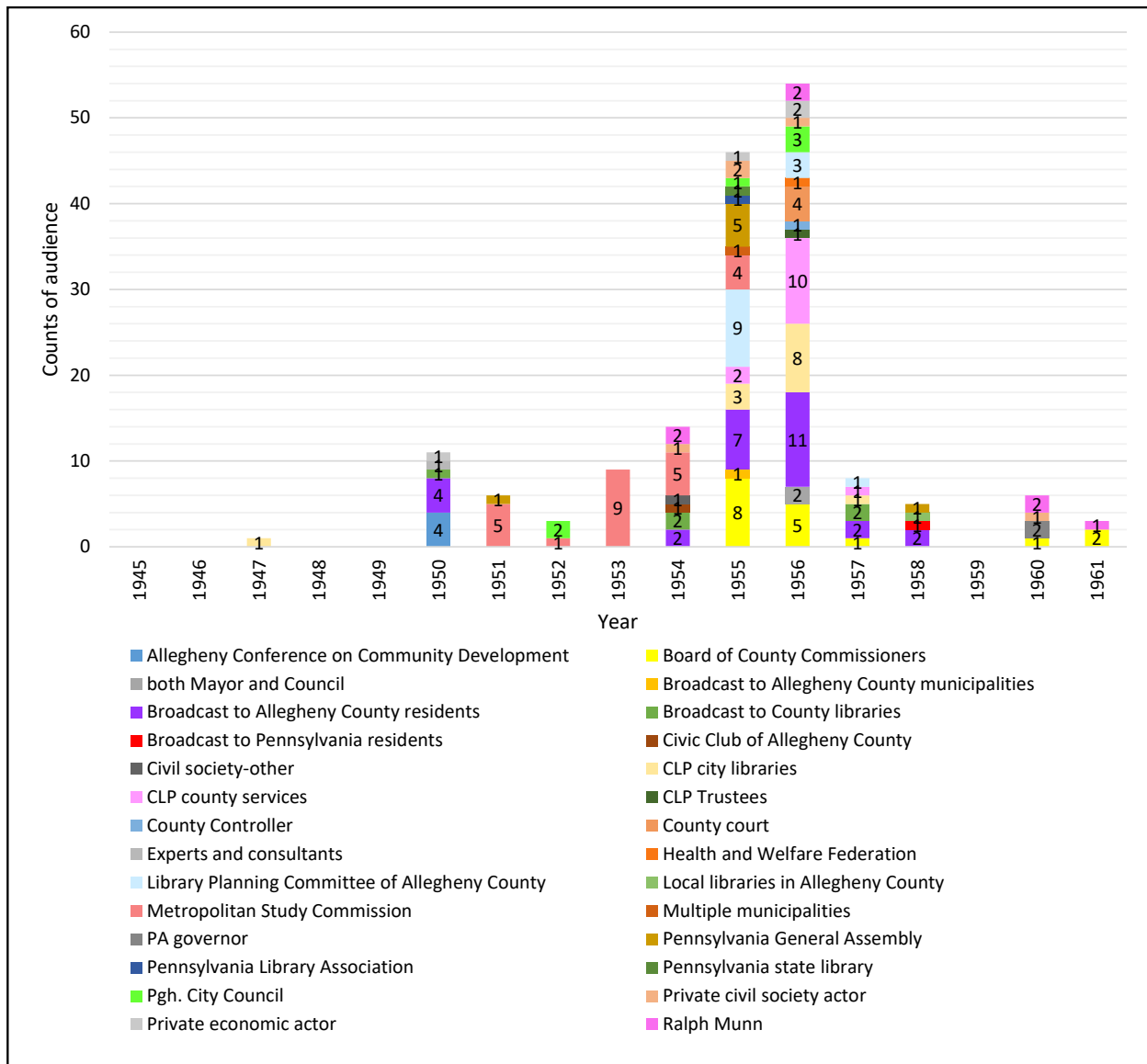
[Figure L.28](#) shows the audiences in period 2. The most prominent audience throughout period 2 was broadcasts to Allegheny county residents (N=28), followed by Metropolitan Study Commission (N=24), Board of County Commissioners (N=17), Library Planning Committee of Allegheny County (N=13), CLP city libraries (N=13), and CLP county services (N=13).



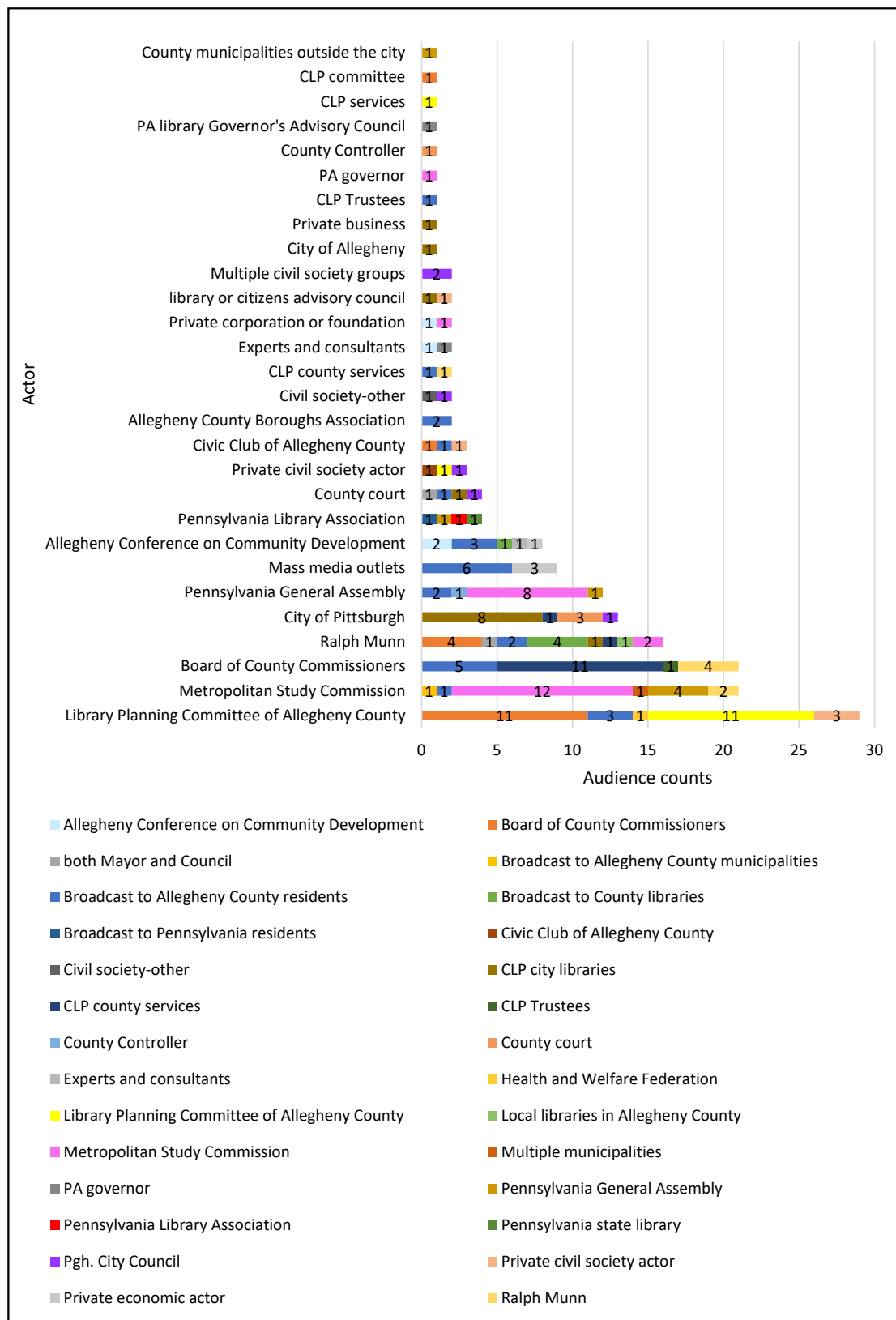
**Figure L.28. Audience counts in period 2.**

[Figure L.29](#) shows audiences by year in period 2. The Allegheny Conference on Community Development (N=4) and broadcasts to Allegheny County residents (N=4) were prominent audiences in the first wave of activity in 1950. After it was established in 1951, the Metropolitan Study Commission became a prominent audience in 1951 (N=5), 1952 (N=1), 1953

(N=9), 1954 (N=5), and 1955 (N=4), bridging the first wave of activity in 1950 and the second wave of activity in 1955 and 1956. The Library Planning Committee was a prominent audience in 1955 (N=9), as was the Board of County Commissioners (N=8). These findings are consistent with the theory that the intra-organizational activities of the Library Planning Committee, their targeting of the Board of County Commissioners, together with the findings of the Metropolitan Study Commission and their publication by mass media outlets, caused the decision of the County Commissioners in 1956 to contract with the Carnegie Library of Pittsburgh to extend library services throughout the county. The establishment of a county library was one of the first major system developments in the case. Another key event happened that same year when the City of Pittsburgh approved the annexation of the old Allegheny library by the city's Carnegie system. [Figure L.28](#) shows that City Council, the City of Pittsburgh, and the mayor were only moderately-targeted audiences during period 2. [Figure L.30](#) shows actor-audience combinations, and it indicates that the city audiences were only paired with civil society groups in a minimal way. The volume or amount of communicative events from civil society therefore does not sufficiently explain why in 1956 the city decided to merge the libraries, especially after city audiences were targeted significantly more in period 1 but without success. [Munn \(1970, p. 80\)](#) credits the change to mayor David L. Lawrence in 1946 as a final explanation for the merger in 1956. This explanation seems plausible, and it suggests that not only quantitative activity of the public sphere, but also qualitative characteristics of actors and audiences lead to developments in library infrastructures.



**Figure L.29. Audience counts by year in period 2.**



**Figure L.30. Actor and audience combinations in period 2.**

**Power.** [Figure L.31](#) shows the types of power identified in period 2. Communicative narrowcast (N=56) was the most frequent type of power, followed by formal decision (N=43), communicative broadcast (N=36), administrative narrowcast (N=17), social economic (N=13), and administrative broadcast (N=1). [Figure L.23](#) shows that communicative narrowcast appeared in every year where communicative events were identified, and it contributed in a prominent way to each of the three waves where significant events occurred. Because communicative broadcasts contributed in significant ways to the first and second waves of activity, first in 1950, then from 1954 to 1958, the diffuse public sphere had a leading role in key developments during these times. [Figure L.32](#) also shows in a quantitative way how social economic power was a significant type of power in 1955 and 1956 when service extension and the library merger occurred. These findings suggest that economic power may be a necessary component for, or at least an indication of, infrastructural change. [Figure L.33](#) shows that economic power was transmitted in 4 instances: from private corporations or foundations to the Metropolitan Study Commission (N=1), from private corporations or foundations to the Allegheny Conference on Community Development (N=1), from the City of Pittsburgh to the Carnegie Library of Pittsburgh (N=2), and from the Board of County Commissioners to the Carnegie Library of Pittsburgh (N=9).

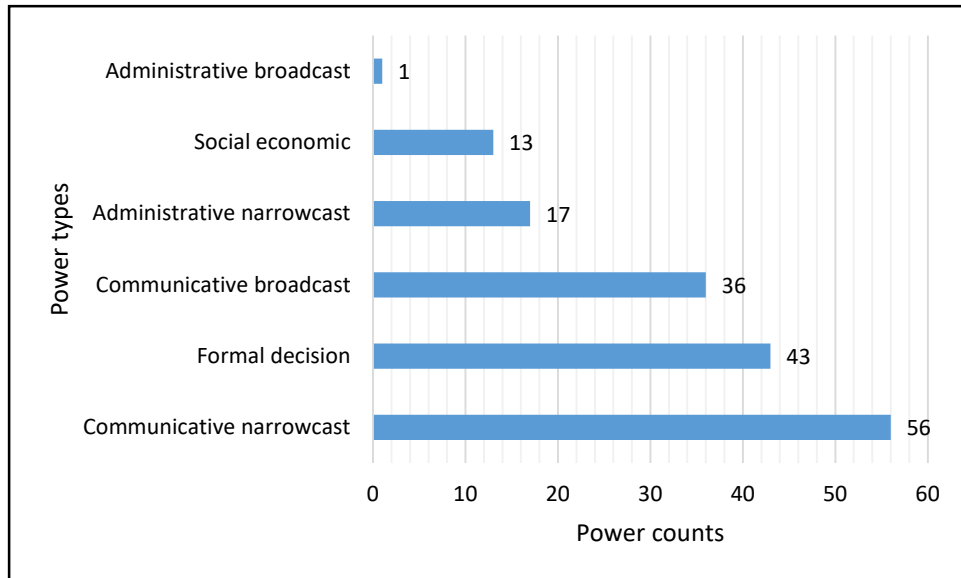


Figure L.31. Power counts for period 2.

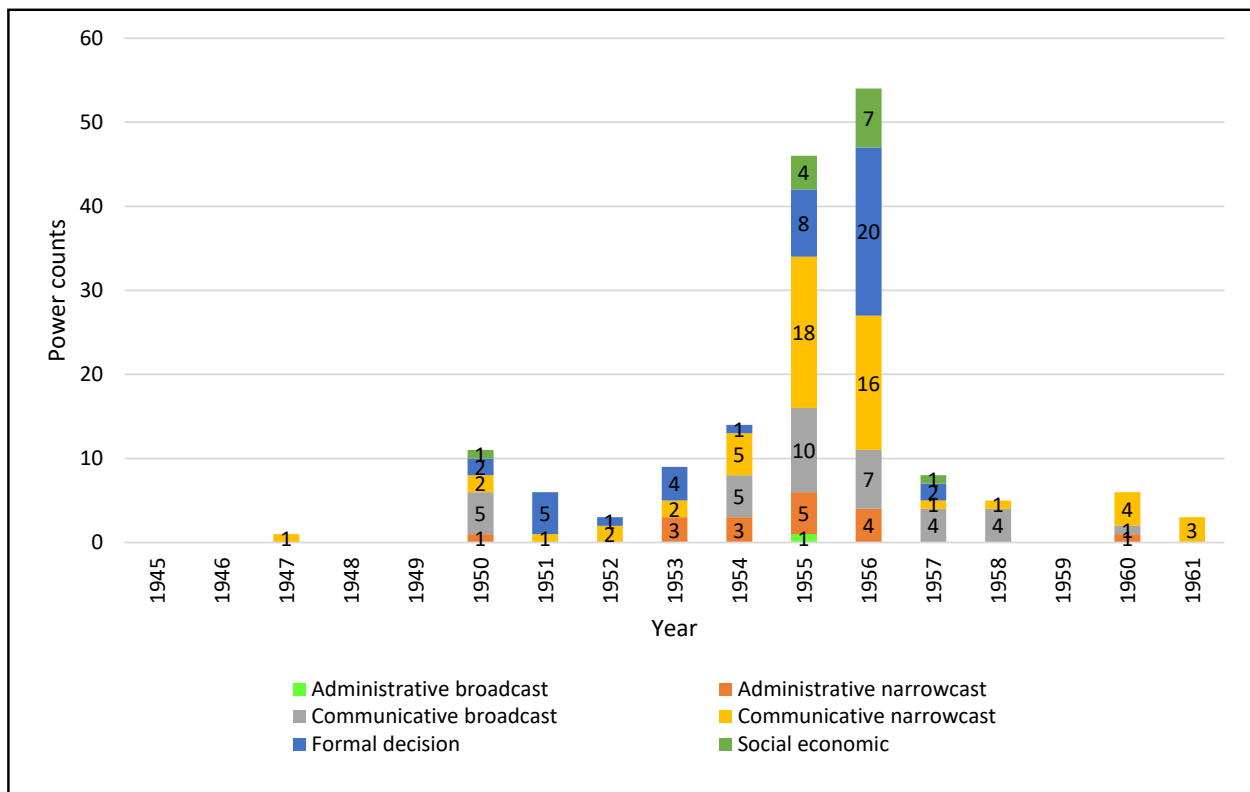


Figure L.32. Power counts by year in period 2.





[Figure L.34](#) shows the actors, audiences, and the types and directions of power relationships they share. The actor/audience nodes with the most connections are Library Planning Committee of Allegheny County, the Board of County Commissioners, the Metropolitan Study Commission, and Ralph Munn. Communicative broadcasts (blue cb edges) are seen to travel to Allegheny County residents from a variety of government, library, civil society, and economic actors. Formal decisions (light green fd edges) emanate primarily from government actors such as the county court, Pennsylvania General Assembly, and Board of County Commissioners.

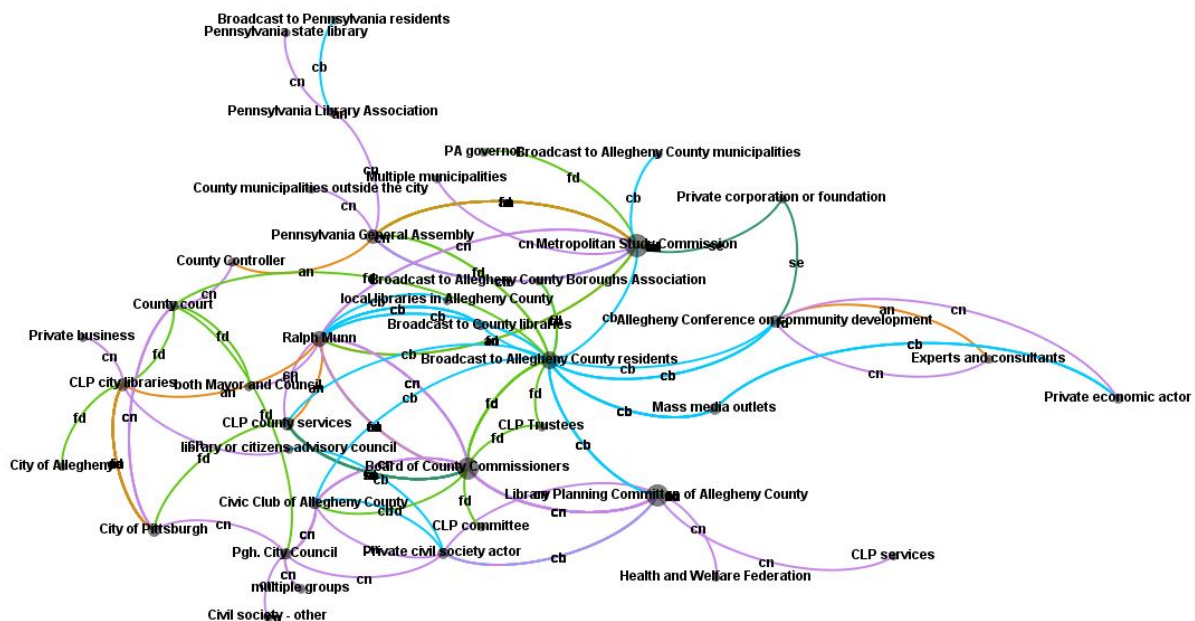
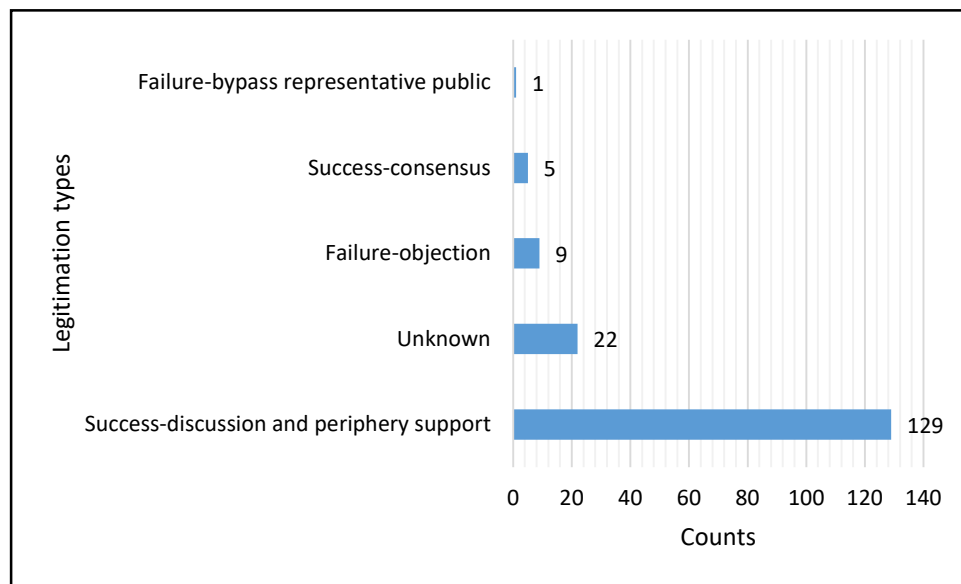


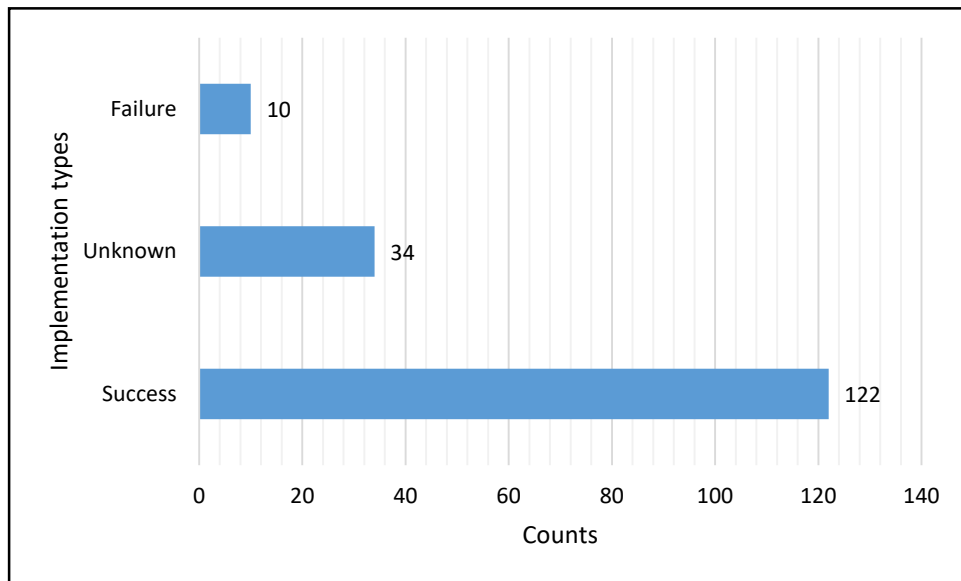
Figure L.34. Actor-Audience-Power graph for period 2.

***Legitimation and implementation.*** [Figure L.35](#) shows that the large majority of communicative events were legitimated, either by discussion and periphery support (N=129) or by consensus (N=5). Some transmissions were unknown (N=22), and some failed due to objections (N=9) or because they bypassed a representative public (N=1).

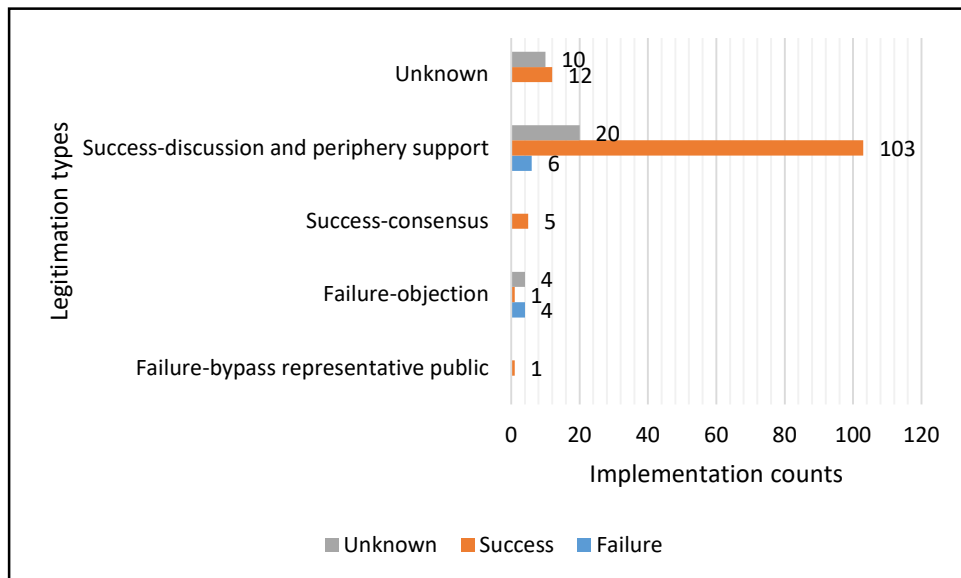


**Figure L.35. Legitimation counts in period 2.**

[Figure L.36](#) shows that N=122 transmissions were implemented successfully, N=34 had unknown implementation, and N=10 failed to be implemented. Most of the transmissions in period 2 that were successfully legitimated were also successfully implemented (see [Figure L.37](#)). [Figure L.38](#) shows that the 3 waves of activity in period 2 also had noticeably-high rates of successful legitimation and implementation.



**Figure L.36. Implementation counts in period 2.**



**Figure L.37. Legitimation and implementation combinations in period 2.**



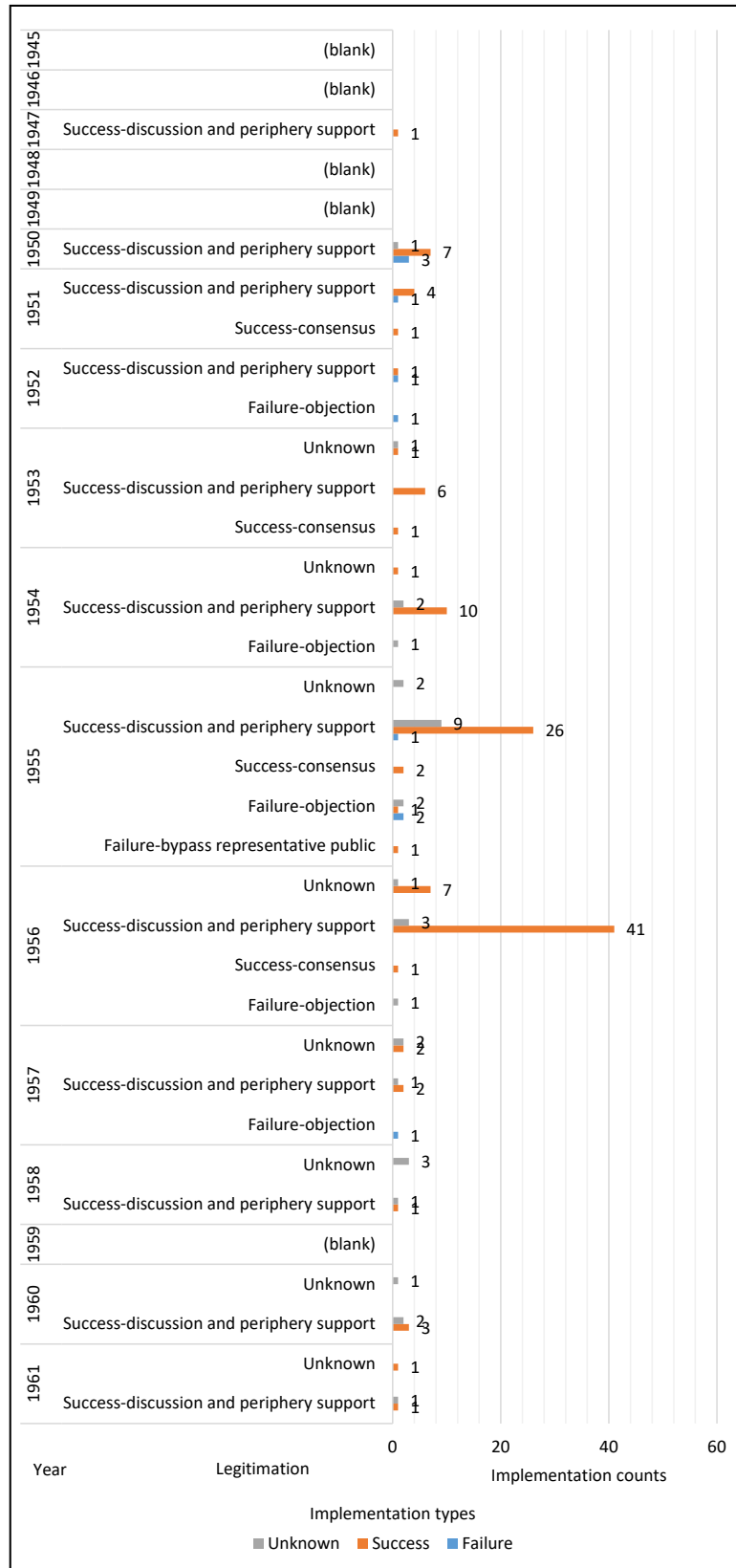
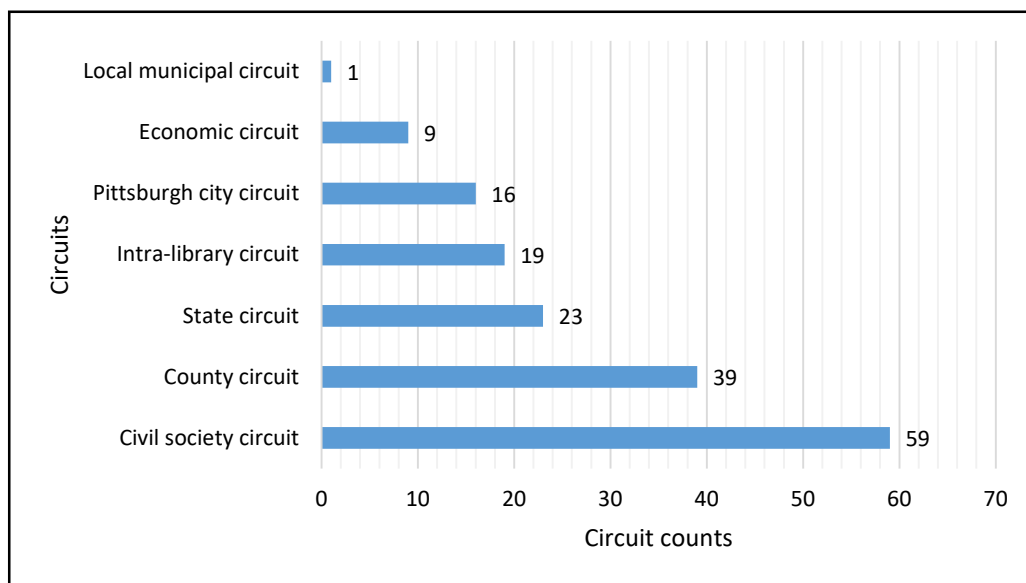
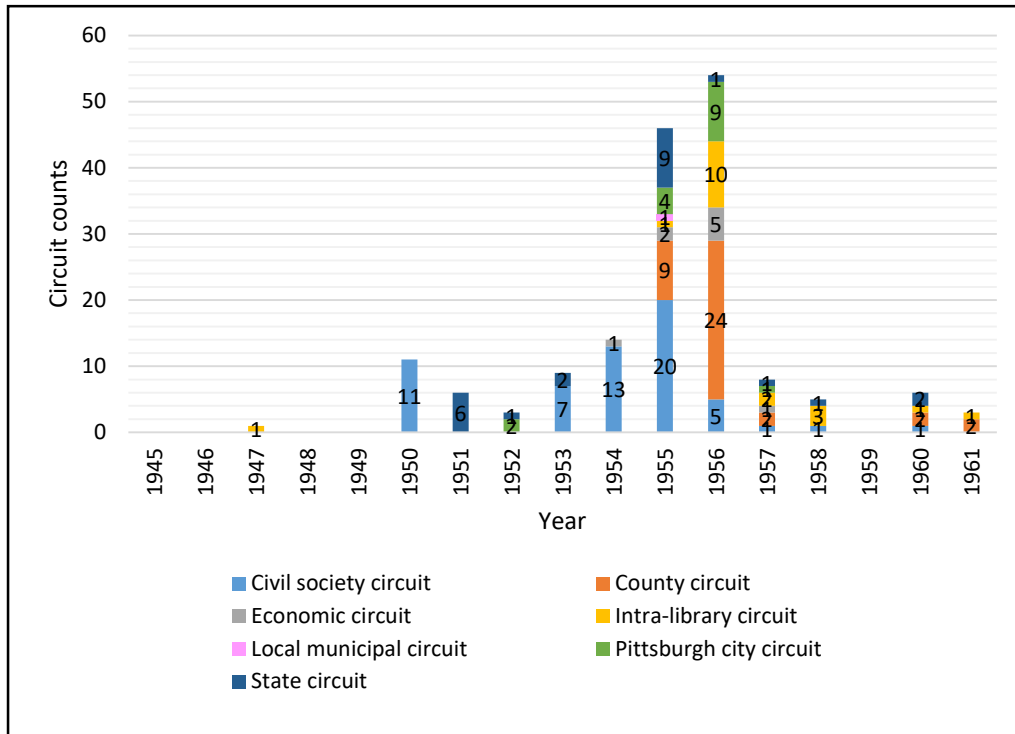


Figure L.38. Legitimation and implementation combinations by year in period 2.

**Circuits.** [Figure L.39](#) shows the most prominent circuit in period 2 was civil society (N=59), followed by county (N=39), and state (N=23). These findings are consistent with the interpretation that civil society groups effectively mobilized and targeted the county to extend library services. [Figure L.40](#) suggests a build-up of civil society activity from 1950 to 1955, at which point civil society actors formed a coalesced public in the outer periphery of the county circuit. [Figure L.39](#) shows that other circuits in period 2 were intra-library (N=19), Pittsburgh city (N=16), economic (N=9), and local municipal (N=1).



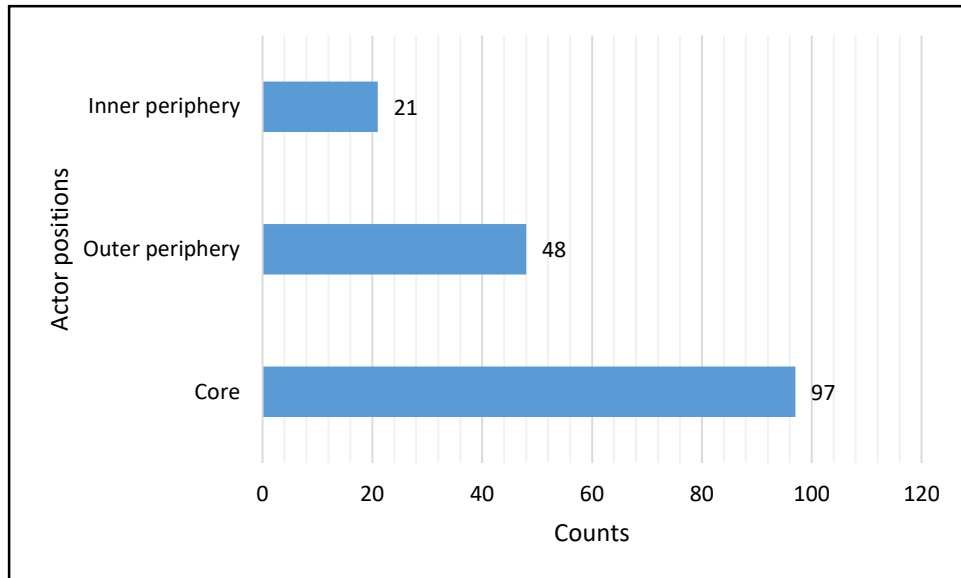
**Figure L.39. Circuit counts in period 2.**



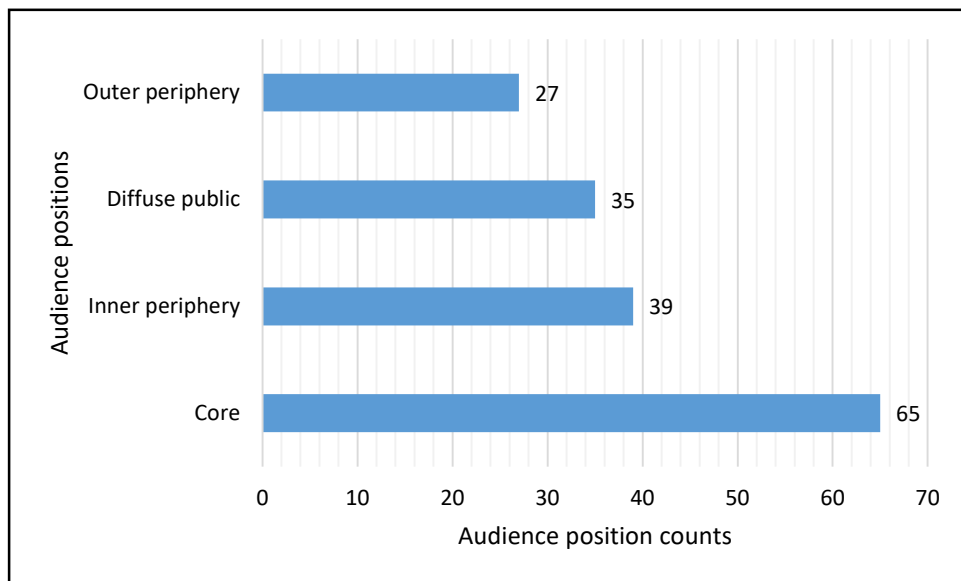
**Figure L.40. Circuit counts by year in period 2.**

[Figure L.41](#) and [Figure L.42](#) show the actor and audience positions in period 2. [Figure L.43](#) shows the positions and circuits by year. The findings displayed in [Figure L.43](#) confirm an extended mobilization of the civil society circuit at the start of period 1, followed by a targeting of the core of the state, county, library, and city circuits by their outer peripheries in 1955 and 1956. Then, in 1956, administrative and formal decision power flowed back outward from the cores of these circuits to their inner peripheries in 1956, creating a new infrastructure. [Figure L.44](#) shows an overall picture of the circuits, actor-audiences, and positions in period 2.





**Figure L.41. Actor position counts in period 2.**



**Figure L.42. Audience position counts in period 2.**

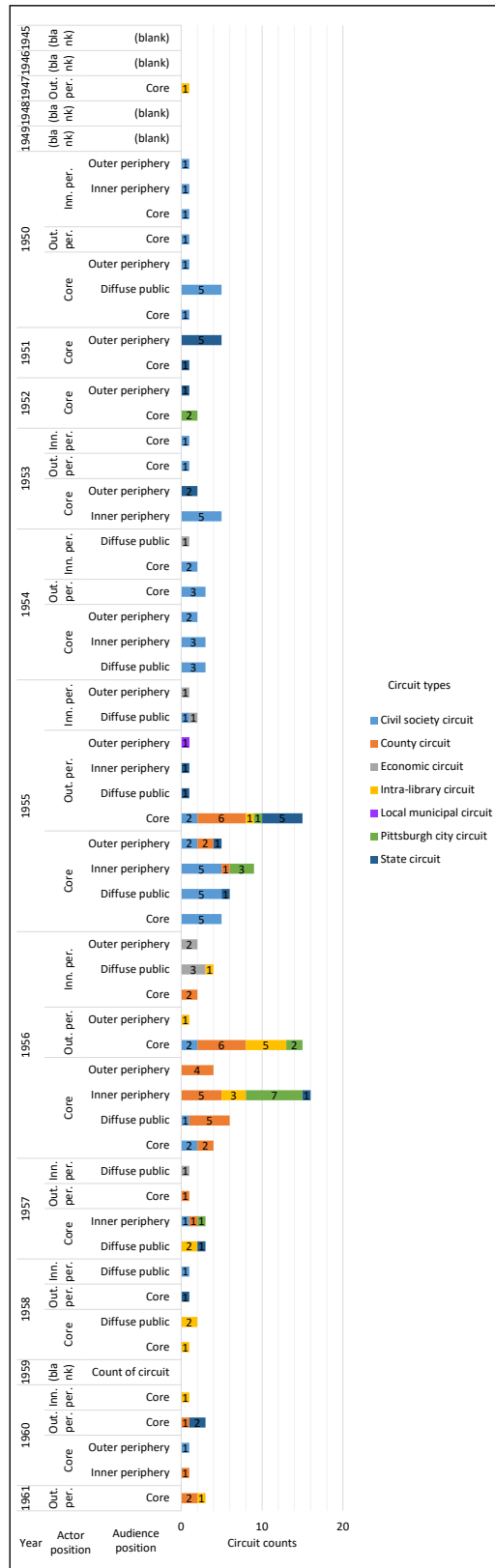
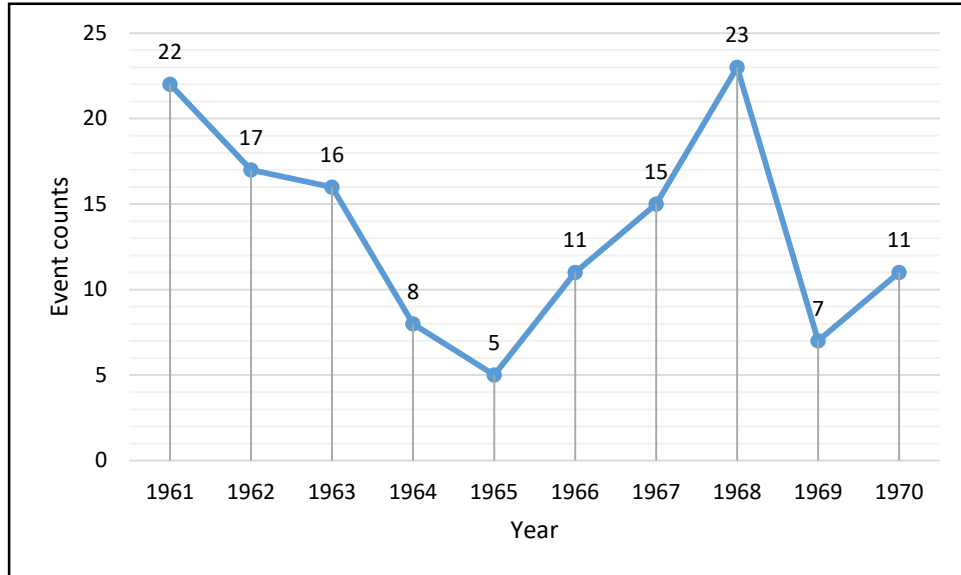


Figure L.43. Actor positions, audience positions, and circuits by year in period 2.

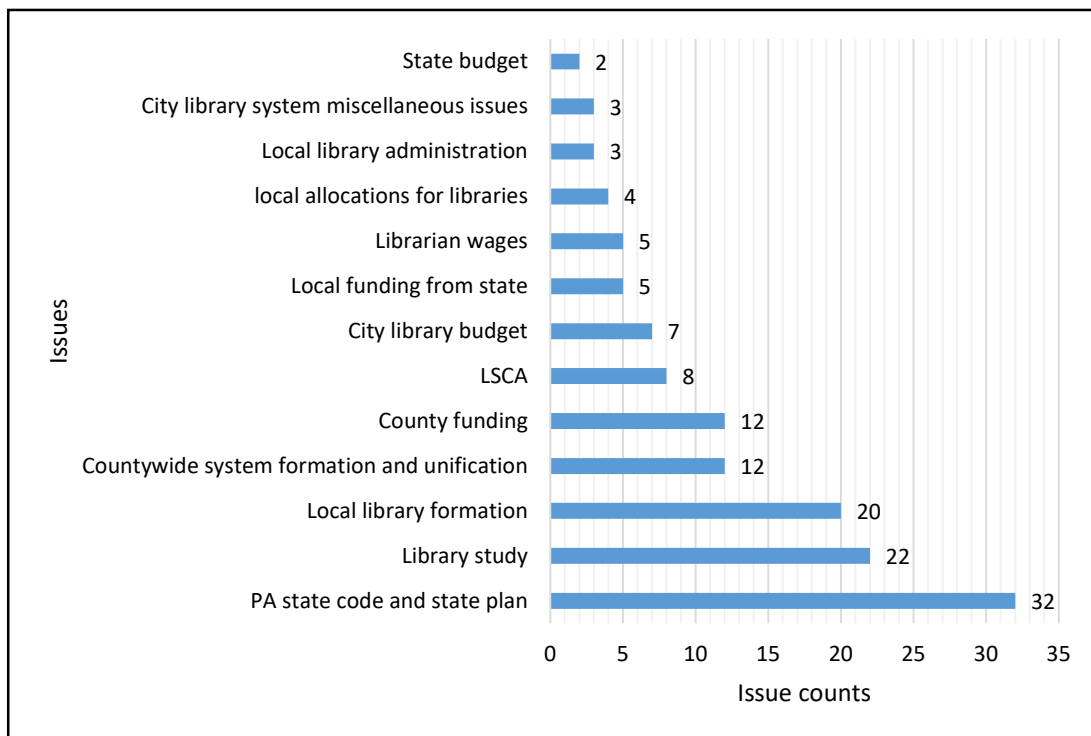




**Figure L.45. Communicative events by year in period 3.**

*Issues.* [Figure L.46](#) shows the issues raised in period 3. The most-discussed issue was the Pennsylvania state code and state plan (N=32), followed by library studies (N=22), local library formation (N=20), countywide system formation and unification (N=12), and county funding (N=12). [Figure L.47](#) shows that the Pennsylvania state code and state plan was the largest issue in 1961 (N=11), that the issue was raised again in 1962 and 1963, and that it then contributed to the wave of communicative activity in 1966, 1967, and 1968. Following the implementation of the state plan in 1961 and the beginning of district services shortly thereafter, there was an uptick in the issue of local library formation in 1962, 1963, 1964, and 1965. Local library formation was not an issue at all in period 1, and it was only a minimal issue in period 2. The advent of district services, however, and the responsibility of district libraries to offer consulting services to local libraries, may explain the uptick: there was new audience created for

the issue. The issue of library study was apparent during the years of 1966, 1967, and 1968. This is consistent with section [4.1.2](#) where it was found that the Martin re-survey was discussed during this time. At the end of period 3, county funding and federal LSCA funding become issues. As seen in section [4.1.2](#), it was beginning in 1967 that plans for a regional reference center were adopted by the County Commissioners, which was then funded through the county and LSCA.



**Figure L.46. Issue counts in period 3.**

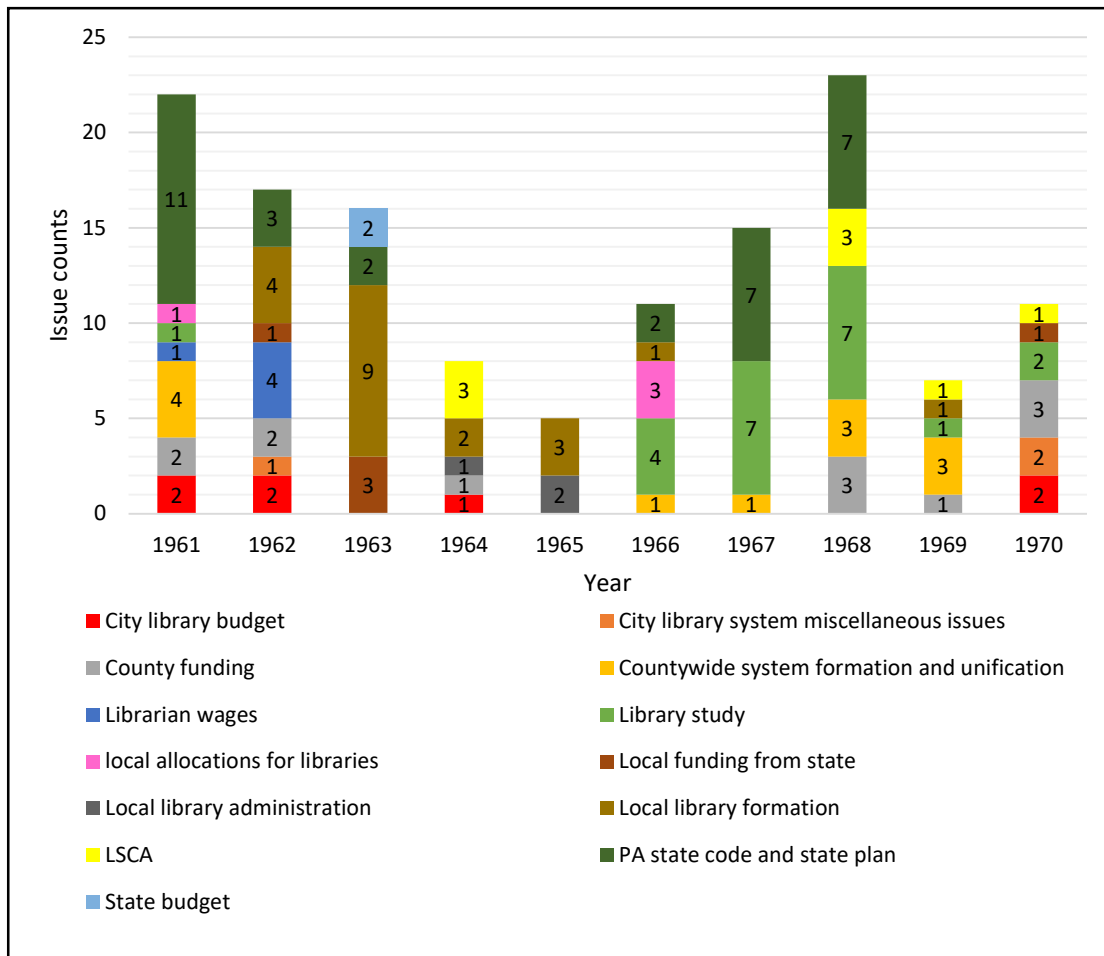
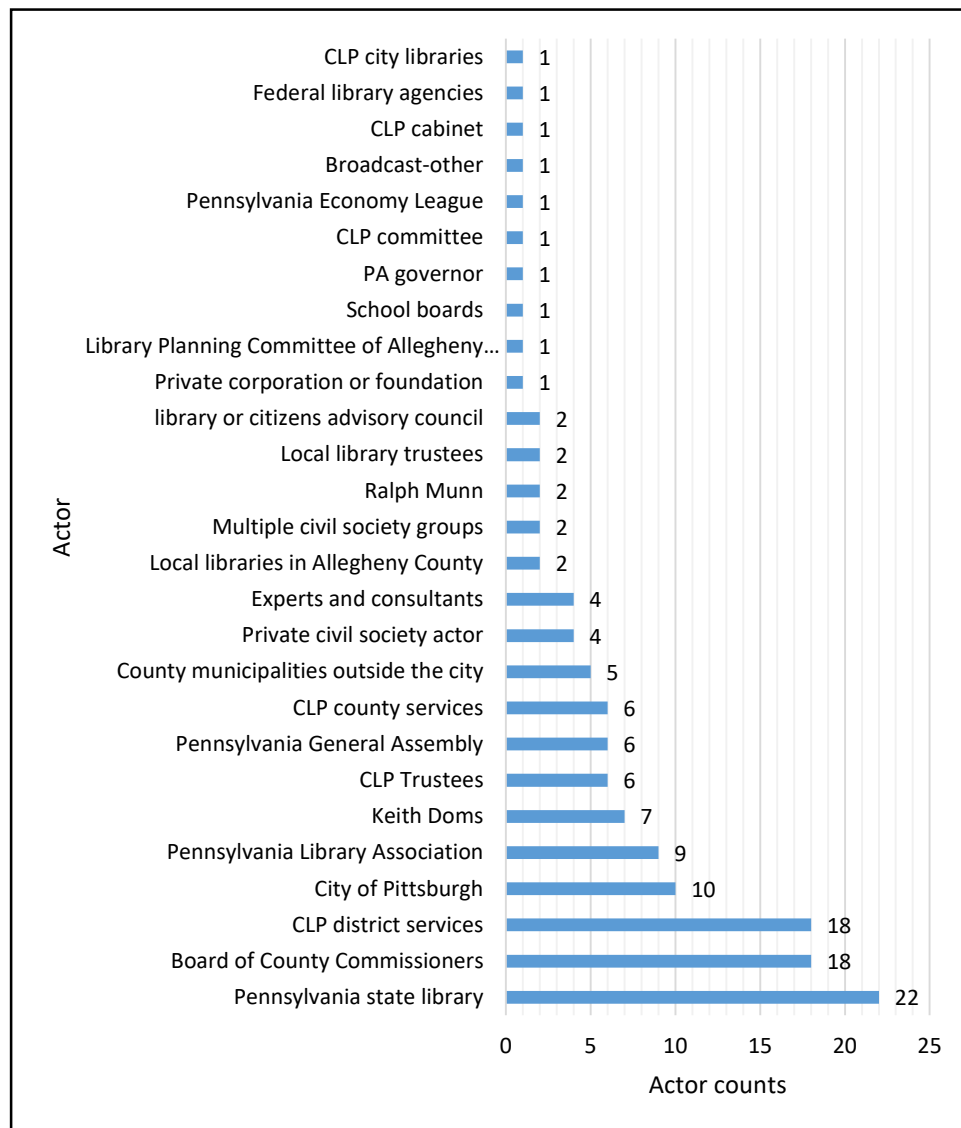


Figure L.47. Issue counts by year in period 3.

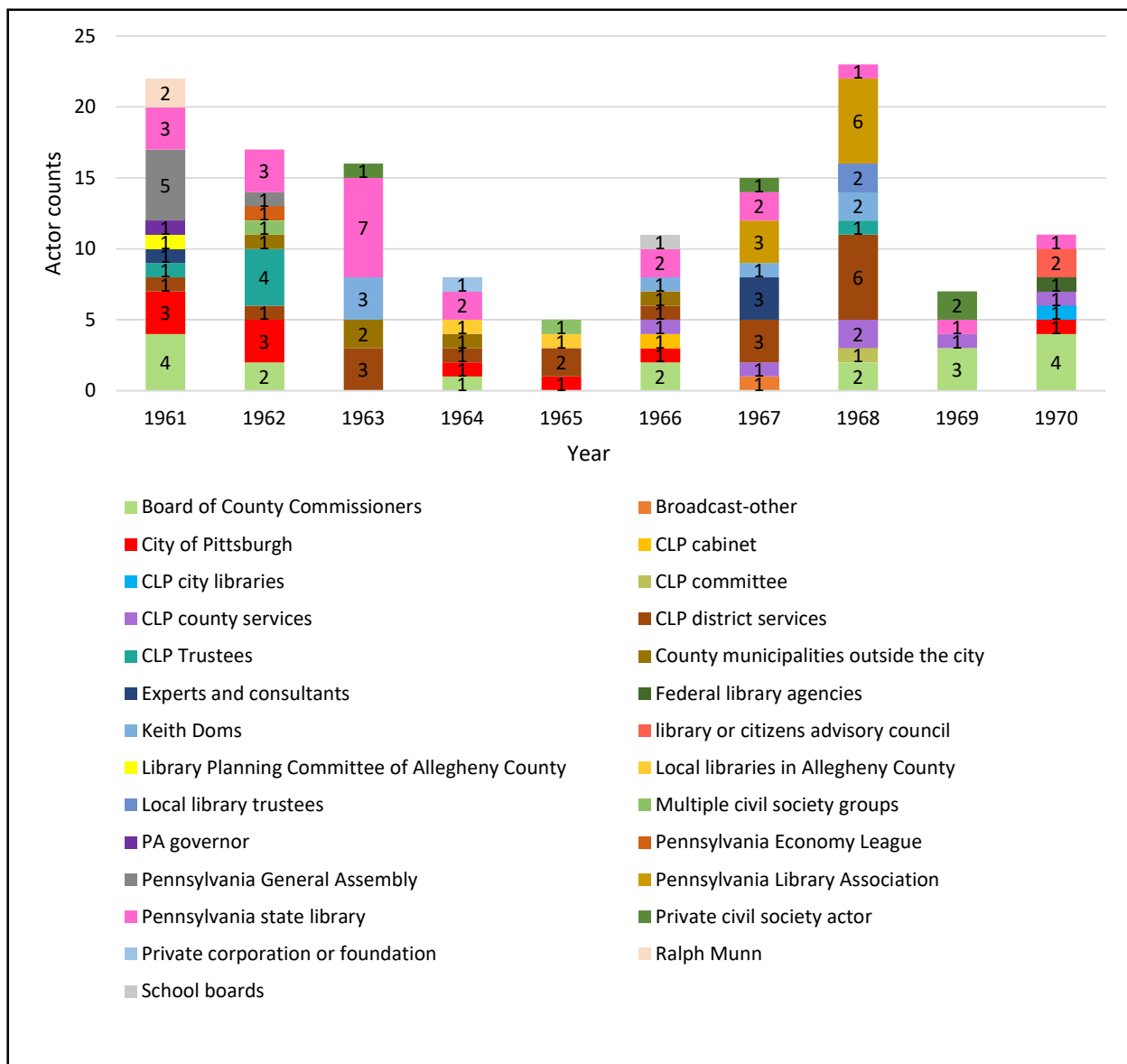
*Actors and audiences.* [Figure L.48](#) shows the actors in period 3. The most frequent actor was the Pennsylvania state library (N=22). This is consistent with description and chronology in section [4.1.2](#) that characterized the period as the rise of district services, an administrative responsibility of the state library under the new state library plan. Following the state library, other major actors in period 3 were the Board of County Commissioners (N=18), Carnegie Library of Pittsburgh district services (N=18), the City of Pittsburgh (N=10), and

Pennsylvania Library Association (N=9). Pennsylvania Library Association was responsible for initiating statewide discussions about the Martin re-survey.



**Figure L.48. Actor counts in period 3.**

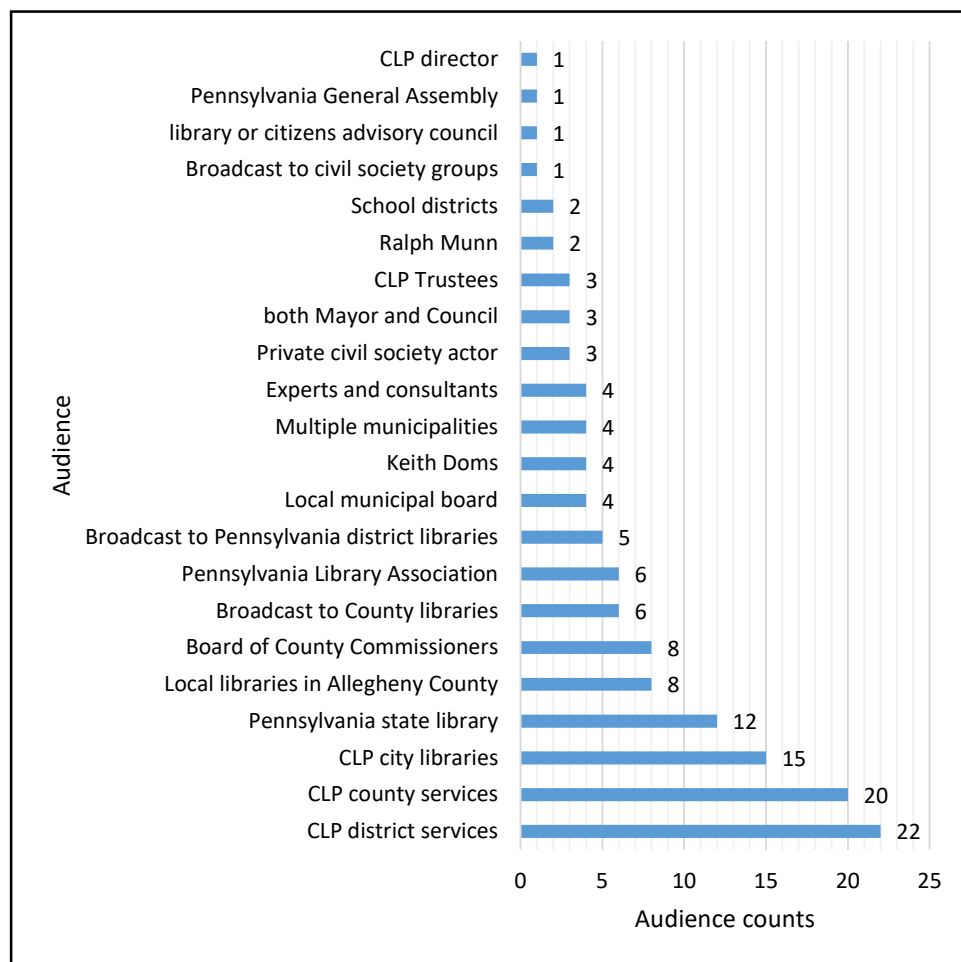
[Figure L.49](#) shows that the Pennsylvania state library was active in most of the years of period 3. Carnegie Library of Pittsburgh was also consistently active. The City of Pittsburgh was active in most years, reflecting its role as a funder of the city's Carnegie Library system. The Board of County Commissioners was also active in most years.



**Figure L.49. Actor counts by year in period 3.**

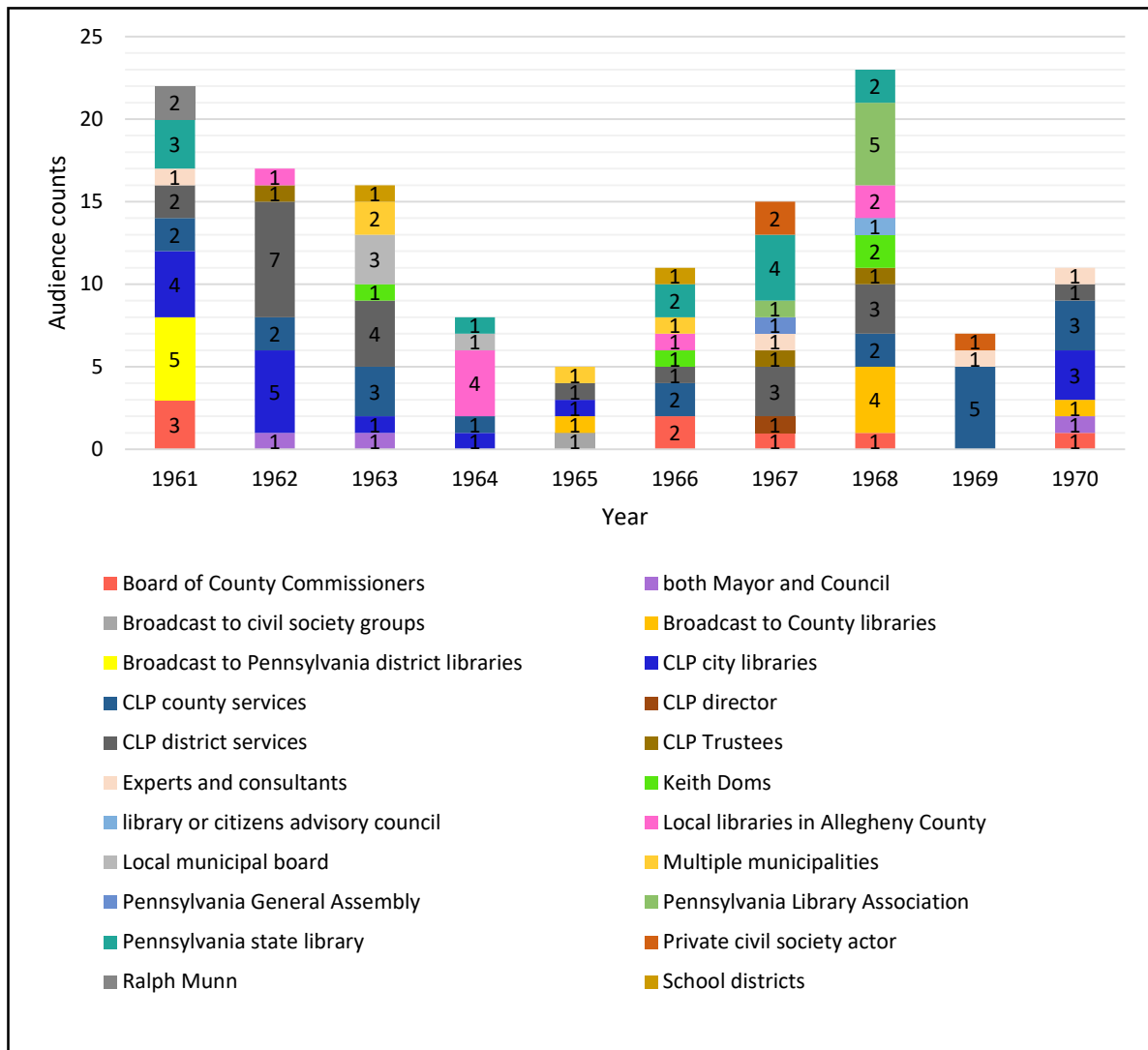


[Figure L.50](#) shows the audiences in period 3. The most prominent audience was Carnegie Library of Pittsburgh district services (N=22), followed by Carnegie Library of Pittsburgh county services (N=20), Carnegie Library of Pittsburgh city libraries (N=15), Pennsylvania state library (N=12), local libraries in Allegheny County (N=8), and Board of County Commissioners (N=8).



**Figure L.50. Audience counts in period 3.**

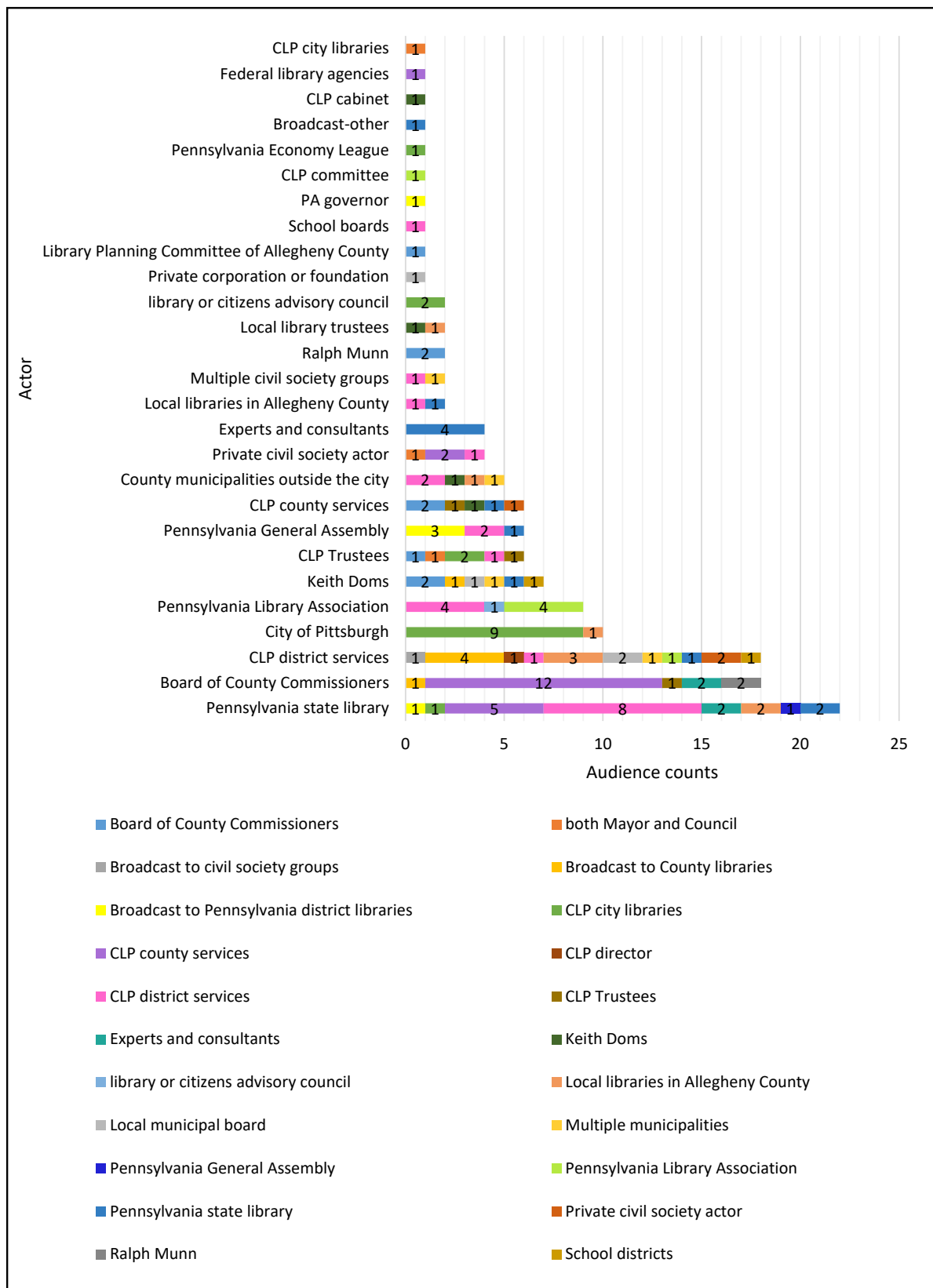
[Figure L.51](#) shows audiences by year in period 3. Carnegie Library of Pittsburgh district services was a dominant audience in 1962 (N=7), 1963 (N=4), 1967 (N=3), and 1968 (N=3). CLP county services was a relatively strong audience in almost all years of period 3, especially in 1969 and 1970 when the regional reference center began.. The Pennsylvania state library was an active audience during the first two waves of activity. Local libraries became an active audience in 1964, the year after district services began in Pittsburgh.



**Figure L.51. Audience counts by year in period 3.**

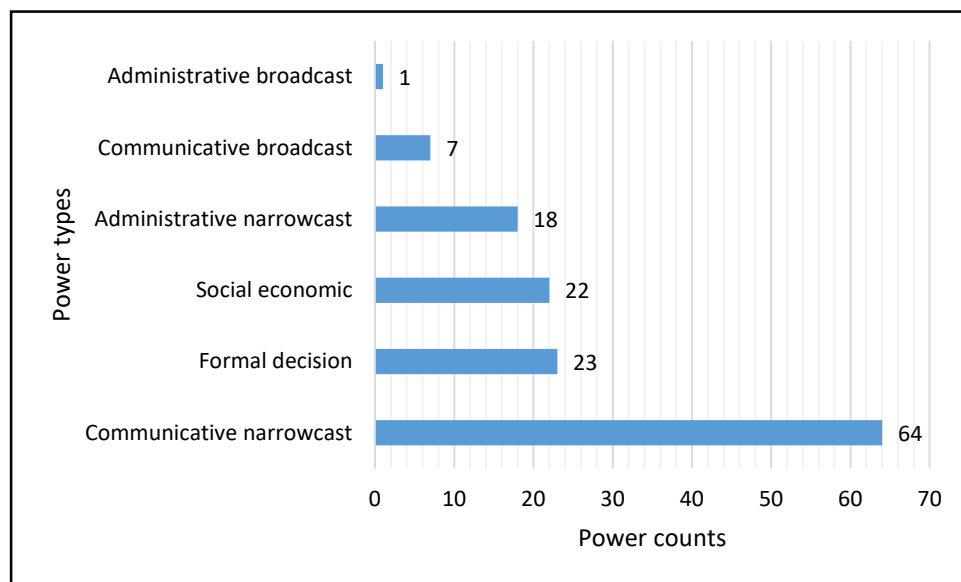
[Figure L.52](#) shows actor/audience pairings. Pennsylvania state library, the most prominent actor in period 3, communicated with several audiences in period 3, including broadcasts to Pennsylvania district libraries (N=1), Carnegie Library of Pittsburgh city libraries (N=1), Carnegie Library of Pittsburgh district services (N=8), experts and consultants (N=2), local libraries in Allegheny County (N=2), Pennsylvania General Assembly (N=1), and

Pennsylvania state library (N=2). The Board of County Commissioners communicated primarily with the Carnegie Library of Pittsburgh county services (N=12). Carnegie Library of Pittsburgh district services communicated with a variety of audiences, including broadcasts to civil society groups (N=1), broadcasts to county libraries (N=4), local libraries in Allegheny County (N=3), and private civil society actors (N=2). The City of Pittsburgh communicated almost exclusively with the Carnegie Library of Pittsburgh city library system (N=9).

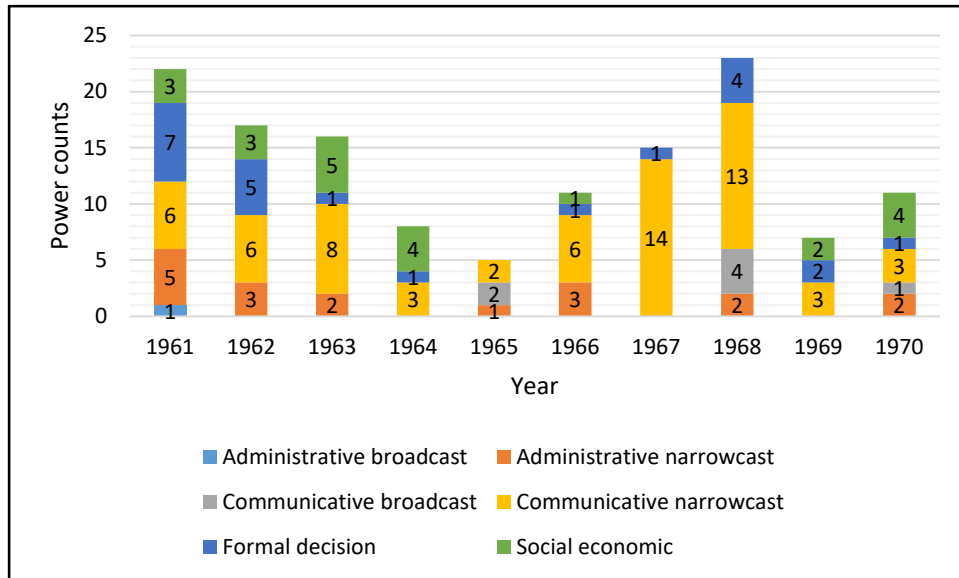


**Figure L.52. Actor and audience combinations in period 3.**

**Power.** [Figure L.53](#) shows the types of power exhibited in period 3. The most prevalent power type was communicative narrowcast (N=64), followed by formal decision (N=23), social economic (N=22), administrative narrowcast (N=18), communicative broadcast (N=7), and administrative broadcast (N=1). [Figure L.54](#) shows that communicative narrowcasts appeared in all years in period 3, especially in 1967 (N=14) and 1968 (N=13).



**Figure L.53. Power counts in period 3.**



**Figure L.54. Power counts by year in period 3.**

[Figure L.55](#) shows actor, audience, and power combinations in period 3. Communicative narrowcast are spread over many actor-audience combinations. Formal decisions and social economic power mostly flow from governmental bodies to libraries, including from the Board of County Commissioners to Carnegie Library of Pittsburgh county services, from the City of Pittsburgh to the Carnegie Library of Pittsburgh city library system, and from the Pennsylvania General Assembly to Pennsylvania district libraries. [Figure L.56](#) is a visualization of the actor/audiences and their power relationships. Two striking nodes whose appearance departs from the graphs of previous periods are the Carnegie Library of Pittsburgh district services and the Pennsylvania state library. Civil society actors/audience are not as dominant in period 3 as they had been in periods 1 and 2.

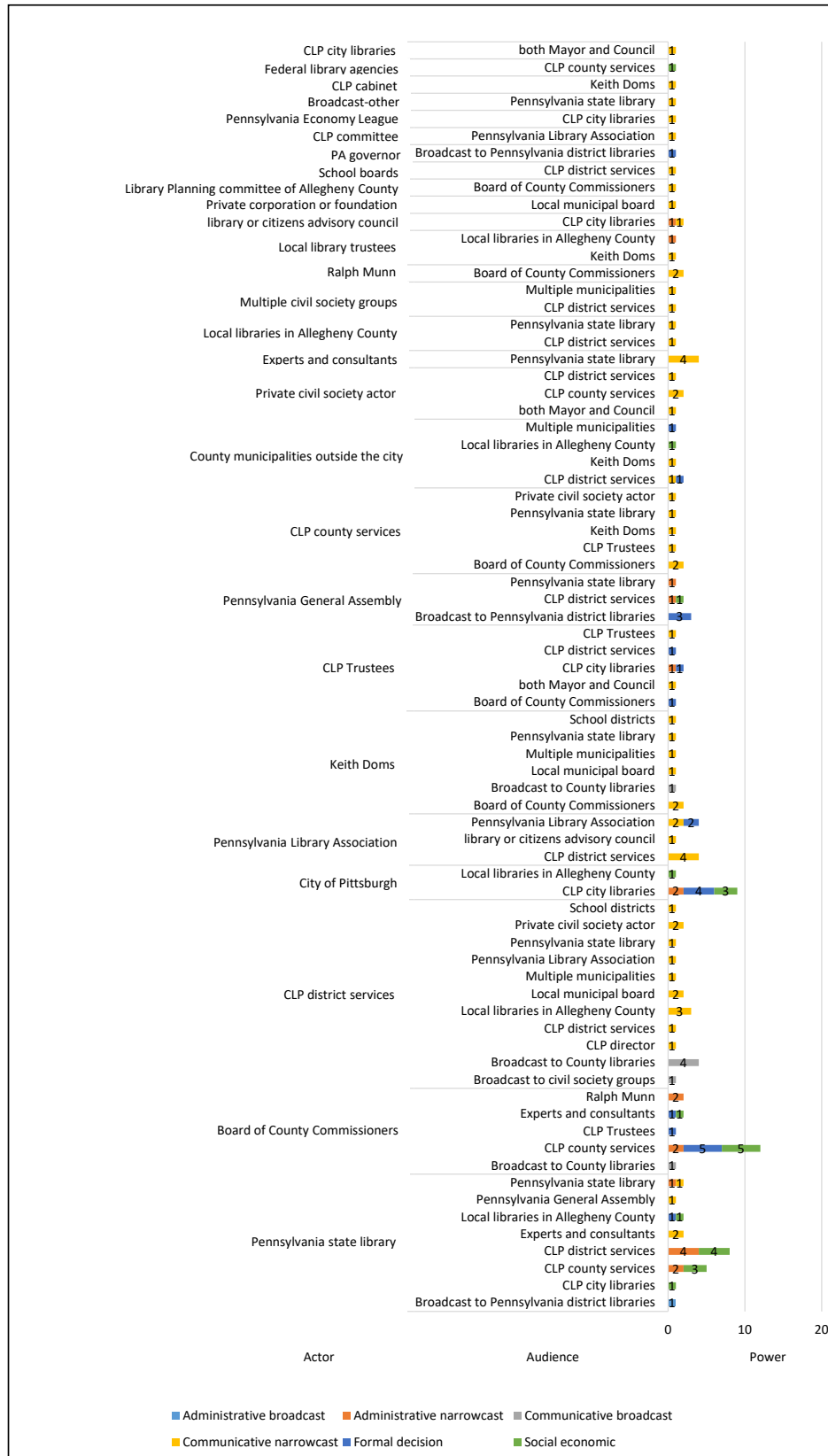
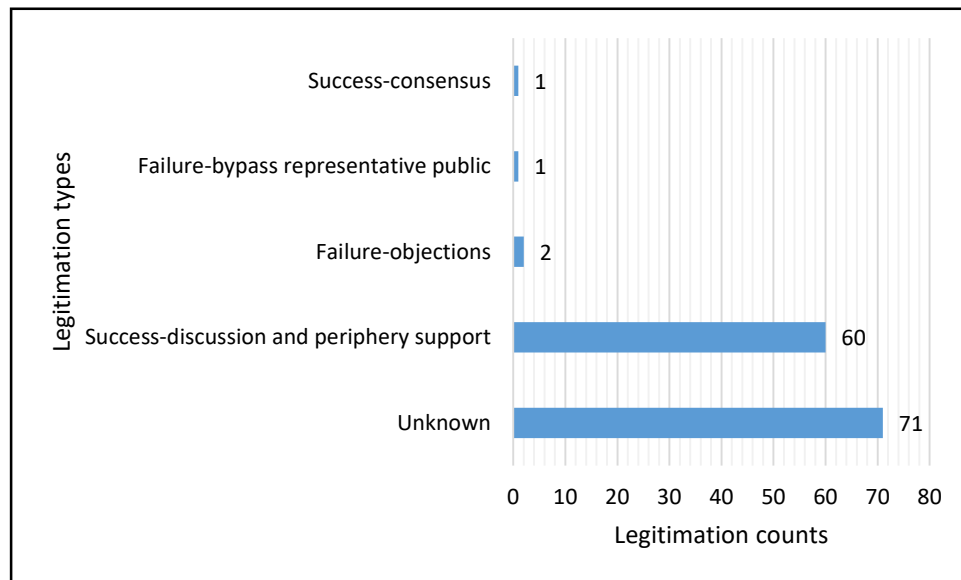


Figure L.55. Actor, audience, and power combinations in period 3.

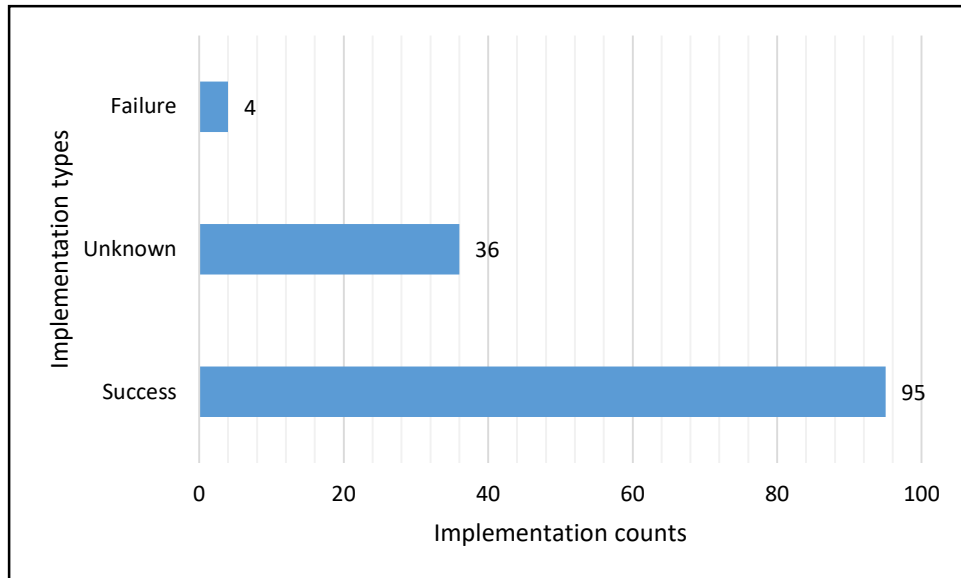




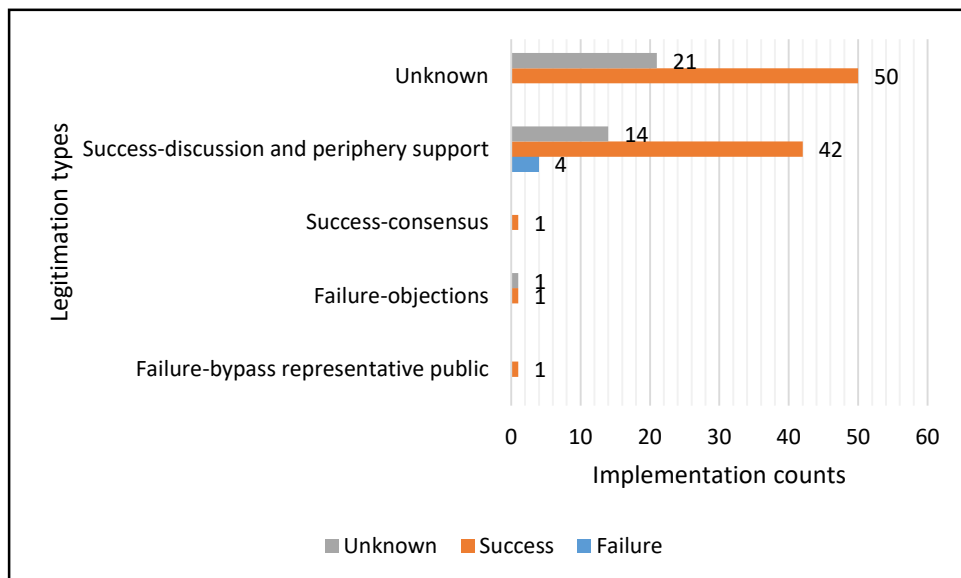
(N=50) transmissions with unknown legitimation status were also implemented. Only N=4 communications that were legitimated were not implemented. The findings in [Figure L.60](#) reflect how the great majority of communications were implemented in every year and regardless of legitimation status.



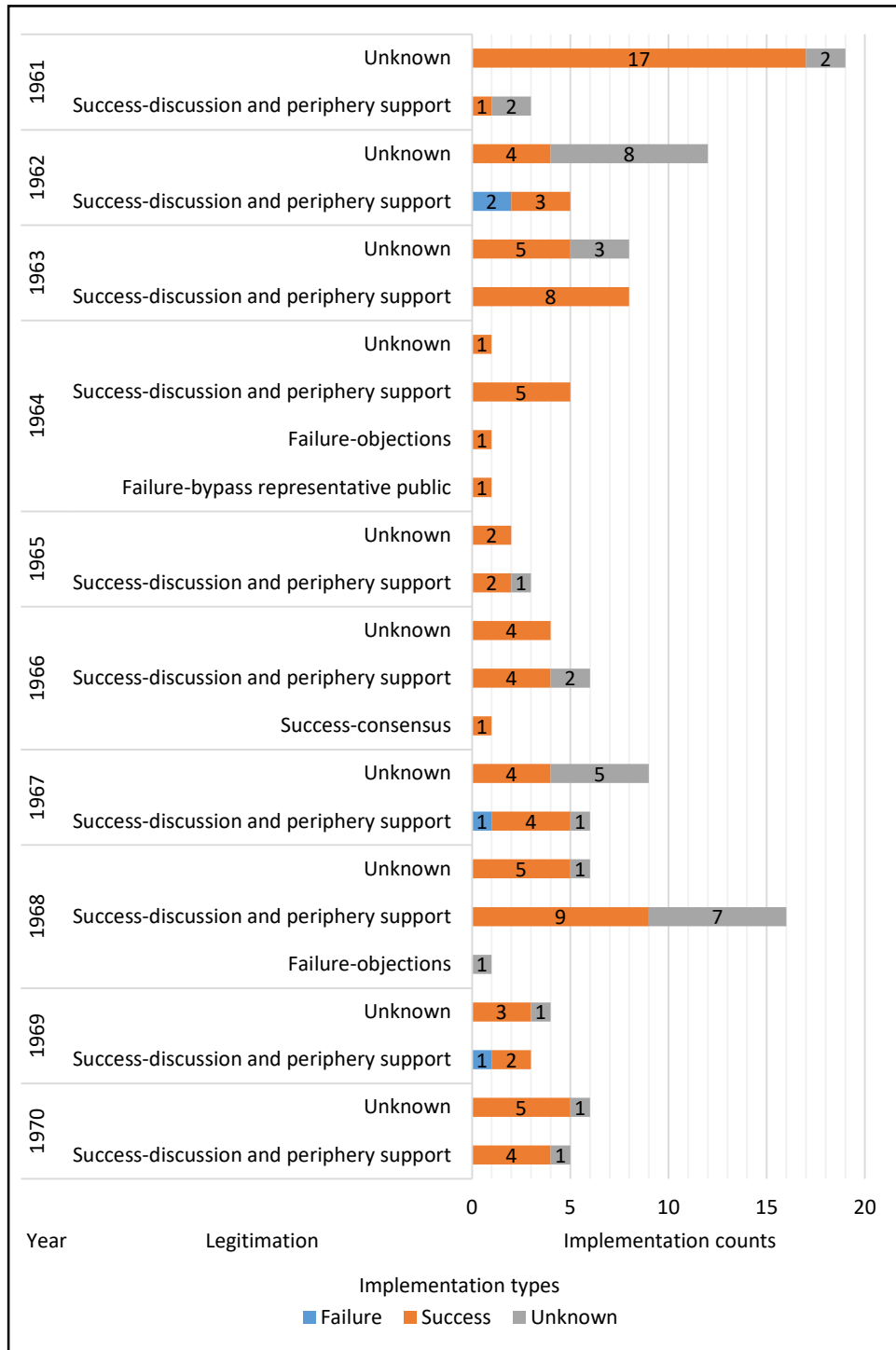
**Figure L.57. Legitimation counts in period 3.**



**Figure L.58. Implementation counts in period 3.**

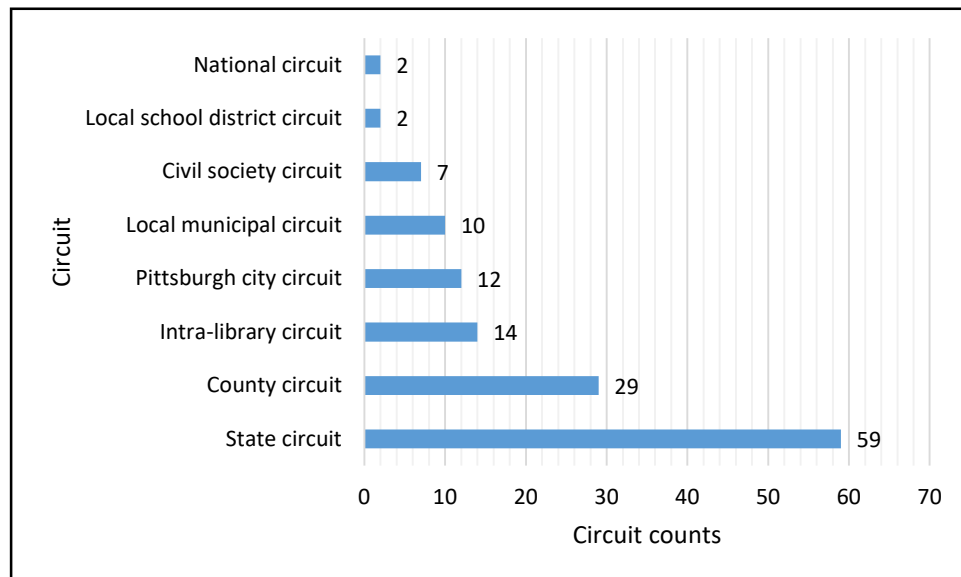


**Figure L.59. Legitimation and implementation combinations in period 3.**

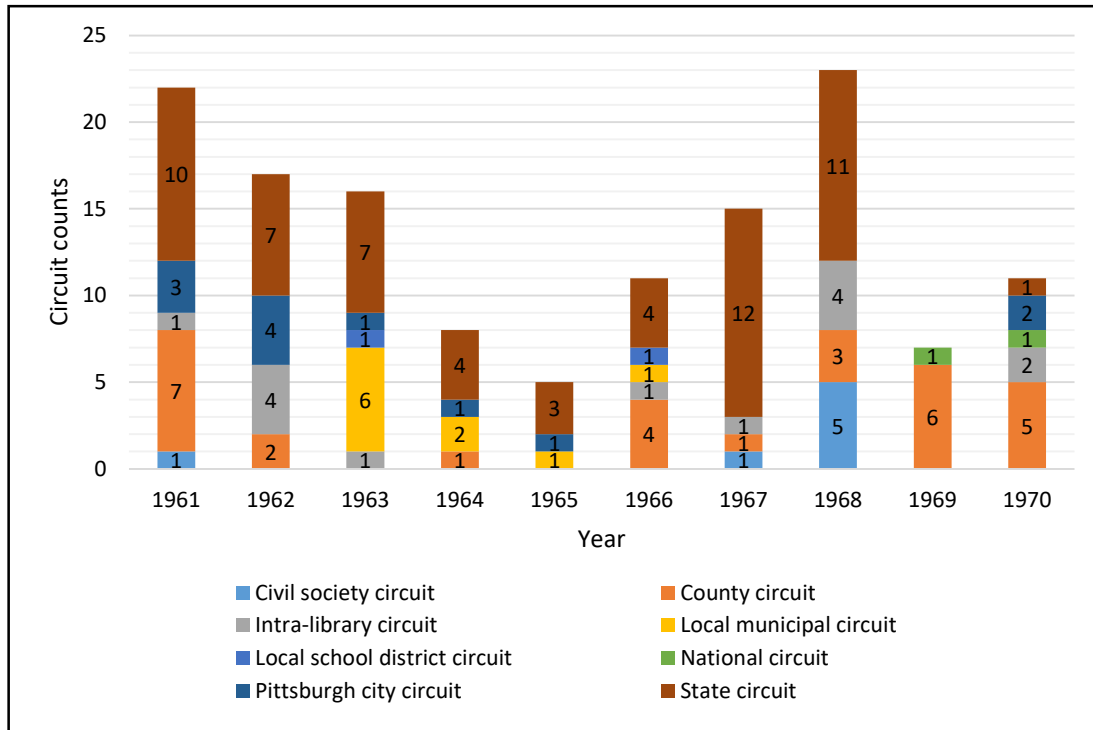


**Figure L.60. Legitimation and implementation combinations by year in period 3.**

**Circuits.** [Figure L.61](#) shows the numbers and types of circuits in period 3. The most active circuit was state (N=59), followed by county (N=29), intra-library (N=14), Pittsburgh city (N=12), local municipal (N=10), civil society (N=7), local school district (N=2), and national (N=2). [Figure L.62](#) shows circuit types and numbers by year in period 3. The state circuit was dominant in almost every year, especially in 1961 when the new state plan was implemented and in 1967 when the Martin re-survey was carried out by the state library. The county circuit was active in the early years of period 3 but was overshadowed by the state circuit. The county circuit was then re-activated in 1969 and 1970 when funding began for the regional reference center.

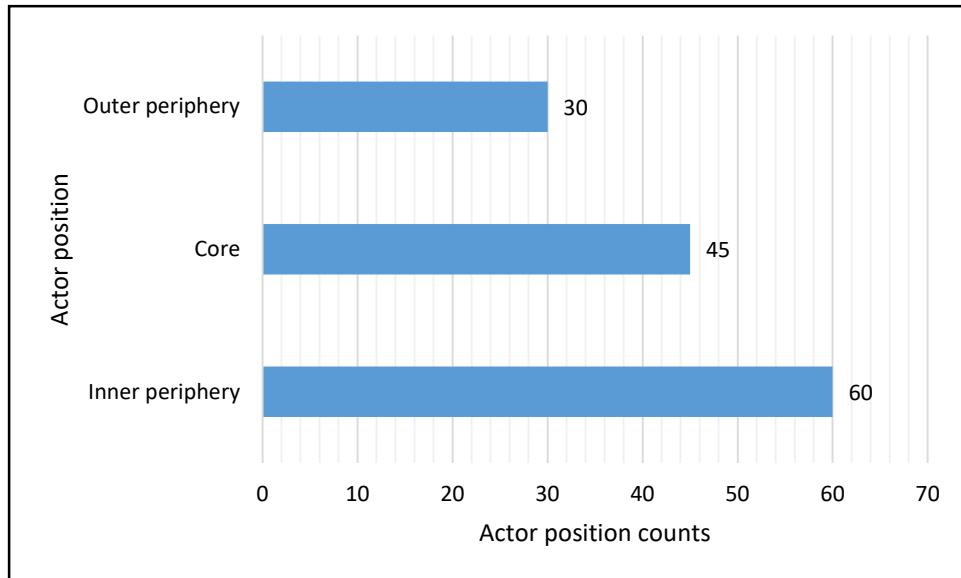


**Figure L.61. Circuit counts in period 3.**

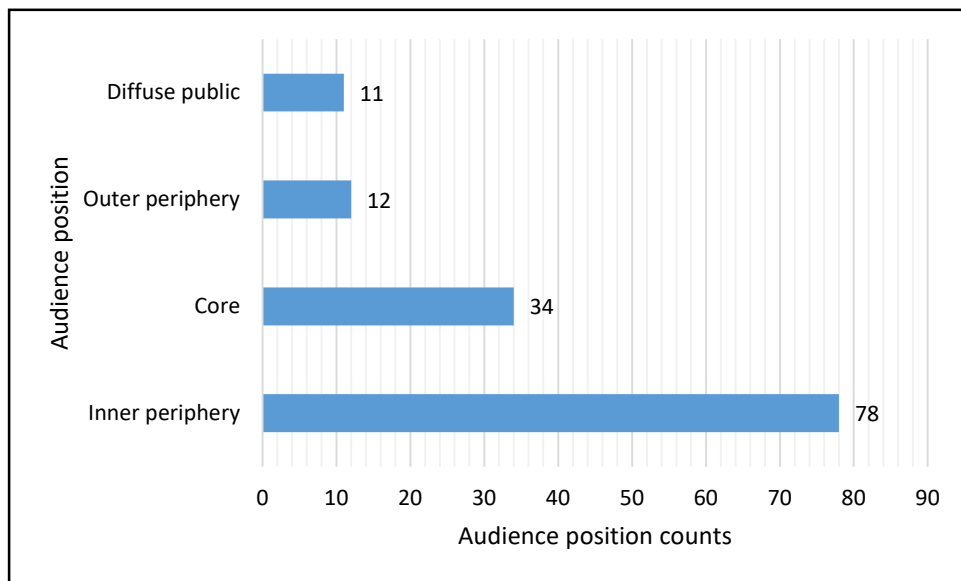


**Figure L.62. Circuit counts by year in period 3.**

[Figure L.63](#) shows the actor positions in period 3: inner periphery (N=60), core (N=45), and outer periphery (N=30). [Figure L.64](#) shows audience positions: inner periphery (N=78), core (N=34), outer periphery (N=12), and diffuse public (N=11). [Figure L.65](#) shows actor and audience position pairings over time. It can be seen that many transmission in the state circuit occur within the inner periphery. Communications in the county circuit show more varied combinations in terms of position. The various circuits in period 3, together with actor/audience nodes and their positions, are visualized in [Figure L.66](#).



**Figure L.63. Actor positions in period 3.**



**Figure L.64. Audience positions in period 3.**

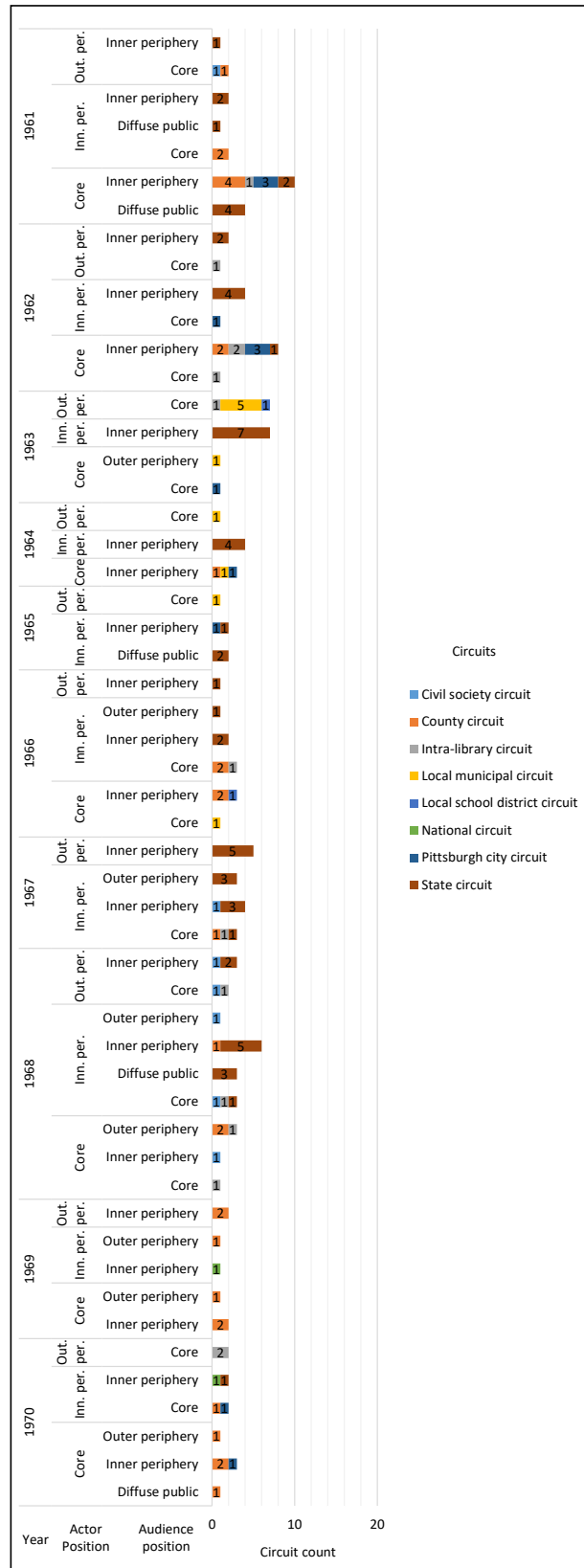


Figure L.65. Actor positions, audience positions, and circuits by year in period 3.



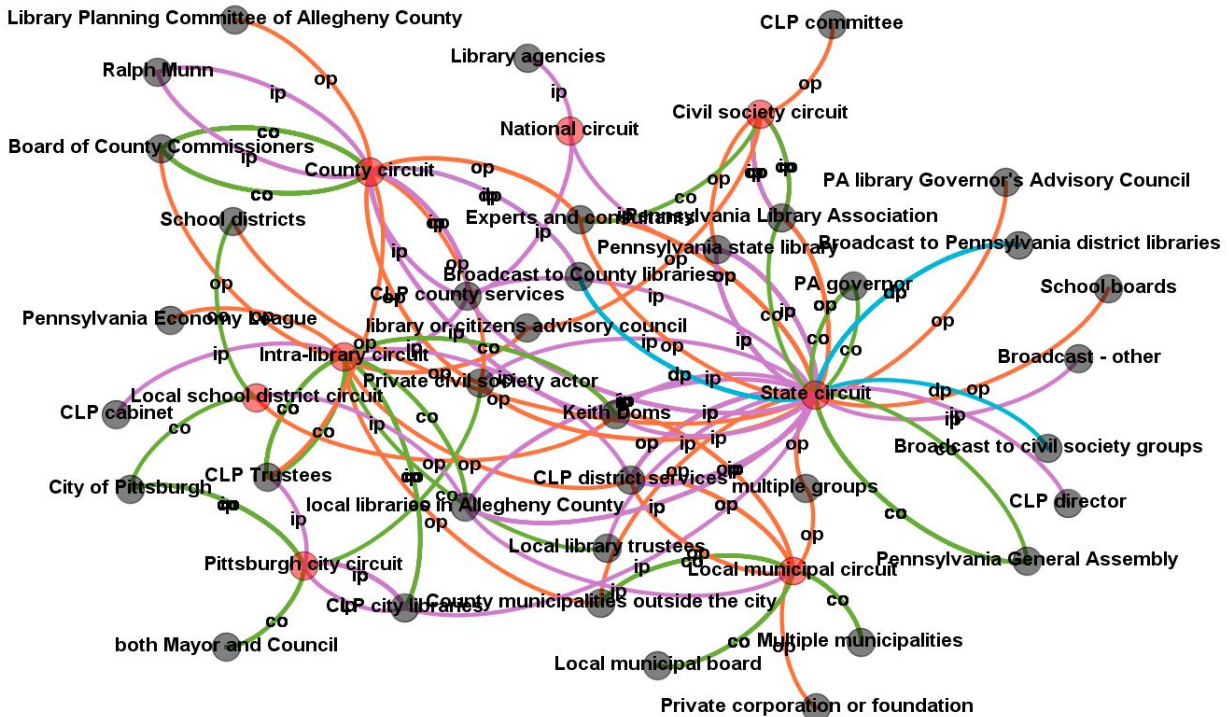
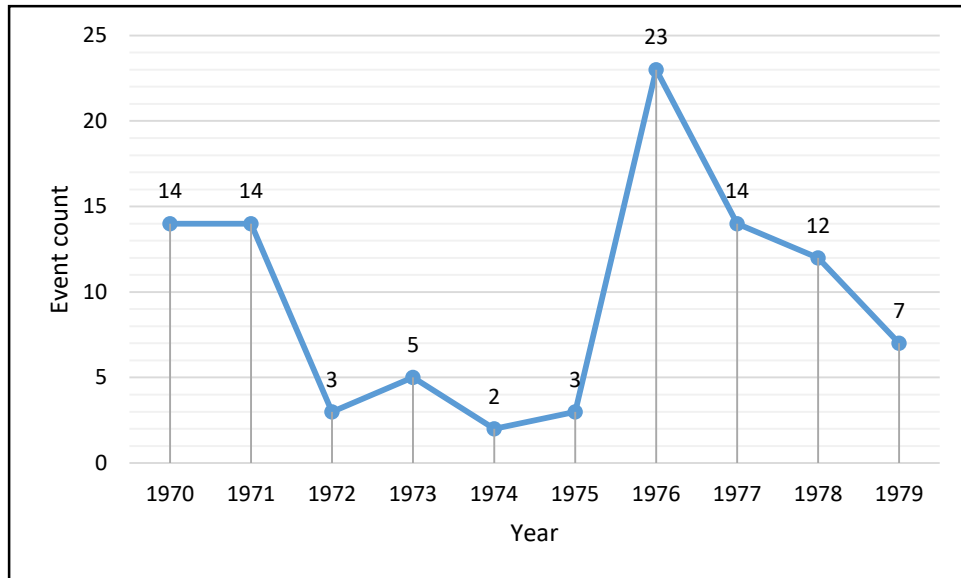


Figure L.66. Actor-Circuit graph for period 3.

#### PERIOD 4: 1970–1979

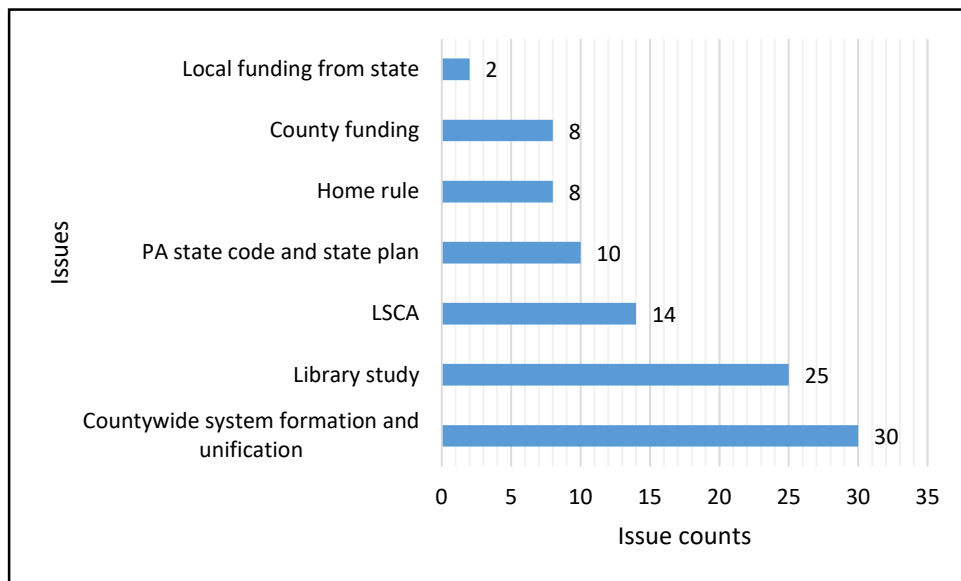
**Events.** A total of N=97 communicative events were identified in period 4. [Figure L.67](#) shows the numbers of these events by year. As seen in [Figure L.67](#), the period begins with relatively high activity, the activity recedes during 1972, 1973, and 1974, spikes in 1976, then gradually recedes again in 1977, 1978, and 1979.



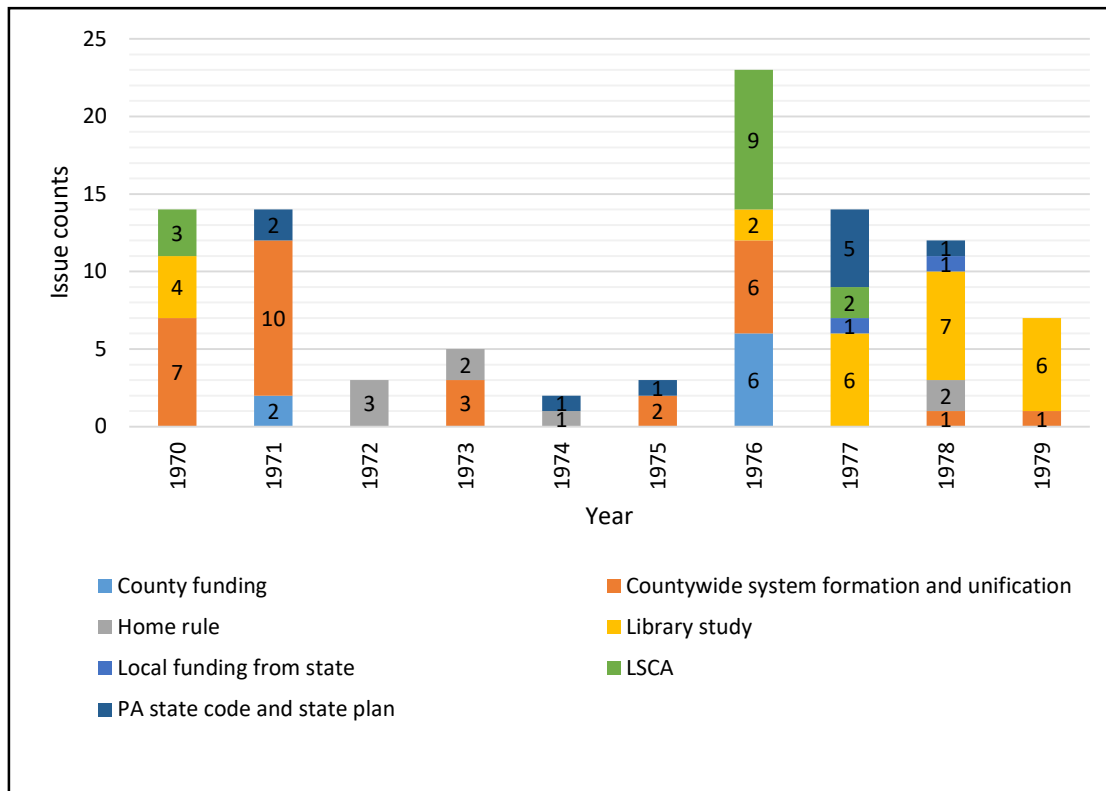
**Figure L.67. Communicative events by year in period 4.**

**Issues.** [Figure L.68](#) shows the types and numbers of issues identified in period 4. The most-discussed issue in period 4 was countywide system formation and unification (N=30), followed by library study (N=25), LSCA (N=14), Pennsylvania state code and state plan (N=10), home rule (N=8), county funding (N=8), and local funding from state (N=2). There were relatively few issues identified in period 4 (N=7) compared to previous periods, such as period 3 (N=13), period 2 (N=11), and period 1 (N=13). [Figure L.69](#) shows the number of issues by year. The period began with an emphasis on countywide system formation and unification. In the first year of the period when the regional resource center was in operation, there was also a discussion of its LSCA funding. That same year, in 1970, the Blasingame library study was discussed. There was then a lull where home rule was discussed across the county. When that failed, a new movement toward county system formation and unification was begun. LSCA funding was sought after in 1976 to support a new library study. The county was also approached about

funding. The discussion about the library study, completed in 1978, continued until the end of the period in 1979.



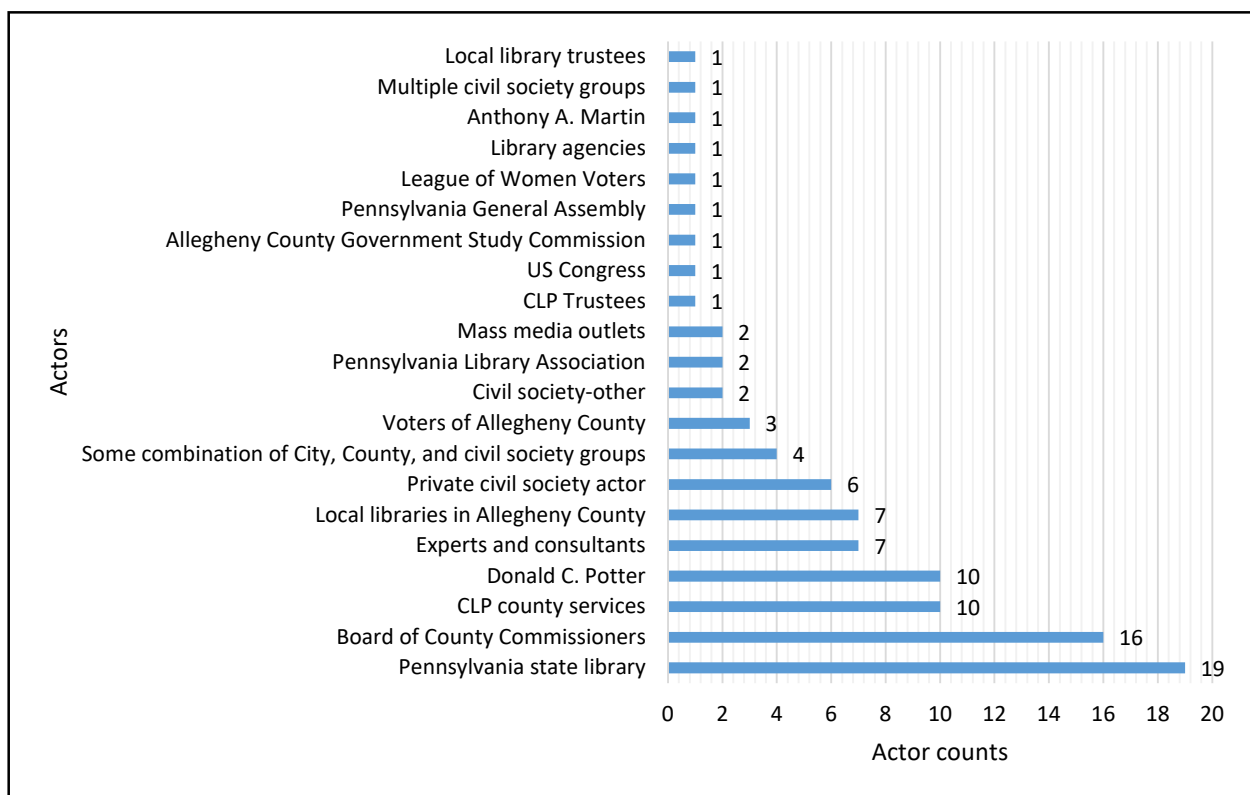
**Figure L.68. Issue counts in period 4.**



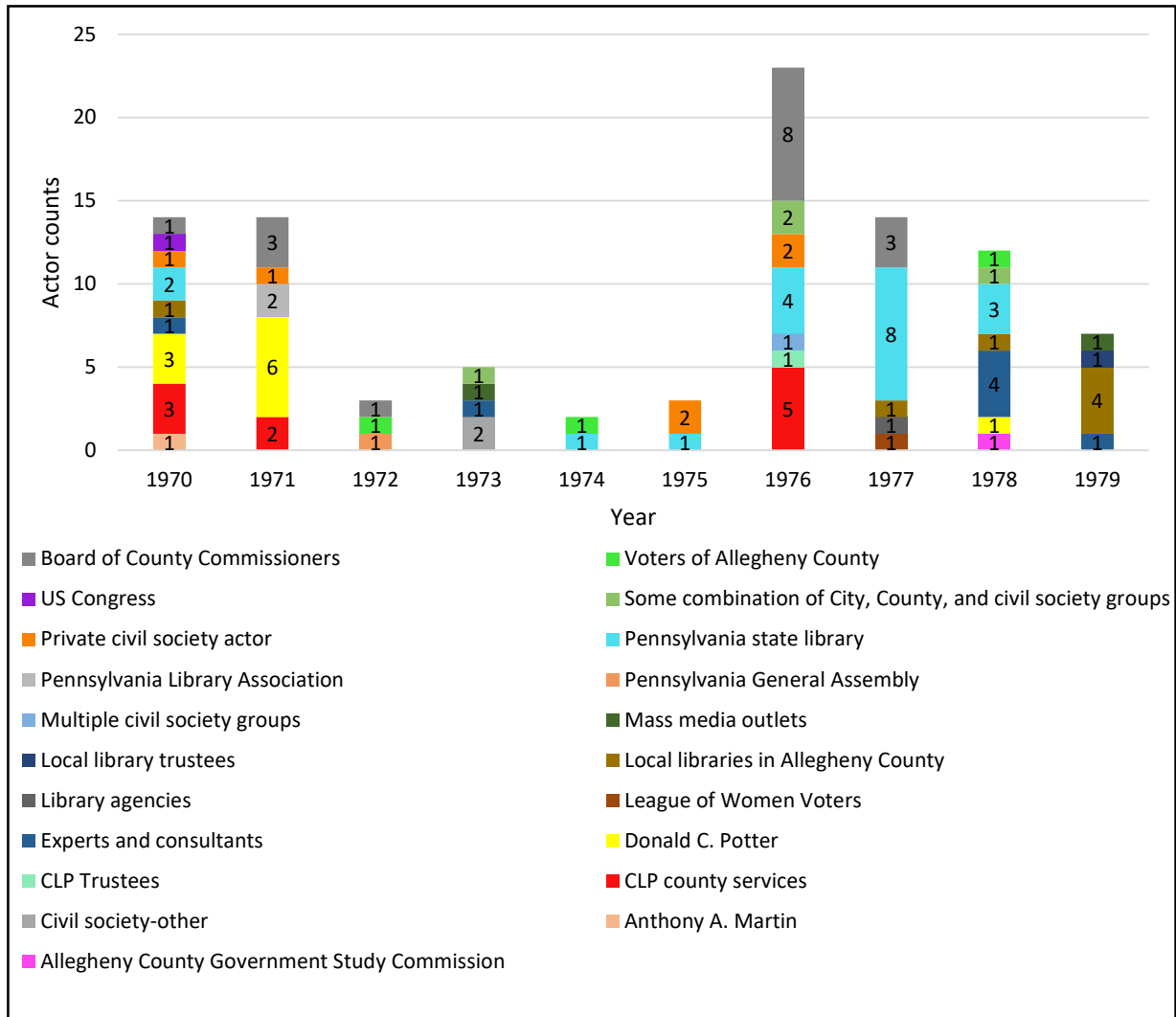
**Figure L.69. Issue counts by year in period 4.**

**Actors and audiences.** [Figure L.70](#) shows the actors of period 4. The most prevalent actor was the Pennsylvania state library (N=19), followed by the Board of County Commissioners (N=16), Carnegie Library of Pittsburgh county services (N=10), Donald C. Potter (N=10), an associate director at Carnegie Library of Pittsburgh, experts and consultants (N=7), and local libraries in Allegheny County (N=7). [Figure L.71](#) shows actors by year in period 4. Donald C. Potter began as a prominent actor in 1970 and 1971, together with Carnegie Library of Pittsburgh county services. During this time, Potter initiated discussion about the Blasingame study, published in 1970. The next 4 years, from 1972 to 1975, the issue of home rule was raised by several actors, including civil society groups, Pennsylvania General

Assembly, and voters in Allegheny County. The issue ultimately failed. In 1976, a new library study was initiated in the county, called Allegheny County Citizens Study Committee on Libraries. It was funded by LSCA and sponsored by the county. The state library and the Board of County Commissioners became prominent actors during this time, from 1976 to 1978. Local libraries were a prevalent actor in 1979 when the study's findings were discussed.



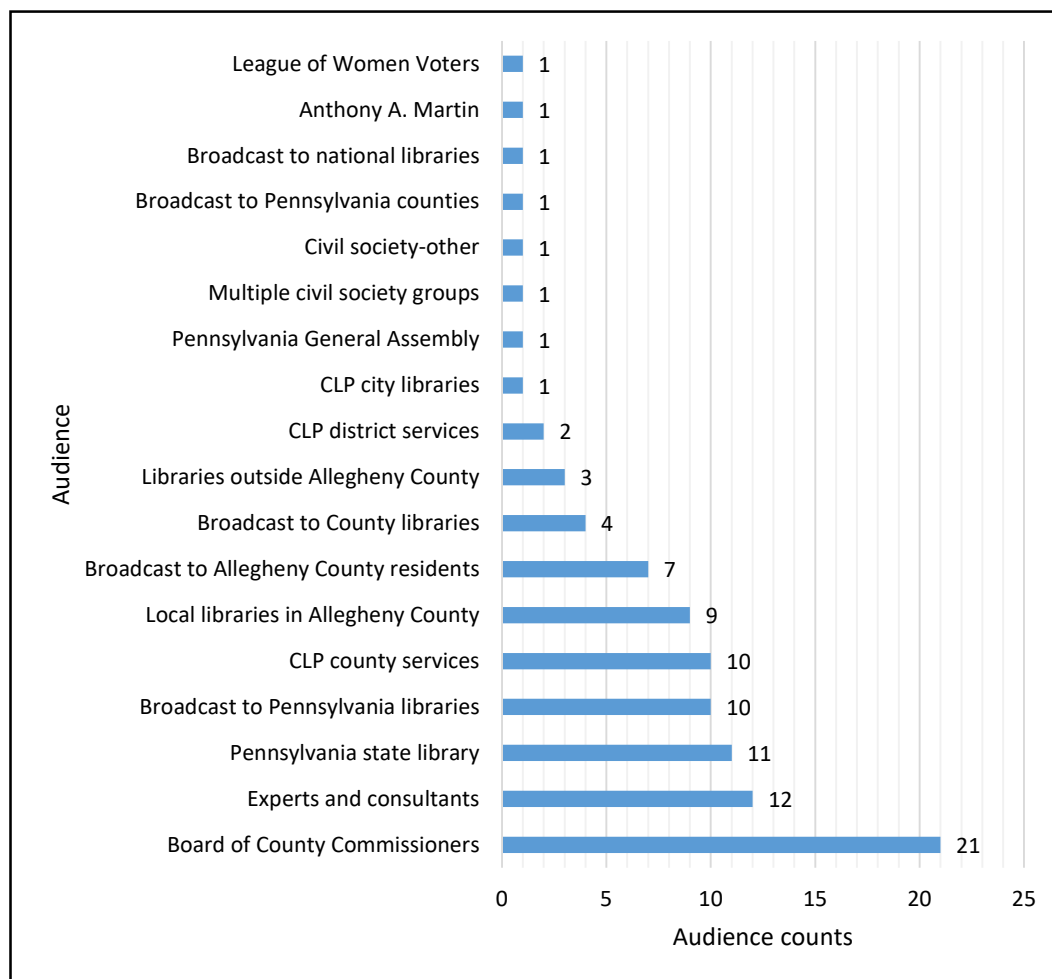
**Figure L.70. Actor counts in period 4.**



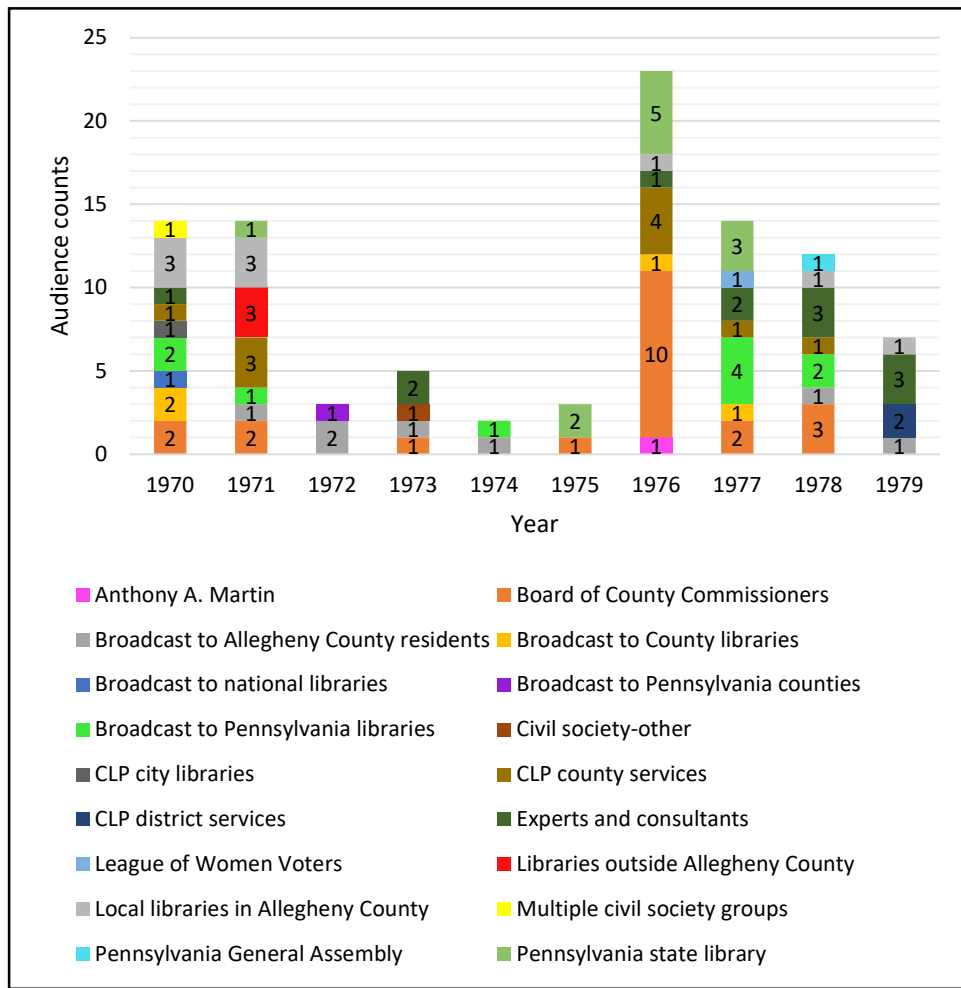
**Figure L.71. Actor counts by year in period 4.**

[Figure L.72](#) shows the audiences in period 4. The most active audience in period 4 was the Board of County Commissioners (N=21), followed by experts and consultants (N=12), Pennsylvania state library (N=11), broadcast to Pennsylvania libraries (N=10), Carnegie Library of Pittsburgh county services (N=10), and local libraries in Allegheny County (N=9). These audiences and their numbers are shown in [Figure L.73](#). Local libraries are a noticeable audience in 1970 and 1971 when the Blasingame study is discussed. In the early years of period 4, the

Board of County Commissioners are also targeted by proponents of a countywide system. Allegheny County residents are targeted in 1972, 1973, and 1974 when home rule is discussed. In 1976, the state library is a prominent audience when the state plan is under scrutiny and Allegheny County groups apply for funding for a library study. That same year, the Board of County Commissioners becomes an audience of the state library during the study. Experts and consultants are targeted audiences in 1977, 1978, and 1979 when the county study is undertaken and discussed.



**Figure L.72. Audience counts in period 4.**

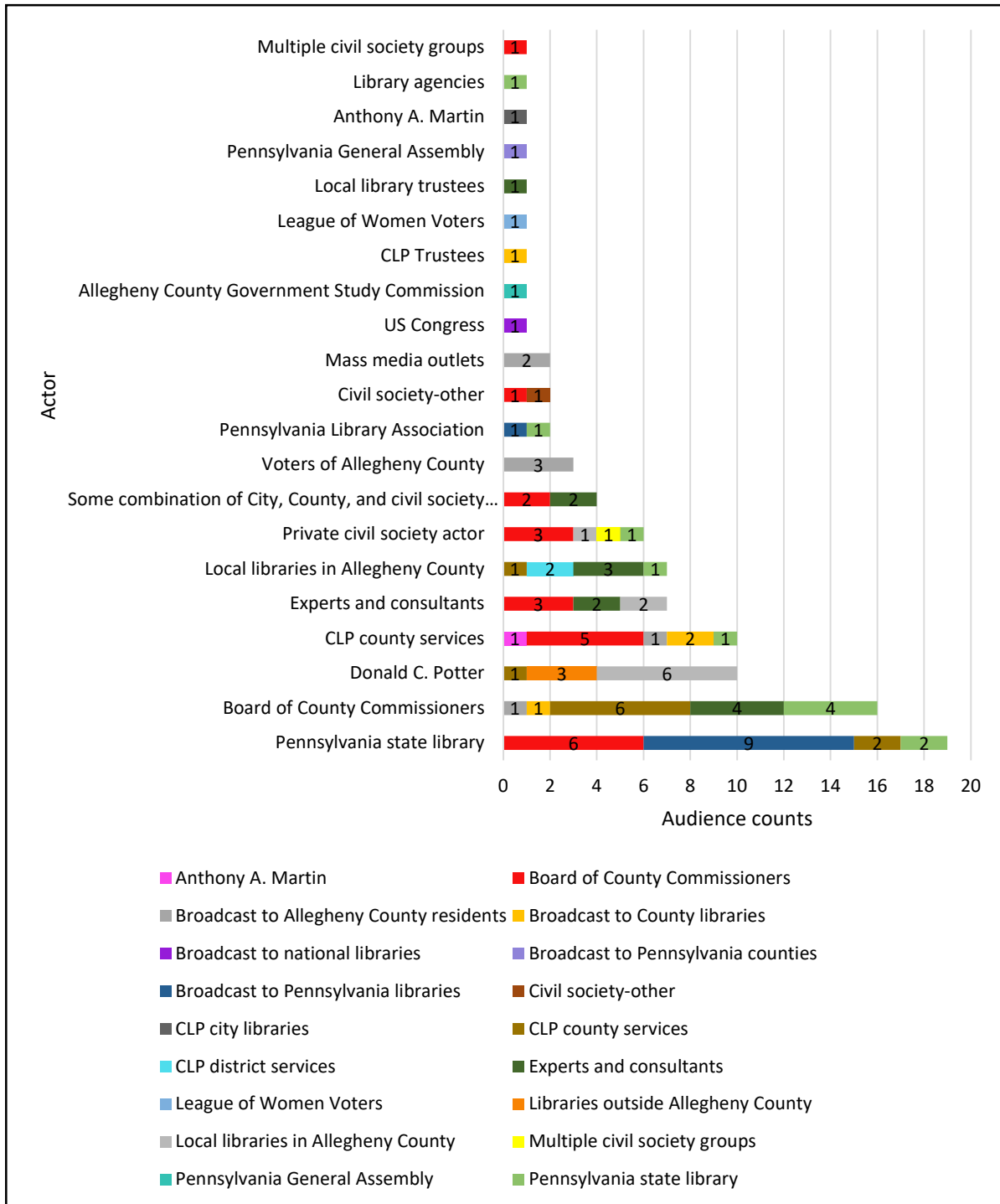


**Figure L.73. Audience counts by year in period 4.**

[Figure L.74](#) shows actor and audience combinations in period 4. The Pennsylvania state library transmitted to the Board of County Commissioners, broadcasts to Pennsylvania libraries, Carnegie Library of Pittsburgh county services, and itself. The Board of County Commissioners transmitted to Allegheny County residents, county libraries, Carnegie Library of Pittsburgh

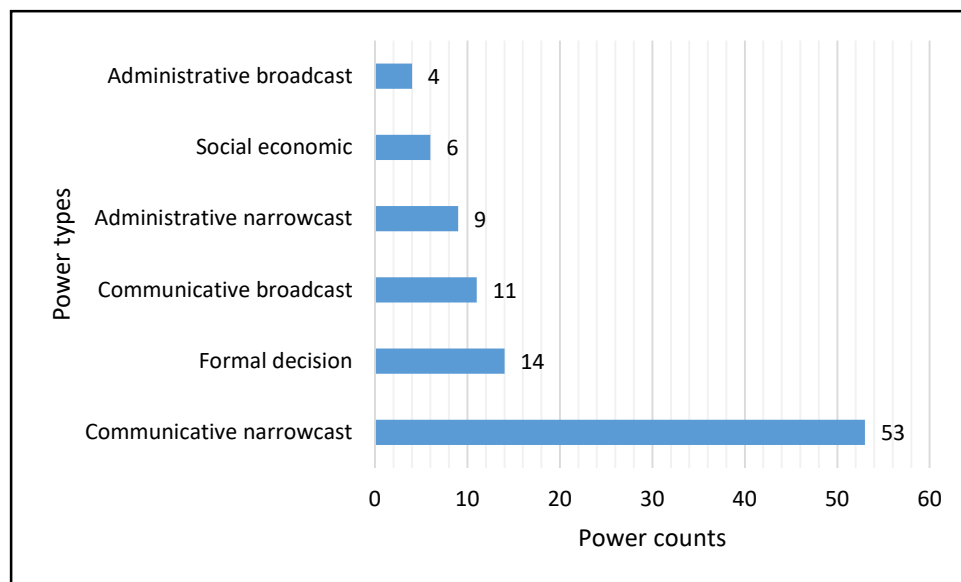


county services, experts and consultants, and Pennsylvania state library. The Board of County Commissioners served as a prevalent audience for civil society groups during period 4.

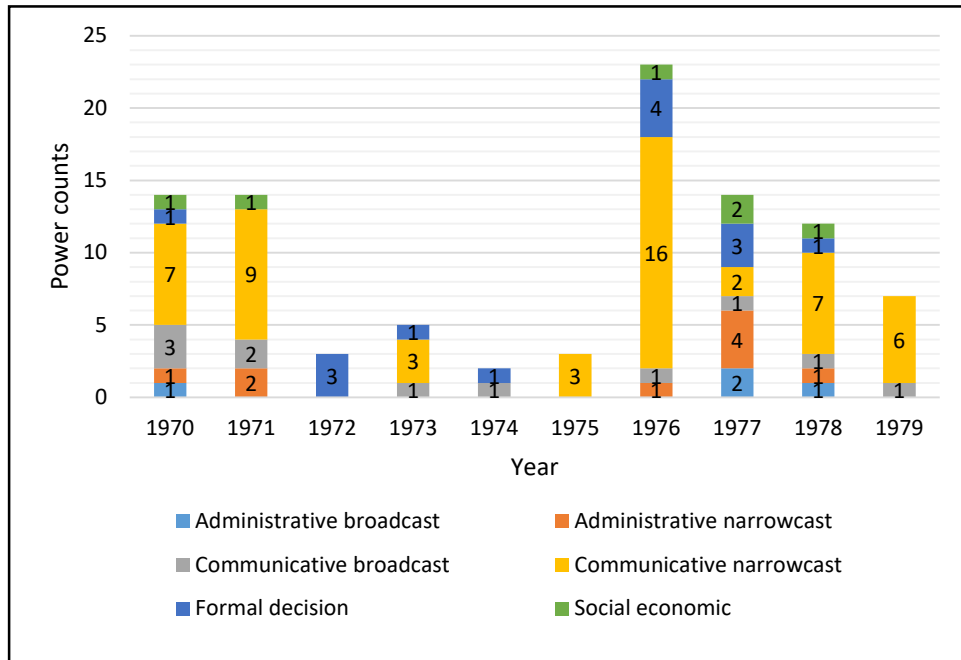


**Figure L.74. Actor and audience combinations in period 4.**

**Power.** [Figure L.75](#) shows the numbers and types of power in period 4. The dominant form of power was communicative narrowcast (N=53), followed by formal decision (N=14), communicative broadcast (N=11), administrative narrowcast (N=9), social economic (N=6), and administrative broadcast (N=4). [Figure L.76](#) shows the types of power by year. Communicative power is prevalent throughout period 4. Social economic power is seen in the beginning of the period where the regional reference center was in operation, and toward the end when a library study was funded. Formal decisions were made during the home rule movement and in order to initiate the library study.

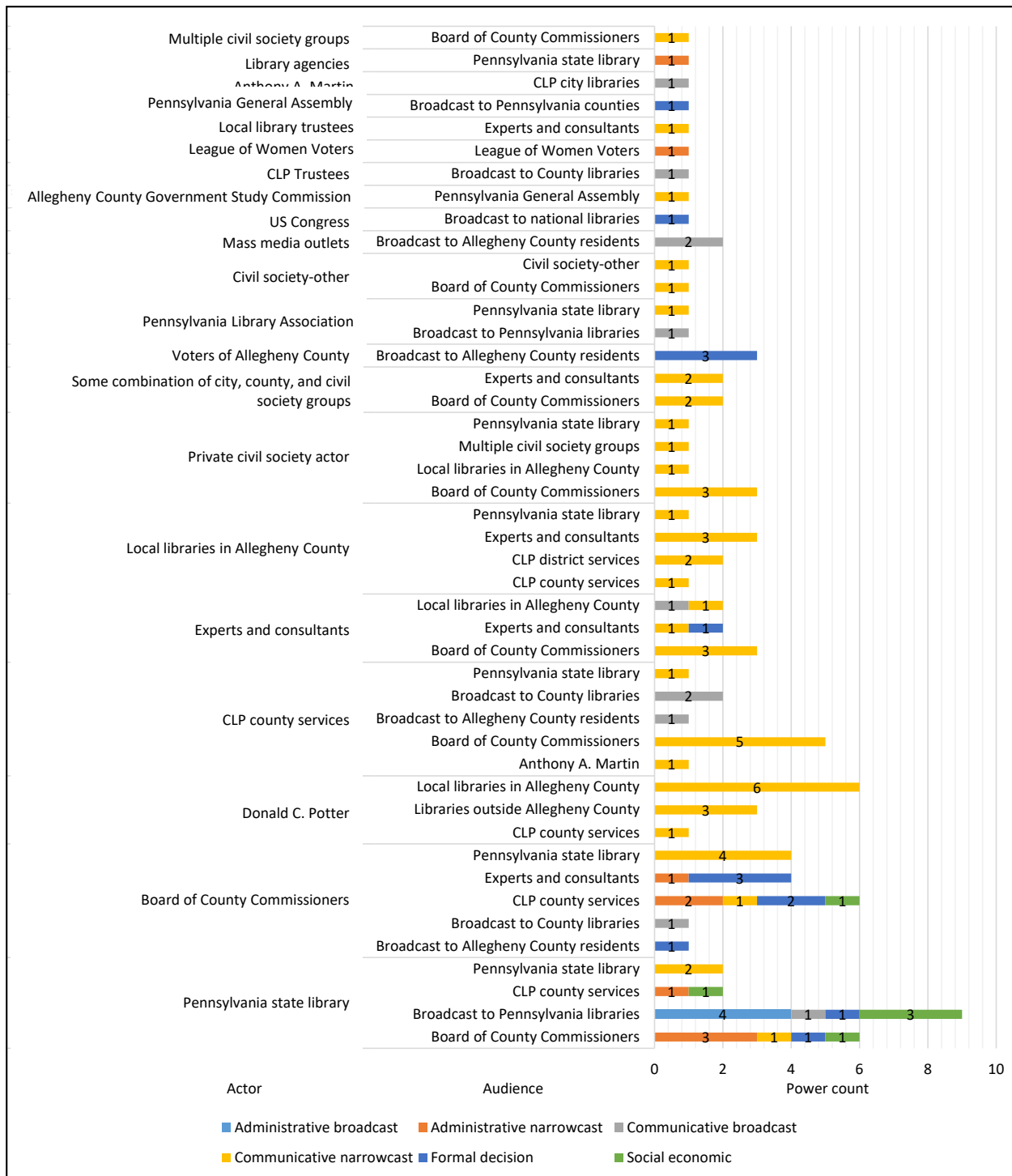


**Figure L.75. Power counts in period 4.**



**Figure L.76. Power counts by year in period 4.**

[Figure L.77](#) shows actor, audience, and power combinations in period 4. Some of the dominant transmitters of communicative power were private civil society actors, local libraries, Carnegie Library of Pittsburgh county services, and Donald C. Potter. Pennsylvania General Assembly, US Congress, voters of Allegheny County, experts and consultants, the Board of County Commissioners, and Pennsylvania state library were formal deciders. The Board of County Commissioners and the Pennsylvania state library were transmitters of social economic power. The general structure of actor/audiences, their power relations, and the directions of power are visualized in [Figure L.78](#).



**Figure L.77. Actor, audience, and power combinations in period 4.**

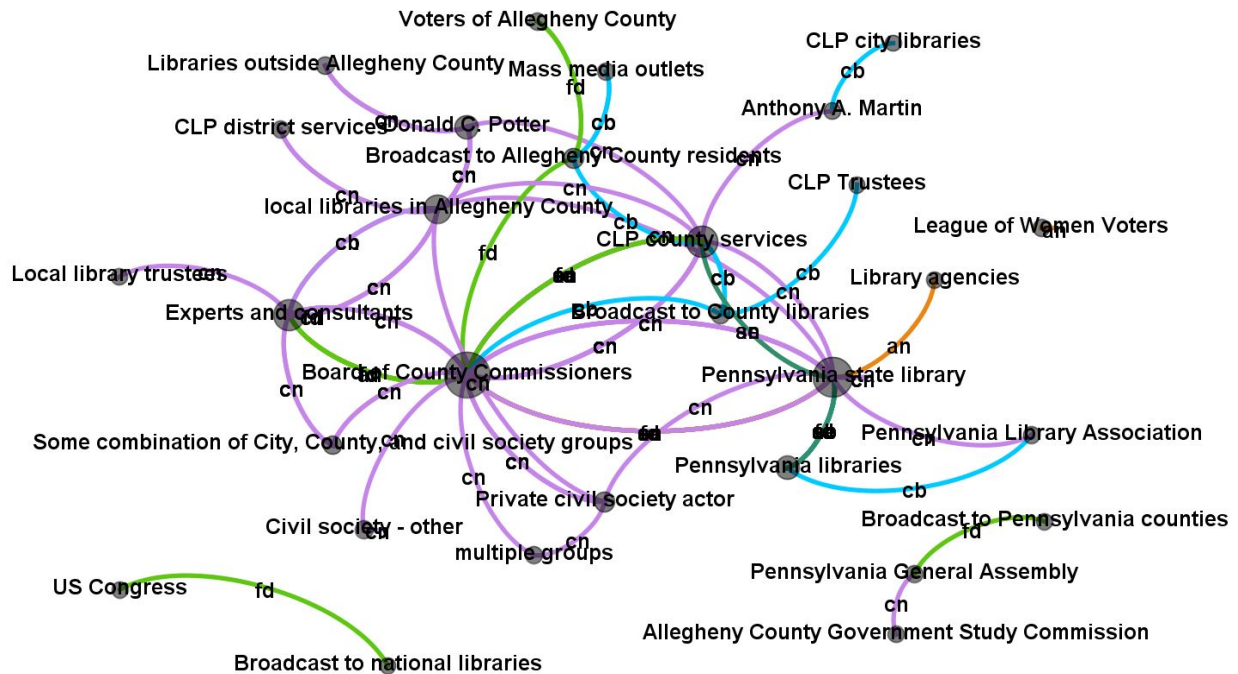
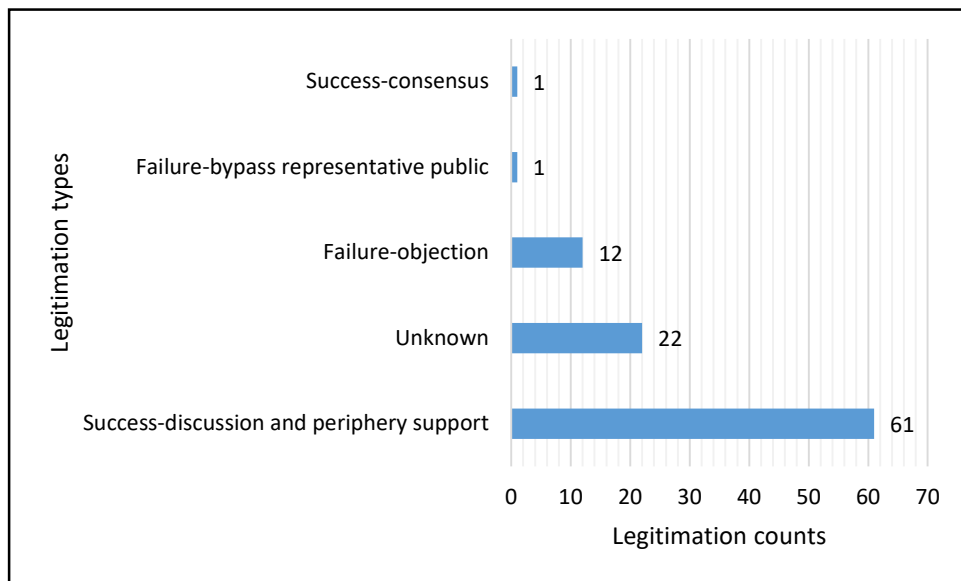


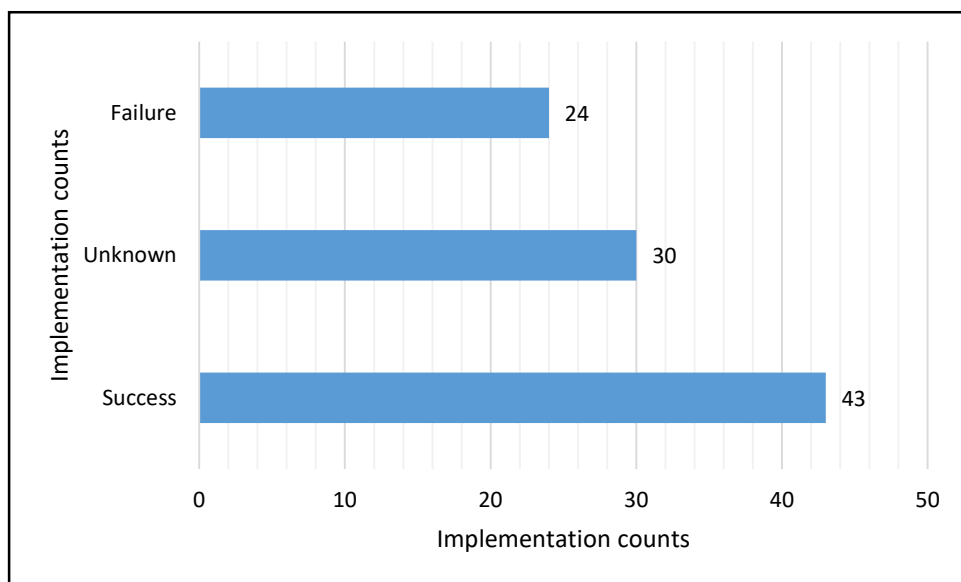
Figure L.78. Actor-Power graph for period 4.

***Legitimation and implementation.*** [Figure L.79](#) shows the types and numbers of legitimation in period 4. The predominant form of legitimation was success-discussion and periphery support (N=61), followed by unknown legitimation (N=22), failure-objection (N=12), failure-bypass representative public (N=1), and success-consensus (N=1). [Figure L.80](#) shows the types and numbers of implementation in period 4. Most implementation in period 4 was a success (N=43), some events were unknown (N=30), and some were a failure (N=24). The implementation success rate in period 4 was 44 percent, compared to 70 percent in period 3, 73 percent in period 2, and 36 percent in period 1. [Figure L.81](#) supports the interpretation that period 4 was a relatively unsuccessful period in terms of system development. Communicative events that failed to be legitimated (N=13) largely failed to be implemented (N=10), but many

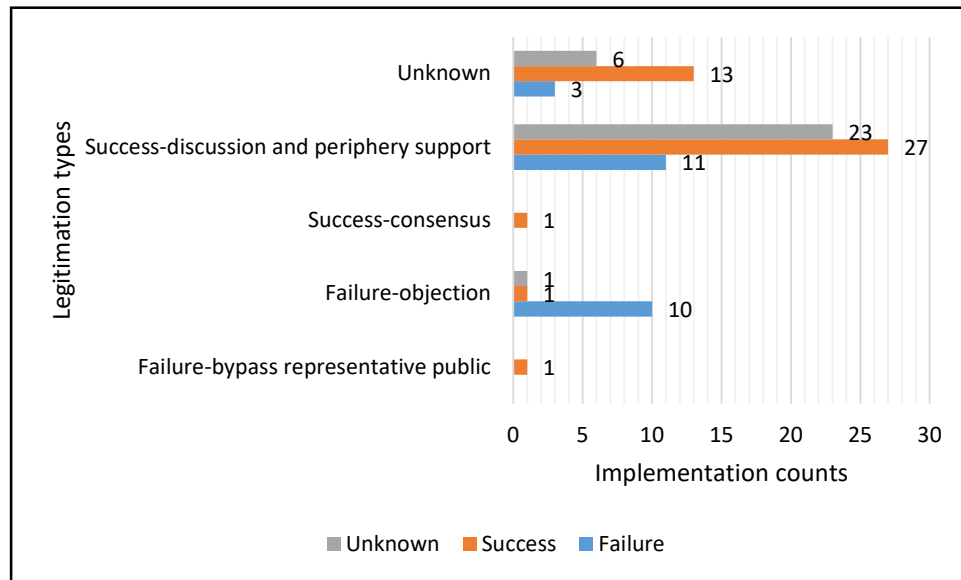
transmissions that were successfully legitimated (N=62) also failed to be implemented (N=11) or had unknown implementation outcomes (N=23).



**Figure L.79. Legitimation counts in period 4.**



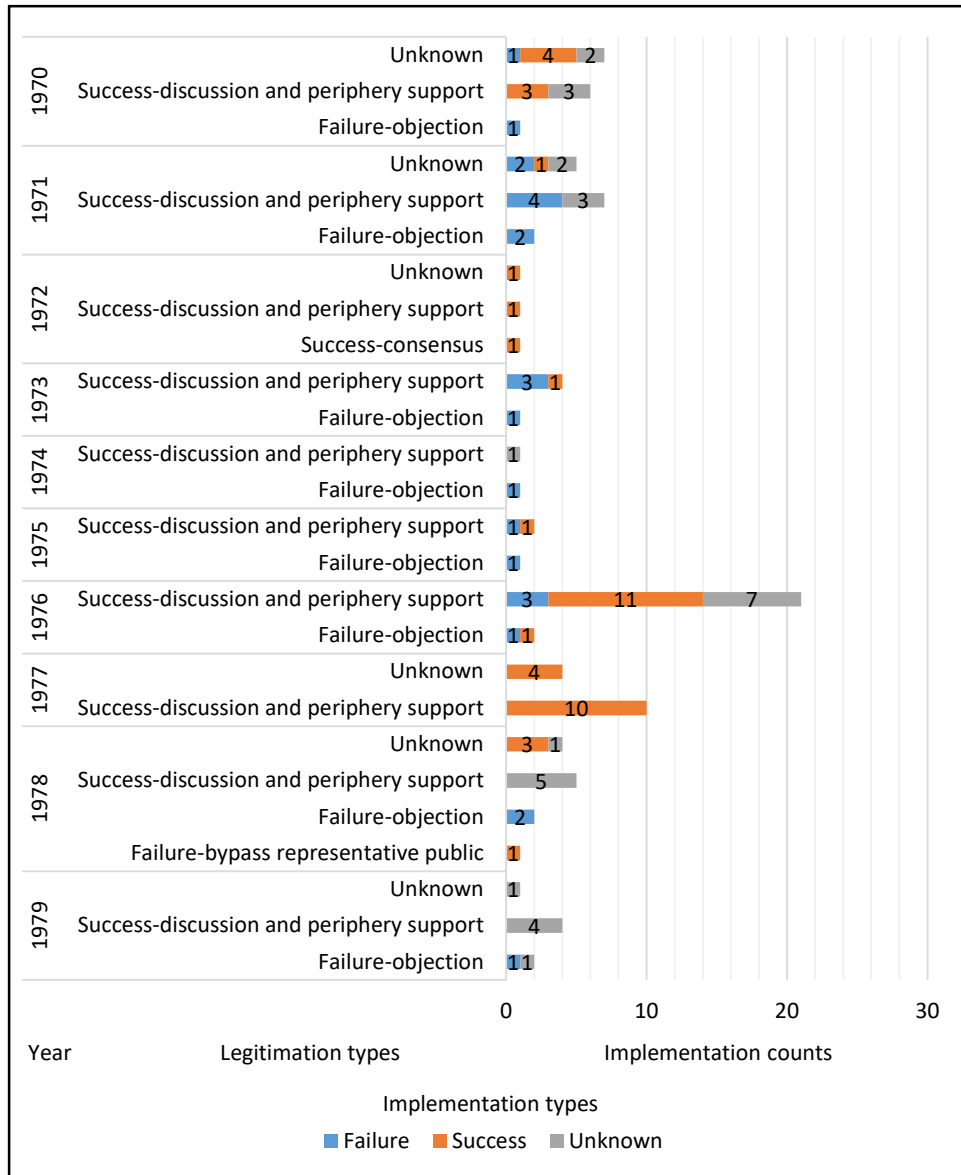
**Figure L.80. Implementation counts in period 4.**



**Figure L.81. Legitimation and implementation combinations in period 4.**

[Figure L.82](#) shows legitimization and implementation combinations by year in period 4. In every year, there was at least 1 transmission that was legitimated successfully, but as can be seen, and as shown in [Figure L.81](#), many successfully-legitimated transmissions had failed or unknown implementation. Two years with high legitimization-to-implementation rates were 1976 (48 percent) and 1977 (71 percent). It seems that actors successfully implemented the library study during these years.

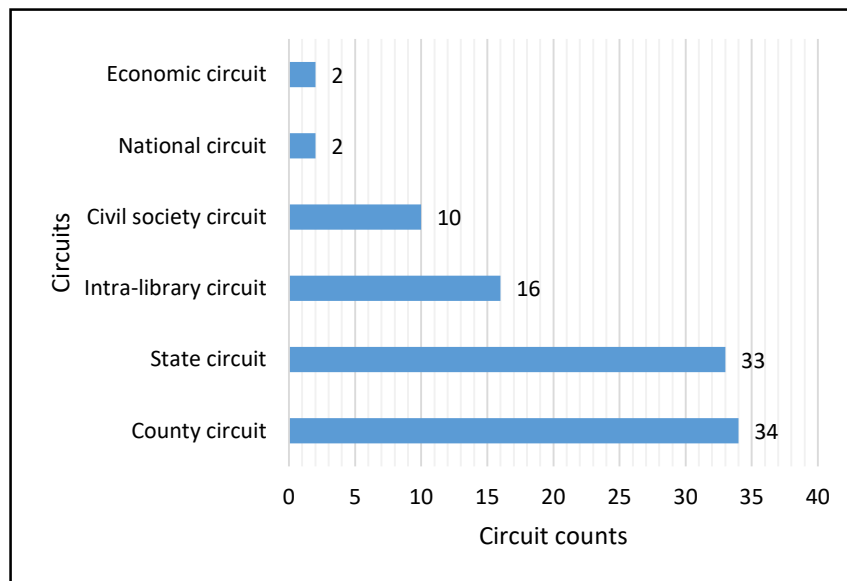




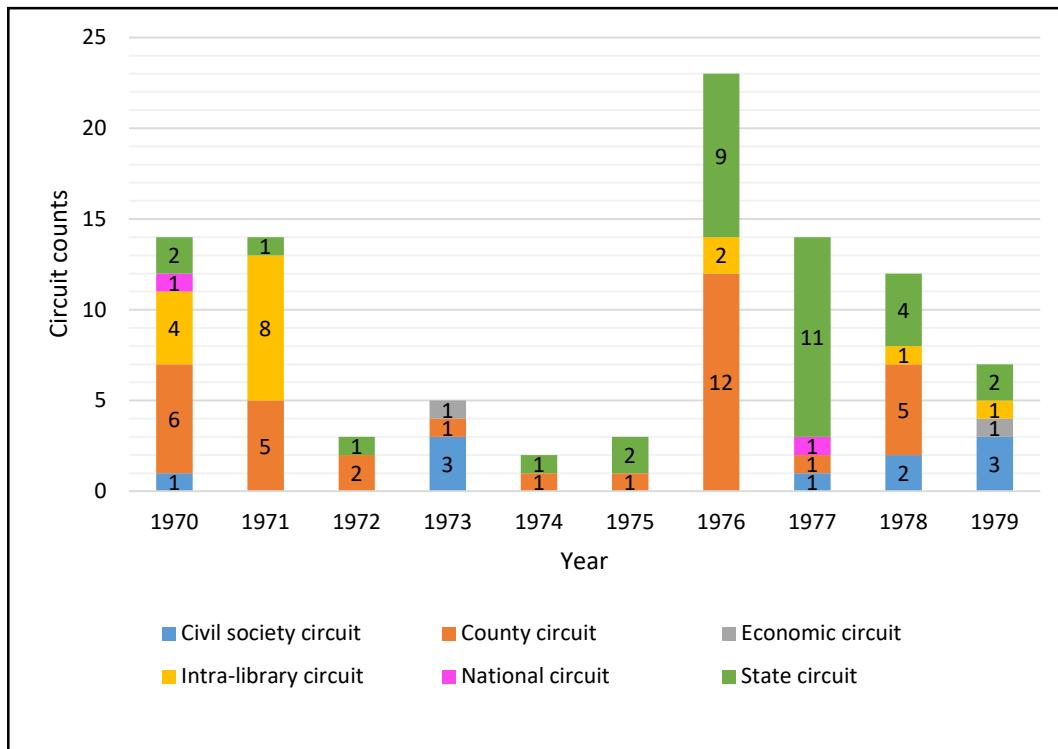
**Figure L.82. Legitimation and implementation combinations by year in period 4.**

**Circuits.** [Figure L.83](#) shows the circuits in period 4. The most prominent circuit was county (N=34), followed by state (N=33), intra-library (N=16), civil society (N=10), national (N=2), and economic (N=2). Circuit counts by year are shown in [Figure L.84](#). The county circuit maintained a relatively consistent presence throughout the years, especially in 1976. The

state circuit was also consistent throughout, but especially in 1976 and 1977. Intra-library circuit was active during the discussions of the Blasingame study in 1970 and 1971.



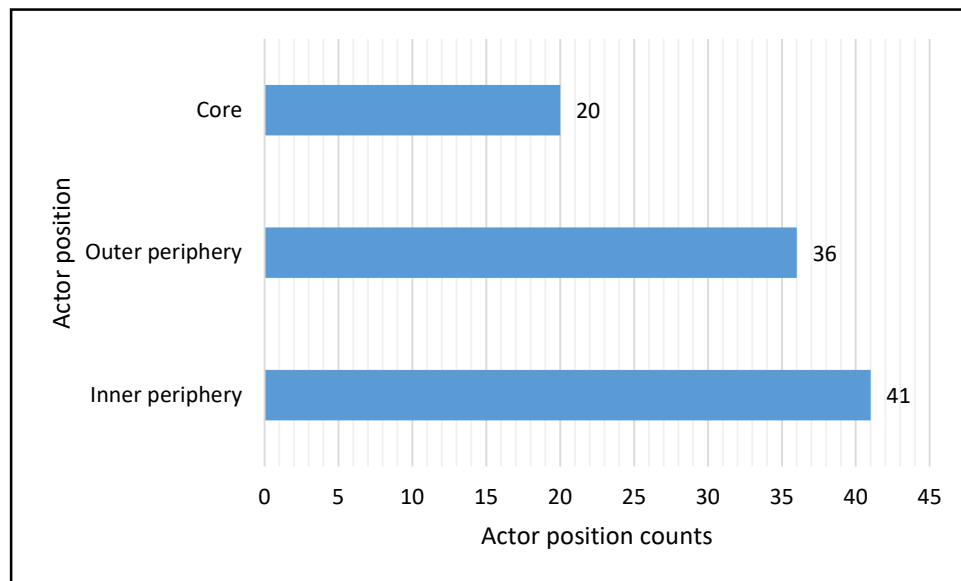
**Figure L.83. Circuit counts in period 4.**



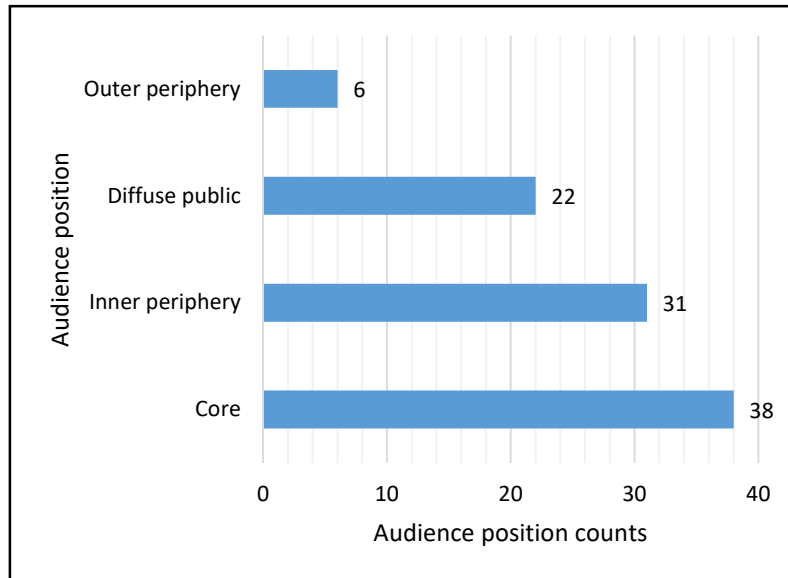
**Figure L.84. Circuit counts by year in period 4.**

[Figure L.85](#) shows actor positions in period 4. The most frequent position was inner periphery (N=41), followed by outer periphery (N=36) and core (N=20). [Figure L.86](#) shows audience positions in period 4. The most frequent audience positions were core (N=38), followed by inner periphery (N=31), diffuse public (N=22), and outer periphery (N=6). Actor position, audience position, and circuit combinations by year are shown in [Figure L.87](#). State circuit communications were identified primarily within the inner periphery, reflecting communications between the state library and district library about the library study. A variety of combinations are apparent in the county circuit. Intra-library circuit communications often travelled between the outer periphery and core. Civil society circuit transmissions were also

typically from the outer periphery to the core. The general structure of communication in period 4, including circuits, actor/audiences, and their positions, is visualized in [Figure L.88](#).



**Figure L.85. Actor position counts in period 4.**



**Figure L.86. Audience position counts in period 4.**

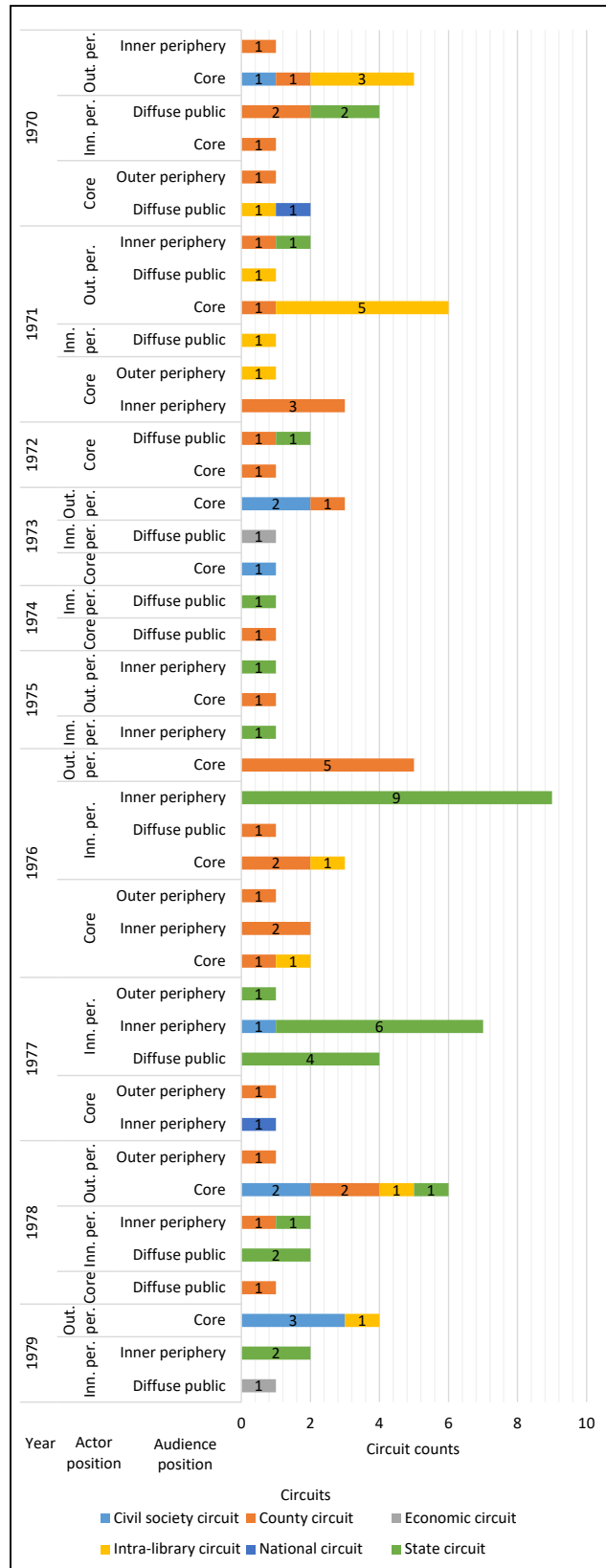


Figure L.87. Actor position, audience position, and circuit combinations by year in period 4.

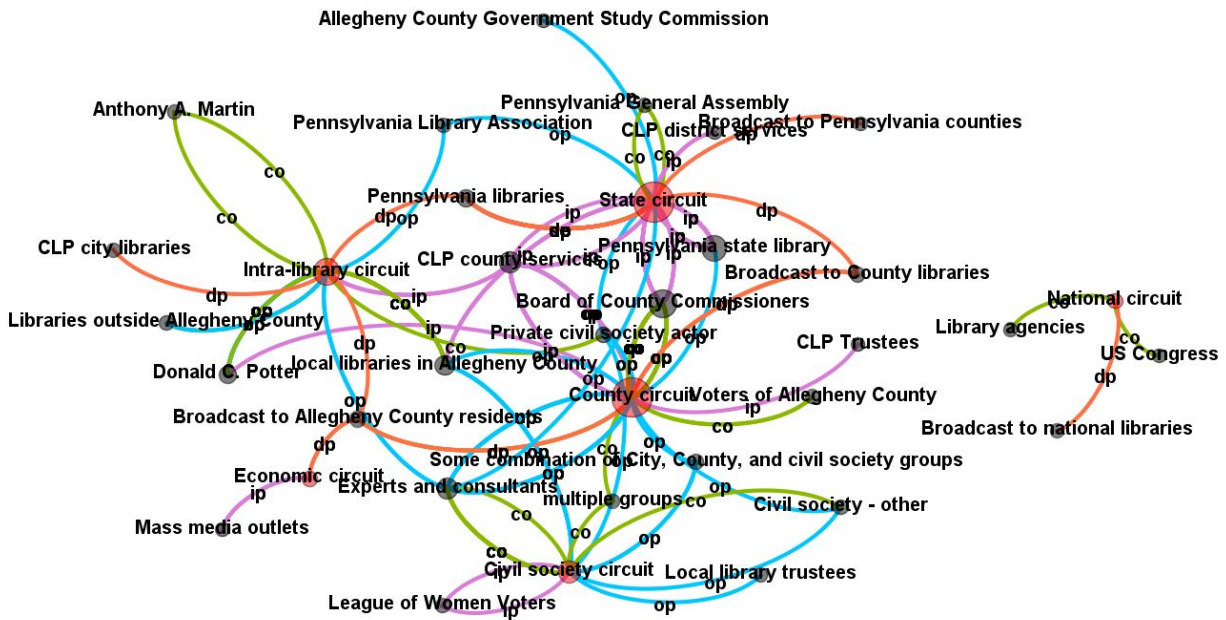
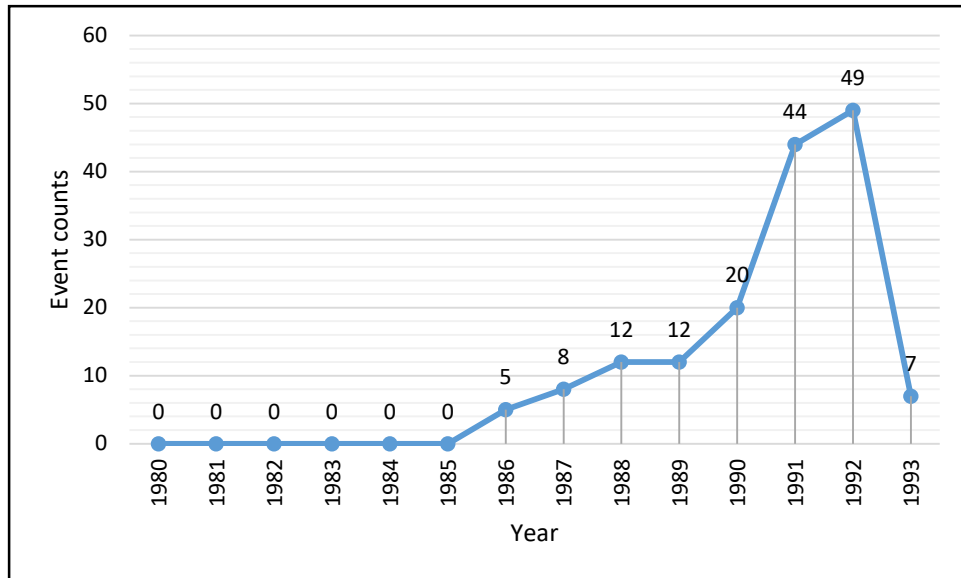


Figure L.88. Actor-Circuit graph for period 4.

## PERIOD 5: 1980–1993

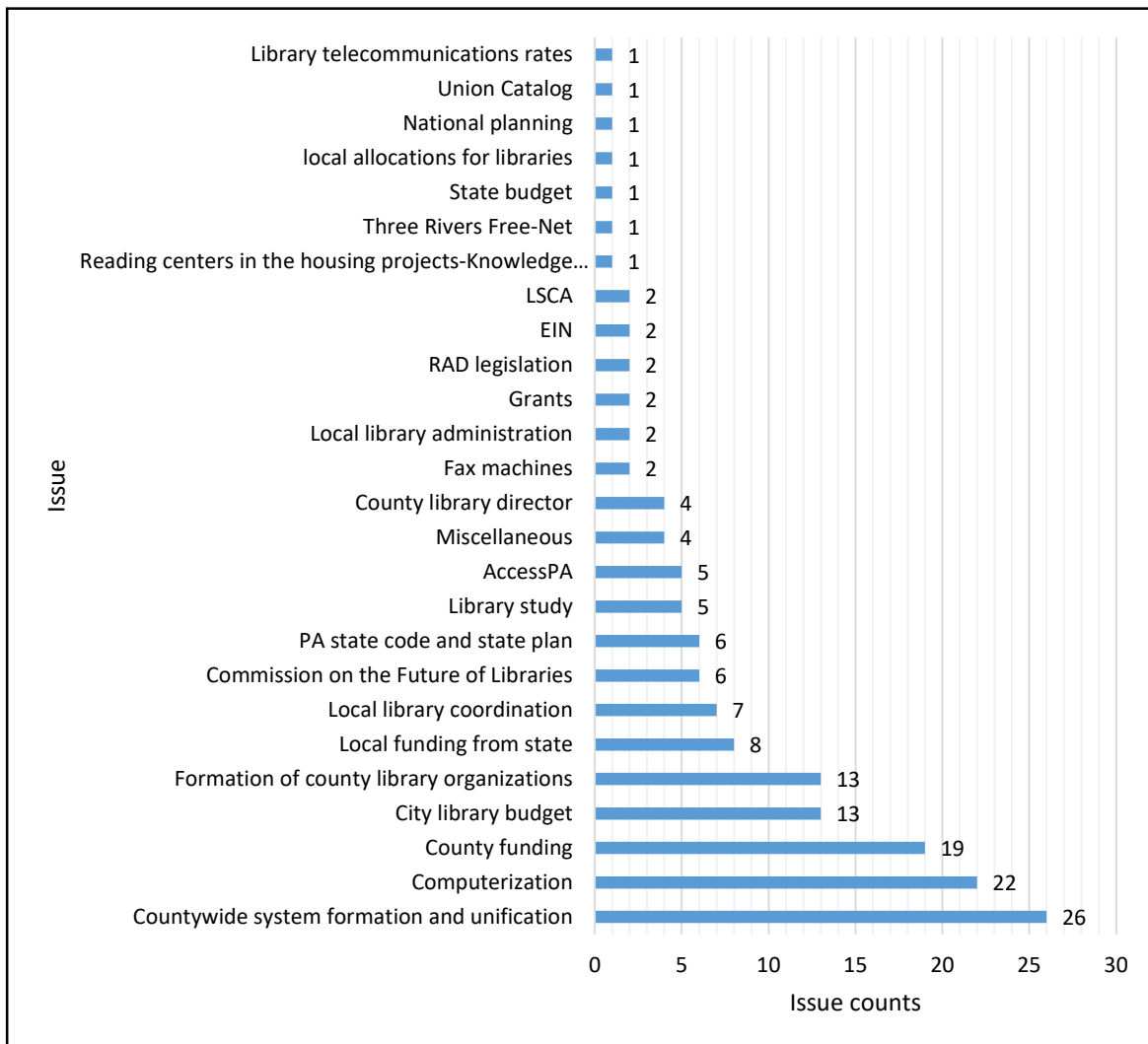
**Events.** A total of N=157 communicative events were identified in period 5. As seen in [Figure L.89](#), the period spans from 1980 to mid-1993, but no communicative events were identified from 1980 to 1984. It is not clear why this was the case, but it may be related to the economic downturn that occurred during that time.



**Figure L.89. Communicative events by year in period 5.**

*Issues.* [Figure L.90](#) shows the issues of period 5. The most dominant issue was countywide system formation and unification (N=26), followed by computerization (N=22), county funding (N=19), city library budget (N=13), and formation of county library organizations. Two of the top issues—computerization and formation of county library organizations—were new to this period. [Figure L.91](#) shows the issues by year. Some of the issues in the middle of the period included county funding, state funding, the city library budget, and Access PA, a resource-sharing initiative that began in Allegheny County in 1988. As activity increased in 1990 and 1991, the issues included the formation of county library organizations, the county library director, and countywide system formation and unification. This was the time when the Carnegie Library of Pittsburgh published its study, Lucchino published *Quiet Crisis*, and several new library groups were formed, including CLASP and CFLAC. Computerization and local funding for libraries became major issues in 1992.





**Figure L.90. Issue counts in period 5.**

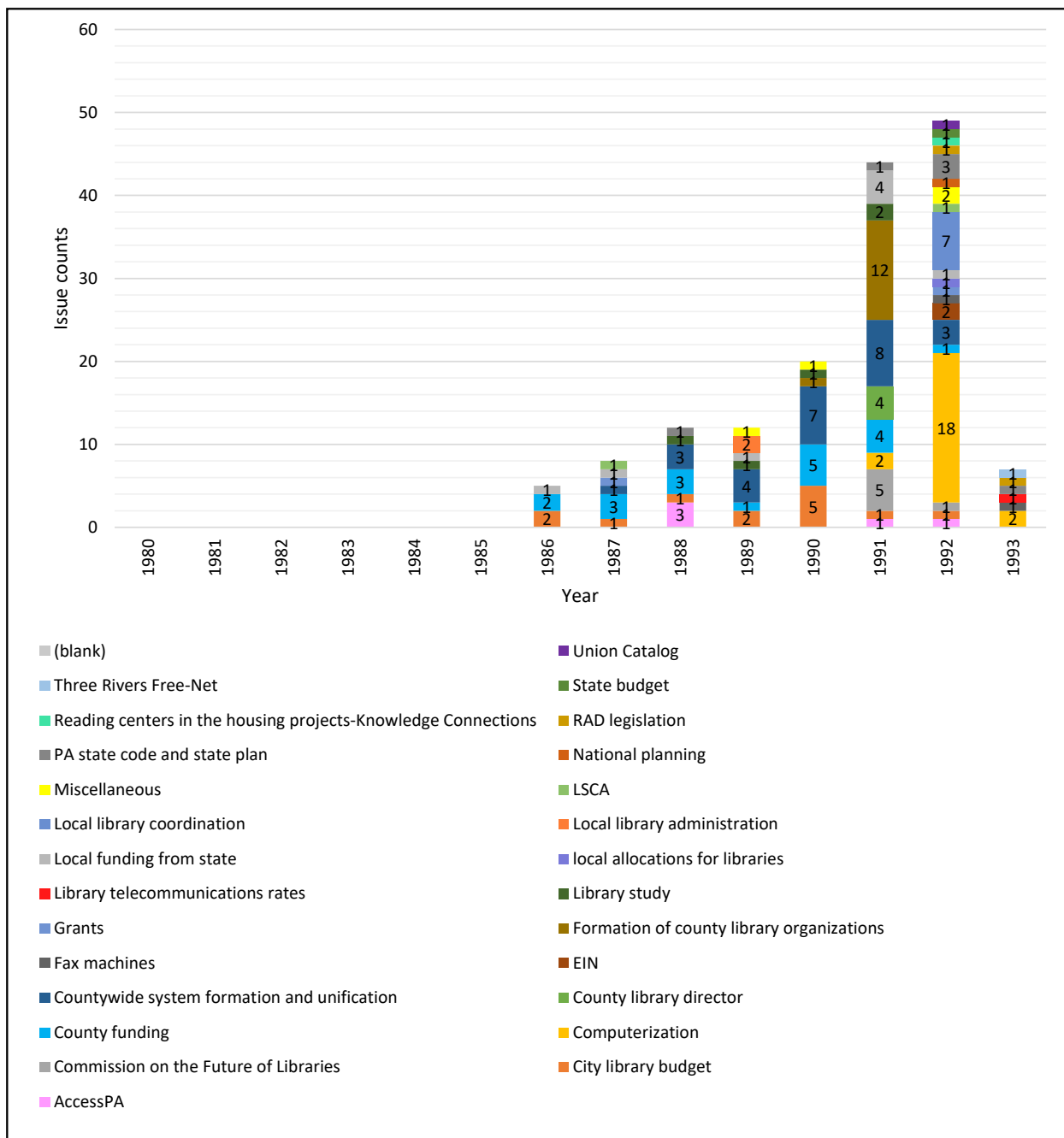
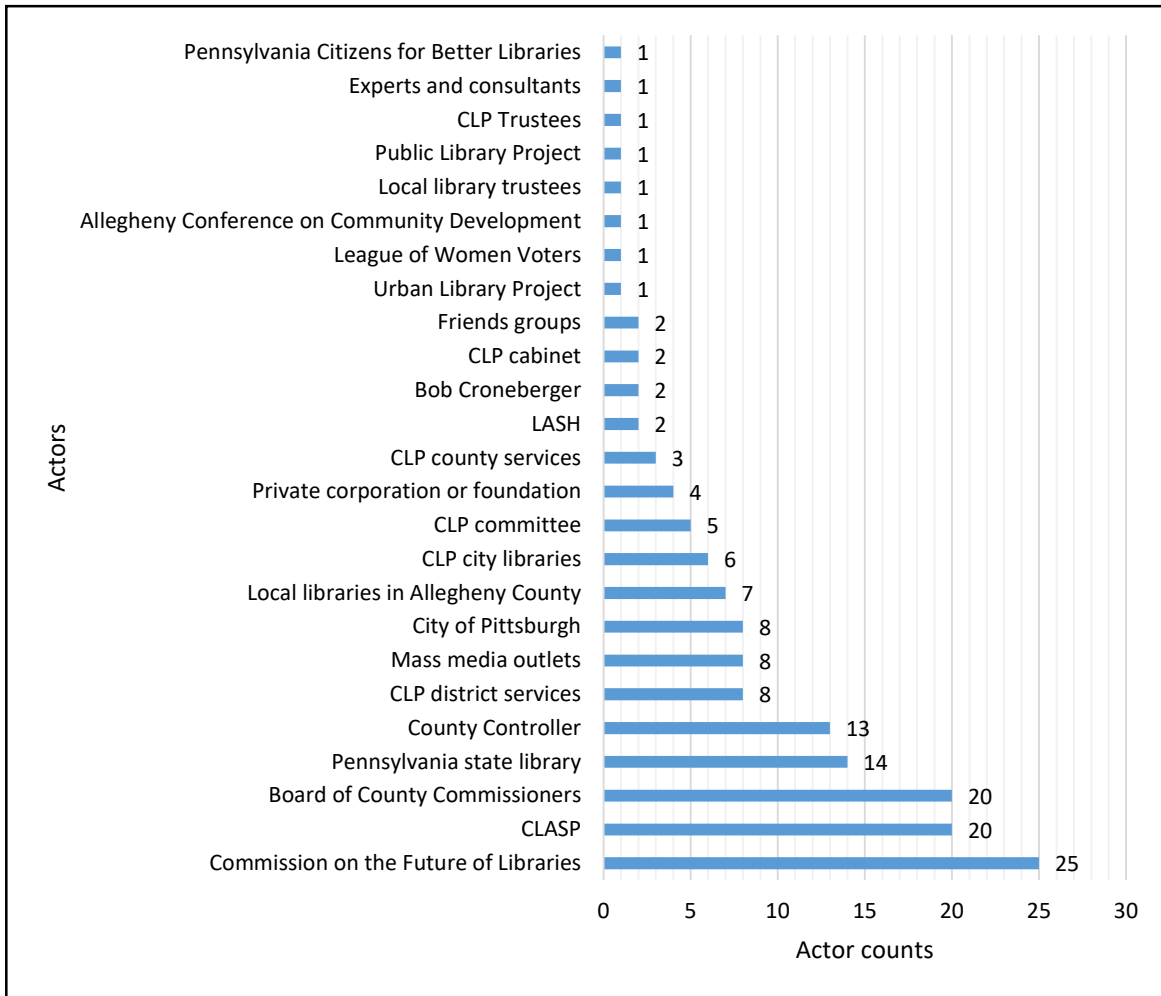


Figure L.91. Issue counts by year in period 5.

*Actors and audiences.* [Figure L.92](#) shows the actors of period 5. The predominant actors were Commission on the Future of Libraries in Allegheny County, or CFLAC (N=25), Board of County Commissioners (N=20), County Library Association Serving the People, or CLASP (N=19), Pennsylvania state library (N=14), and County Controller (N=13), who at that time was Frank Lucchino. [Figure L.93](#) shows actors by year in period 5. The Board of County Commissioners and the City of Pittsburgh were relatively stable actors from 1986 to 1992. All aspects of the Carnegie Library of Pittsburgh, including the city libraries, a CLP committee, county services, and district services, were the most visible actors from 1986 to 1990. In 1991, the dominant actors changed to Library Association of South Hills (LASH) and County Library Association Serving the People (CLASP), two regional library associations. In 1991, 1992, and 1993, the Commission on the Future of Libraries in Allegheny County (CFLAC) became a dominant actor. In 1991 and 1992, local libraries in Allegheny County became visible actors.



**Figure L.92. Actor counts in period 5.**

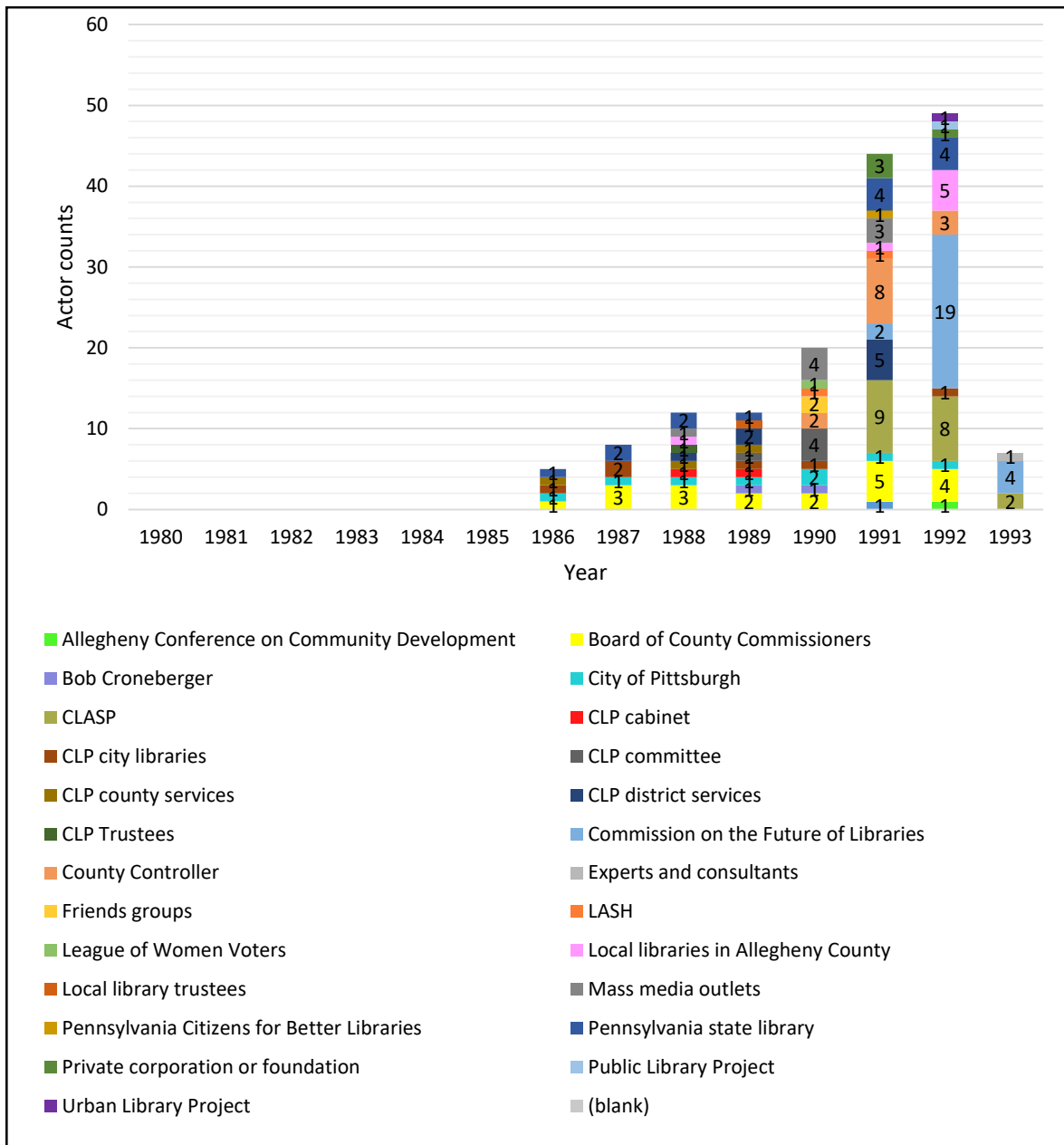
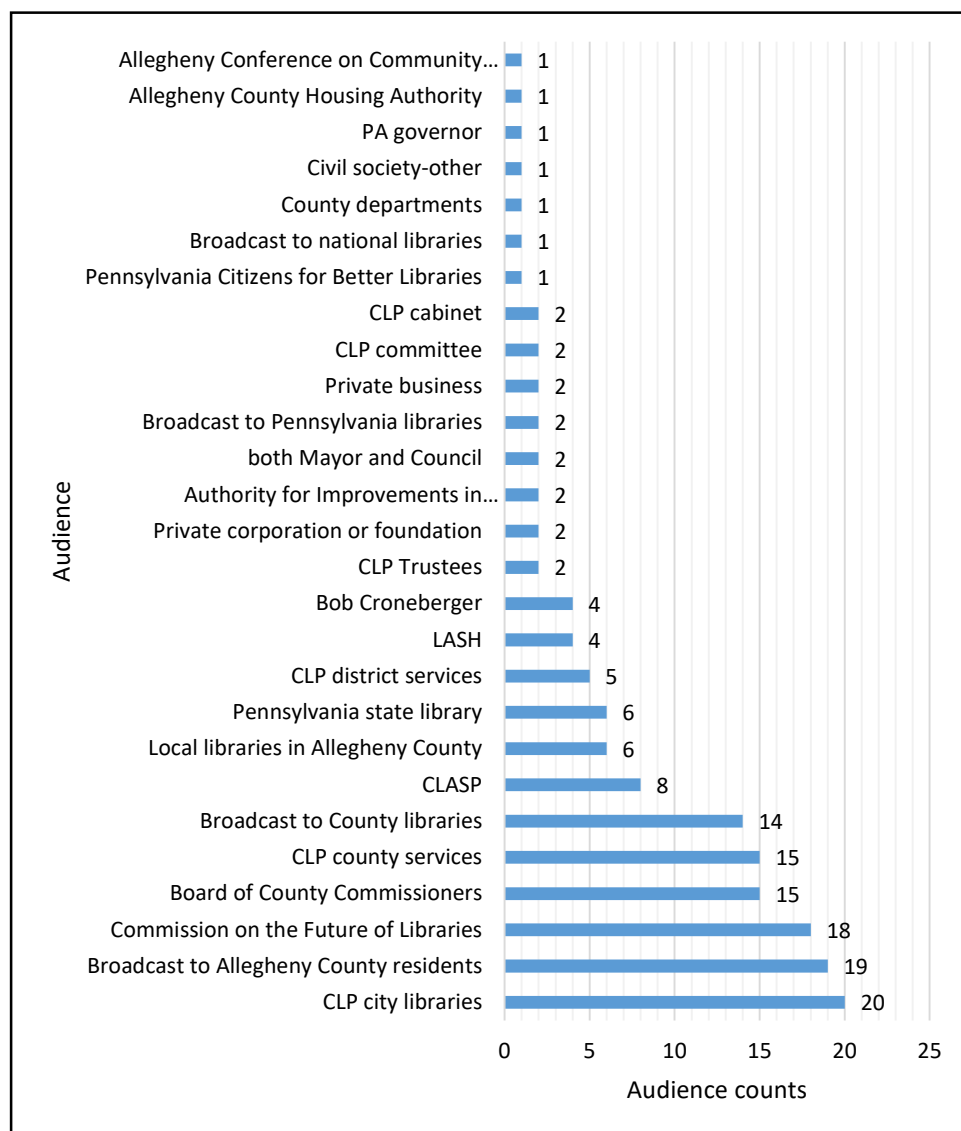


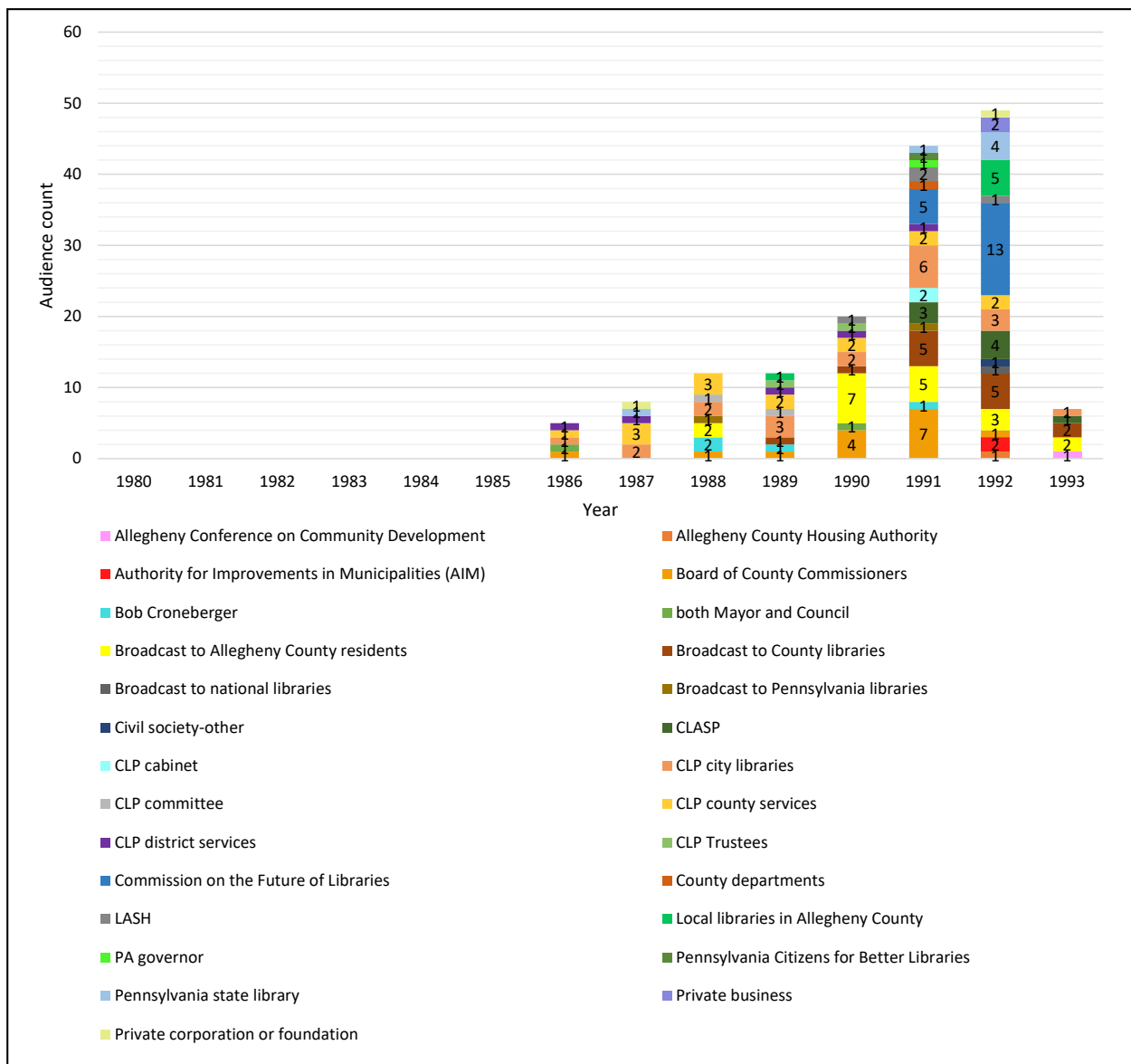
Figure L.93. Actor counts by year in period 5.

Figure L.94 shows the audiences of period 5. The most prevalent audience was Carnegie Library of Pittsburgh city libraries (N=20), followed by broadcast to Allegheny County residents (N=19), Commission on the Future of Libraries (N=18), Board of County Commissioners

(N=15), Carnegie Library of Pittsburgh county services (N=15), and broadcast to county libraries (N=14). [Figure L.95](#) shows audiences by year. The Board of County Commissioners, CLP city libraries, Broadcast to county libraries, CLP county services, were relatively frequent audiences throughout the period where communicative events were identified. Broadcasts to county residents and broadcasts to county libraries increased from 1990 to 1991.



**Figure L.94. Audience counts in period 5.**



**Figure L.95. Audiences by year in period 5.**

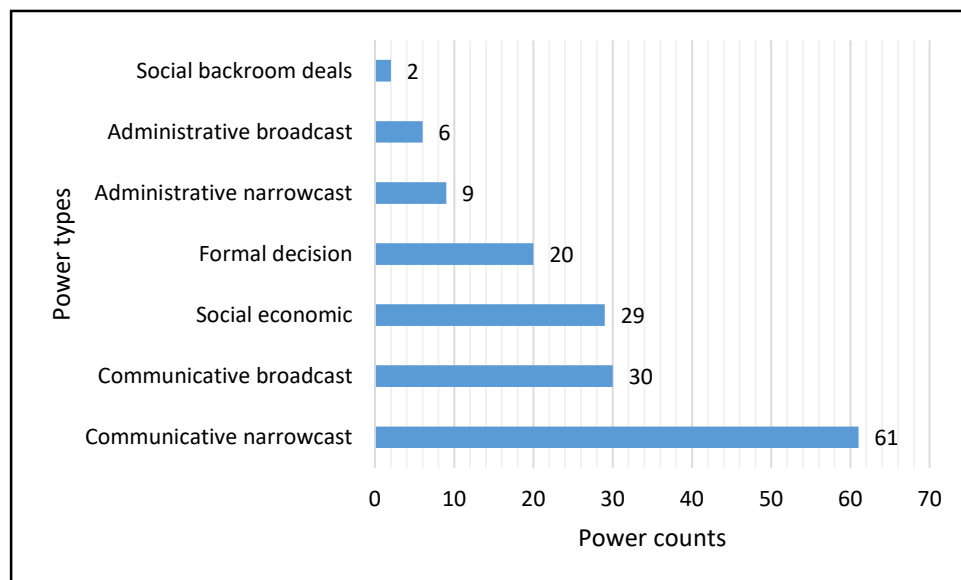
Actor-audience pairings are seen in [Figure L.96](#). The Commission on the Future of Libraries was an audience of local libraries in Allegheny County, CLASP, and the Board of

County Commissioners. CLASP, the CLP committee, and the Commission on the Future of Libraries made broadcasts to county libraries.

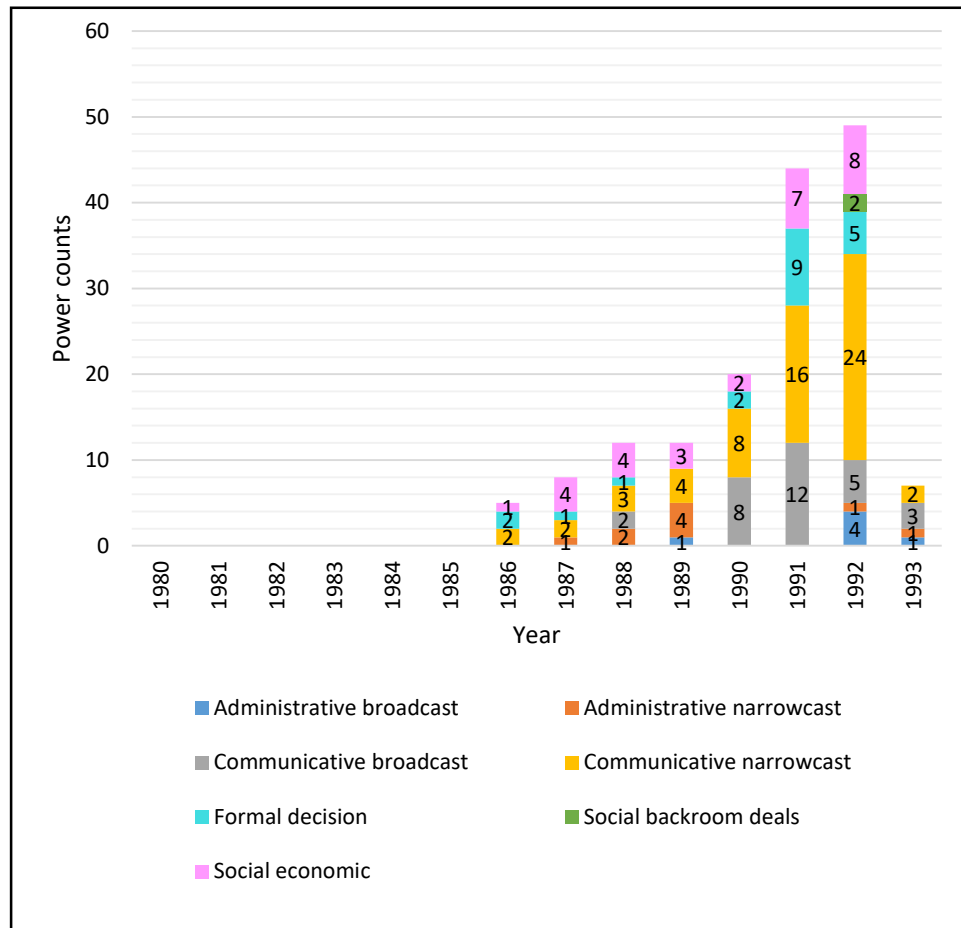




**Power.** [Figure L.97](#) shows the number and types of power in period 5. Communicative narrowcast (N=61) as the predominant form of power, followed by communicative broadcast (N=30), social economic (N=29), formal decision (N=20), administrative narrowcast (N=9), administrative broadcast (N=6), and social backroom deals (N=2). [Figure L.98](#) shows the types of power by year in period 5. Communicative narrowcasts grew steadily from 1986 to 1992. Social economic was a steady form of power from 1986 to 1990, then increased in 1991 and 1992. Communicative broadcasts increased substantially in 1990 and 1991. Formal decisions also increased in 1991 and 1992. Administrative narrowcasts and broadcasts had minimal visibility during this period.



**Figure L.97. Power counts in period 5.**



**Figure L.98. Power counts by year in period 5.**

[Figure L.99](#) shows actor, audience, and power combinations in period 5. Social economic power was transmitted to library audiences from private corporations or foundations, the City of Pittsburgh, Pennsylvania state library, and the Board of County Commissioners. Communicative narrowcasts are dispersed widely across almost all actor-audience pairings. Formal decisions were made by several actors, including the Commission on the Future of Libraries, Board of County Commissioners, CLASP, Pennsylvania state library, City of

Pittsburgh, private corporations or foundations, and CLP trustees. A visualization of actors, audiences, and their power relationships can be seen in [Figure L.100](#).

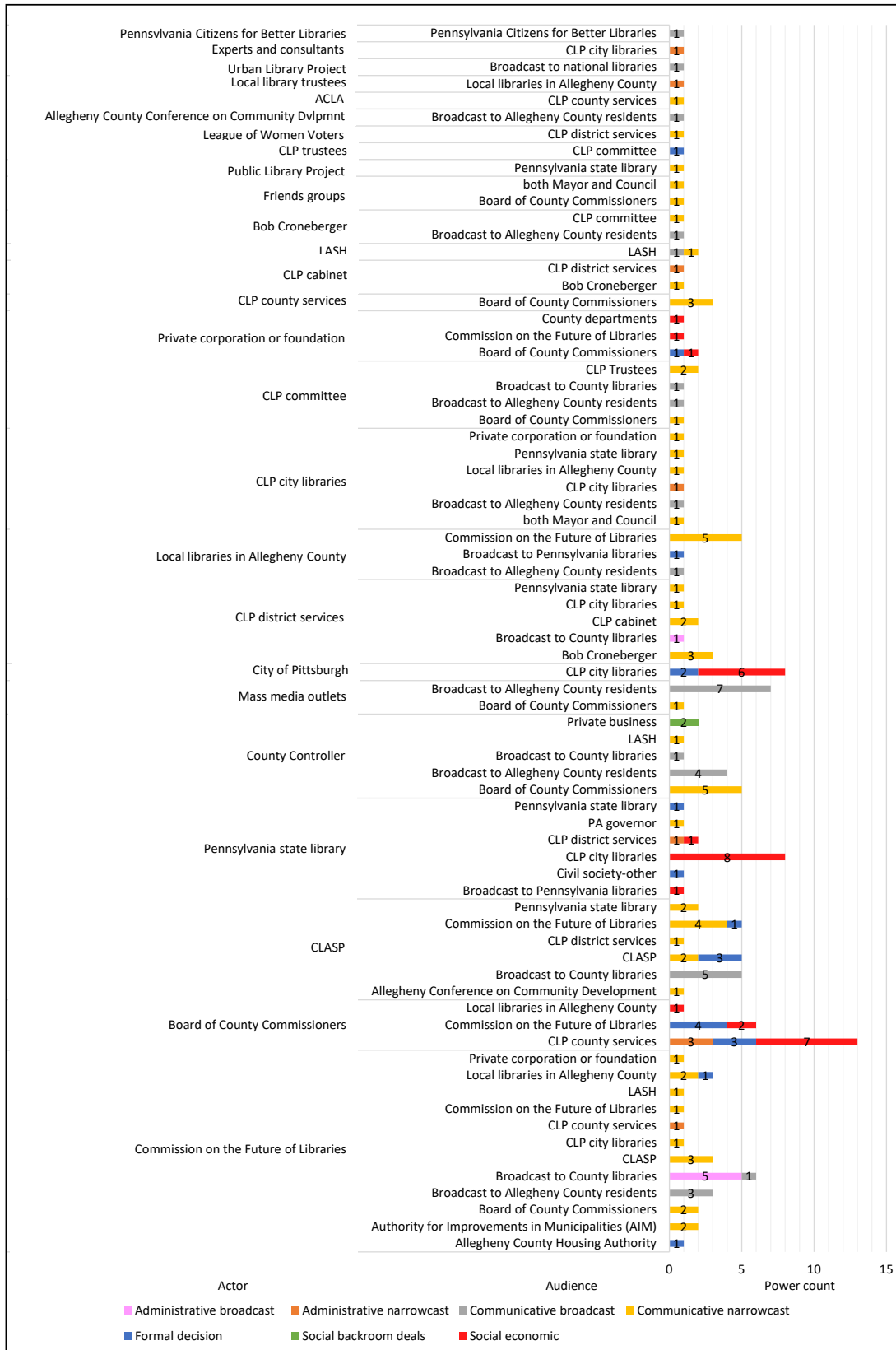
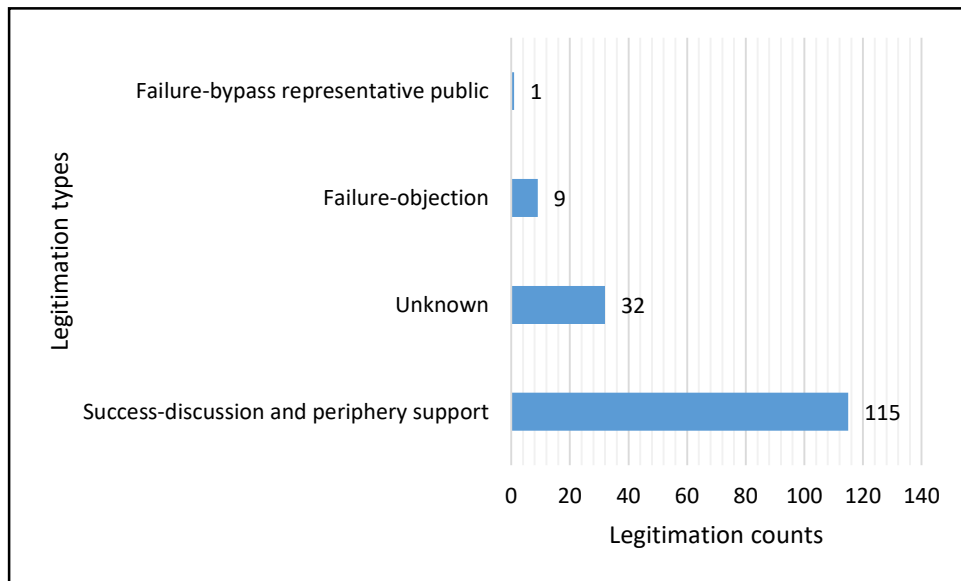
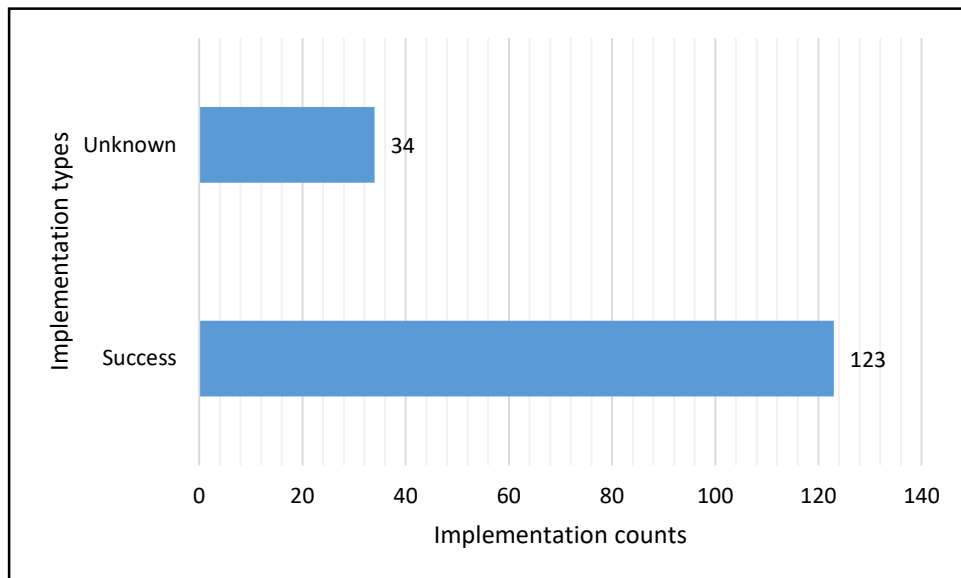


Figure L.99. Actor, audience, and power combinations in period 5.

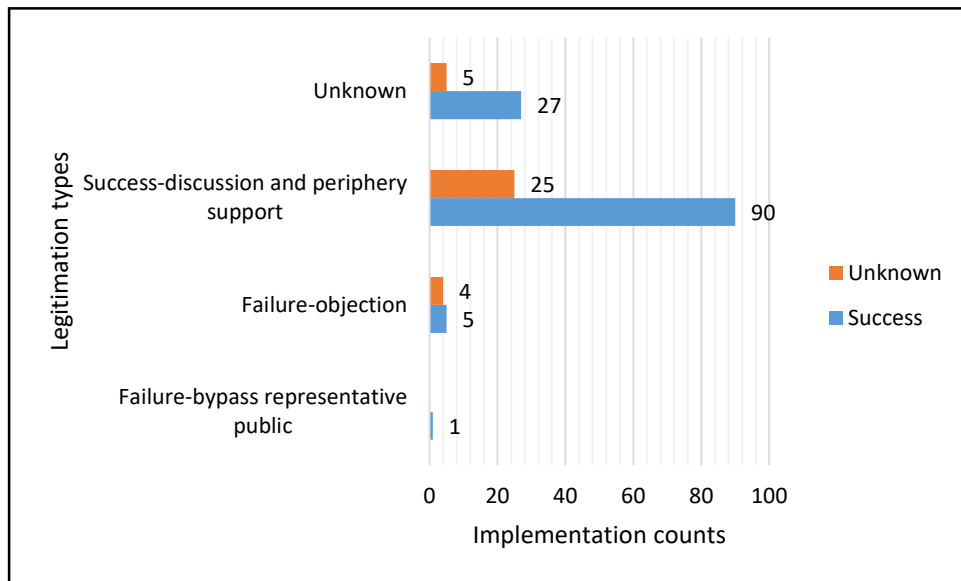




**Figure L.101. Legitimation counts in period 5.**



**Figure L.102. Implementation counts in period 5.**



**Figure L.103. Legitimation and implementation combinations in period 5.**



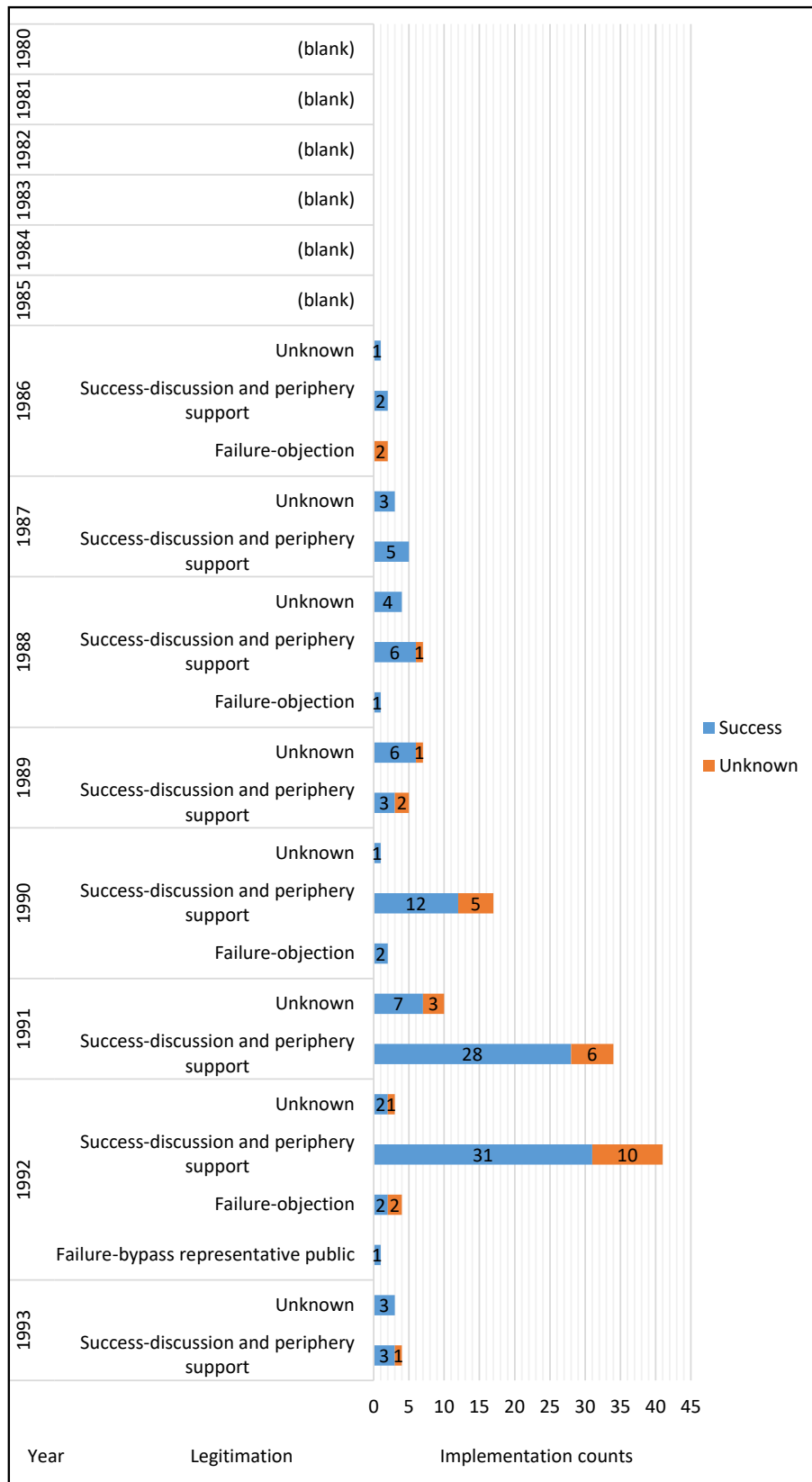
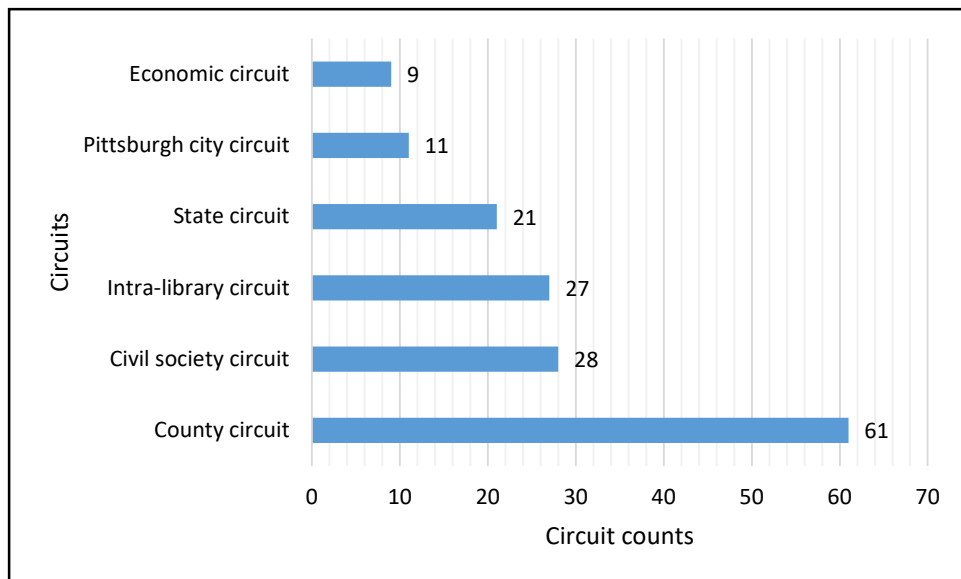
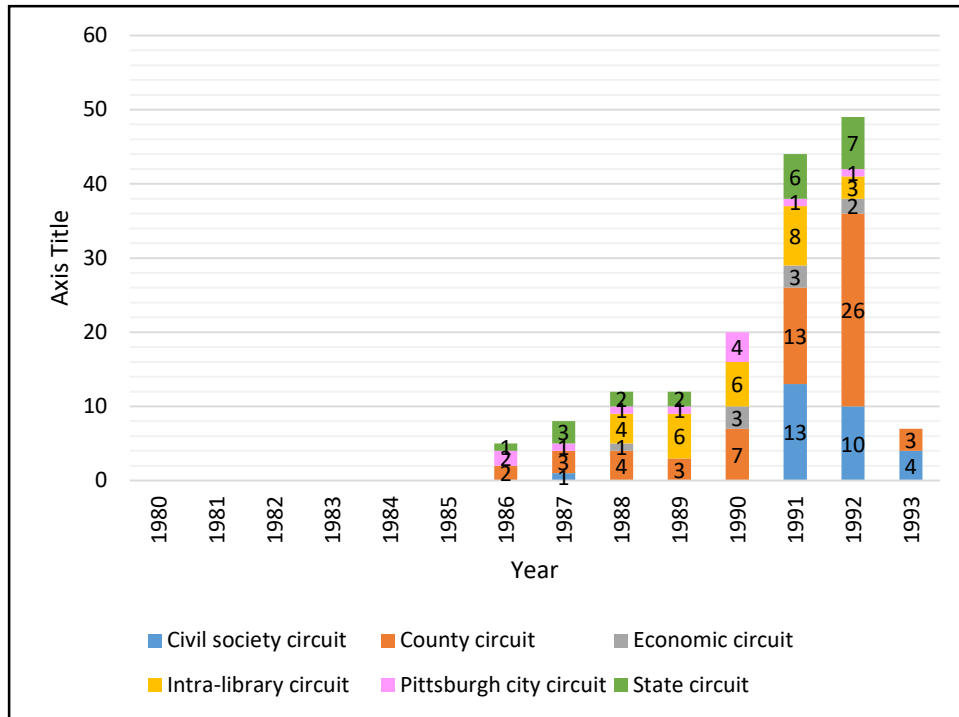


Figure L.104. Legitimation and implementation combinations by year in period 5.

**Circuits.** [Figure L.105](#) shows the circuits of period 5. The predominant circuit was county (N=61), followed by civil society (N=28), intra-library (N=27), state (N=21), Pittsburgh city (N=11), and economic (N=9). [Figure L.106](#) shows these circuits by year. The county circuit was active in every year, especially 1991 and 1992, at the same time the civil society circuit was active. State and economic circuits were minimally active but consistent, as was the Pittsburgh city circuit. The intra-library circuit was especially active from 1989 to 1991.

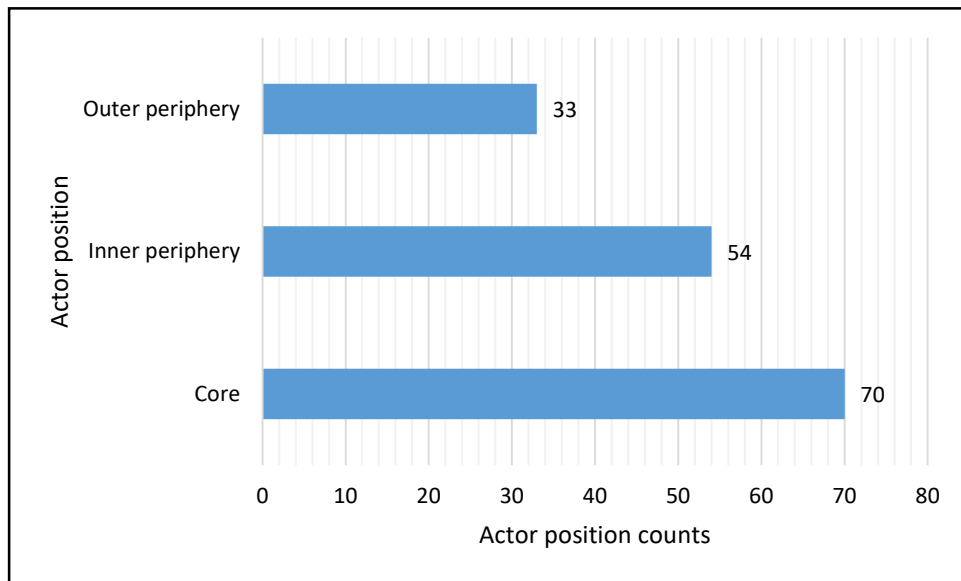


**Figure L.105. Circuit counts for period 5.**

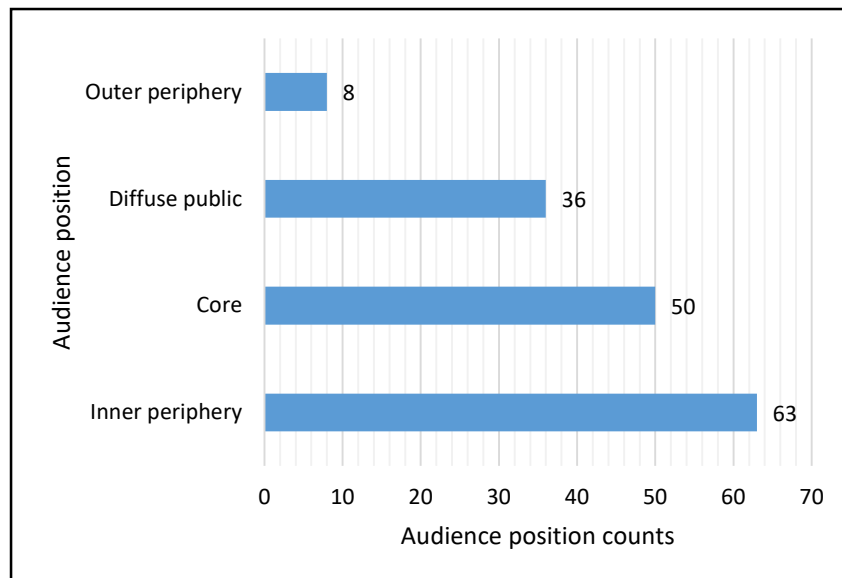


**Figure L.106. Circuits by year in period 5.**

[Figure L.107](#) shows actor positions in period 5. The most frequent position was core (N=70), followed by inner periphery (N=54) and outer periphery (N=33). [Figure L.108](#) shows audience positions in period 5. The most frequent audience position was inner periphery (N=63), followed by core (N=50), diffuse public (N=36), and outer periphery (N=8). Actor position, audience position, and circuit combinations by year are shown in [Figure L.109](#). The state circuit was intermittently active, with most transmissions sent from or received by the inner periphery. The city circuit was active from 1986 to 1990, then dwindled in activity from 1991 onward. The county circuit is relatively active in all its positions throughout the period. Civil society becomes active toward the end of the period, from 1991 to 1993. An overall visualization of the circuits, together with actor/audience nodes and circuit positions, is shown in [Figure L.110](#).



**Figure L.107. Actor positions in period 5.**



**Figure L.108. Audience positions in period 5.**



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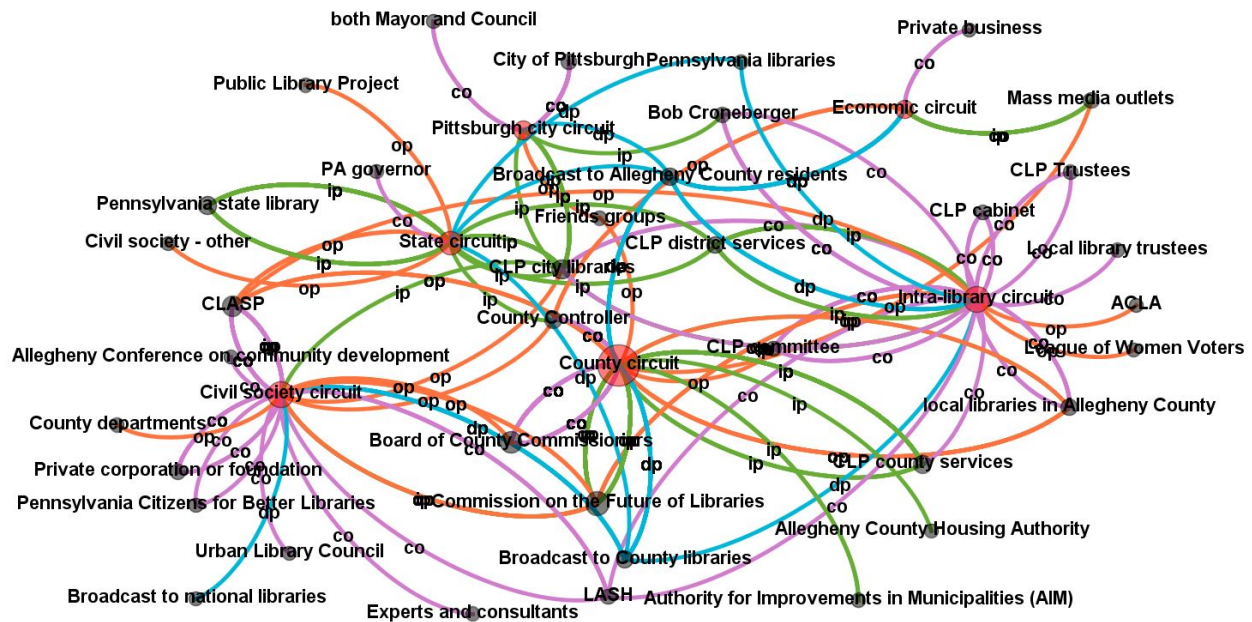
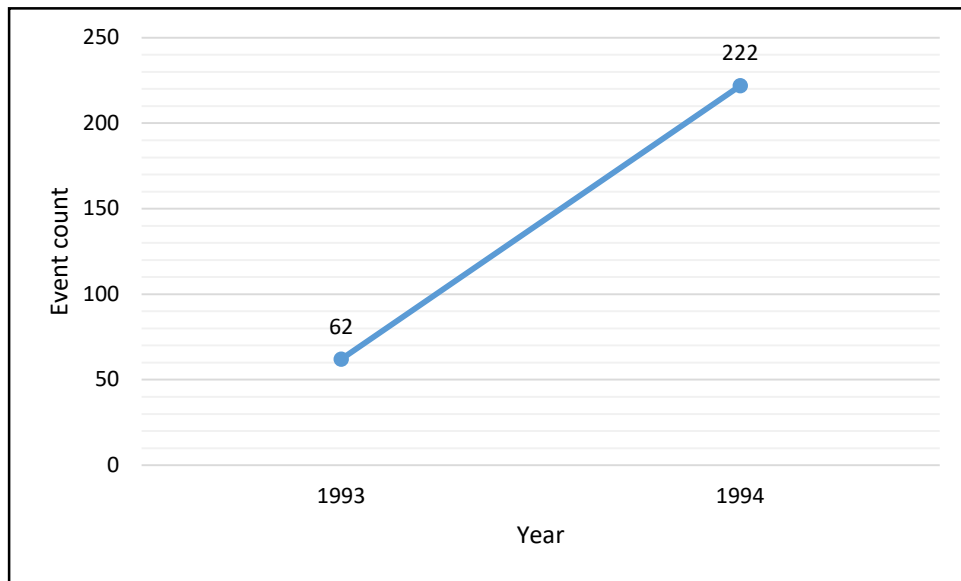


Figure L.110. Actor-Circuit graph for period 5.

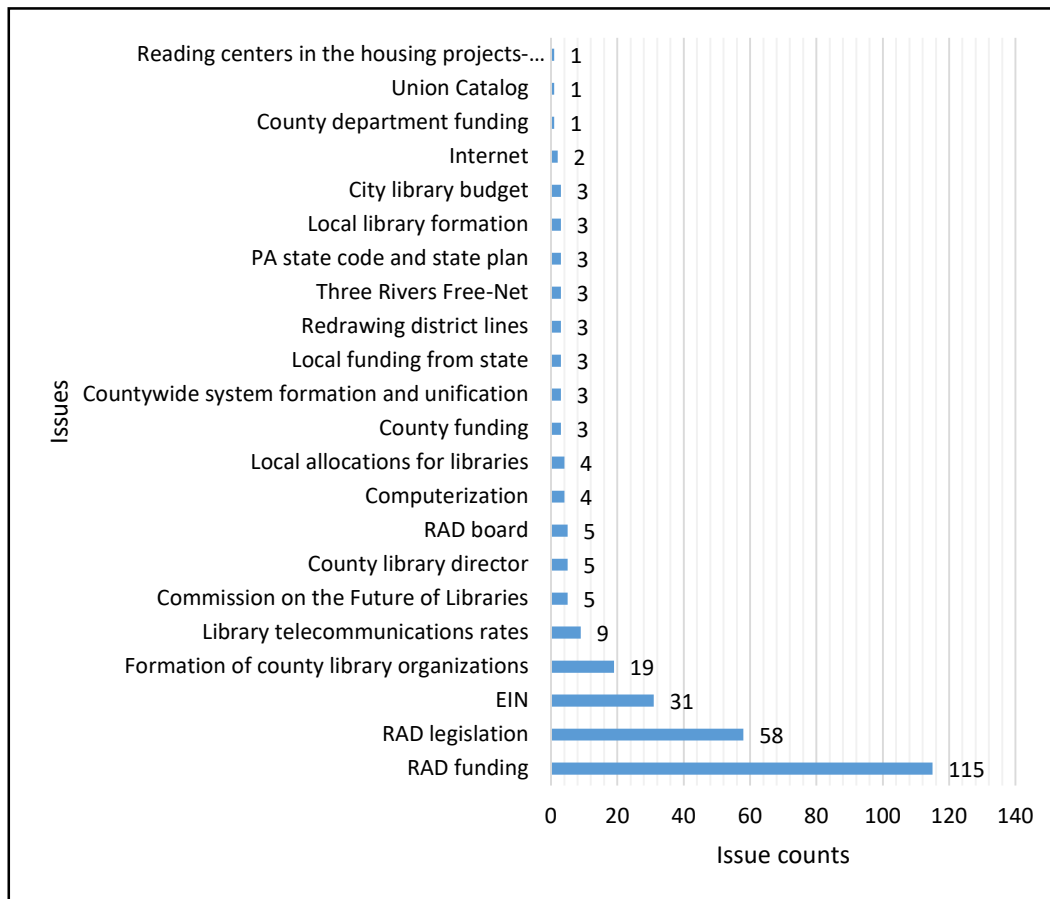
## PERIOD 6: 1993–1994

**Events.** A total of  $N=284$  communicative events were identified in period 6. The period is a little over a year long, from June 1993 when the Pennsylvania Economy League approached CLASP about the proposed Regional Asset District legislation, to October 1994 when ACLA became a contractual regional asset and was awarded 5 million dollars from the Regional Asset District board. Despite the comparatively short duration of time, a significant volume of activity occurred during period 6, the activity was focused on a common theme, and several new actors and issues appeared. From 1993 to 1994, communicative events increased dramatically, from  $N=62$  to  $N=222$  (see [Figure L.111](#)).



**Figure L.111. Communicative events in period 6.**

**Issues.** [Figure L.112](#) shows the issues of period 6. The most prevalent issue was RAD funding (N=115), followed by RAD legislation (N=58), Electronic Information Network, or EIN (N=31), formation of county library organizations (N=19), and library telecommunications rates (N=9). RAD funding and RAD legislation are new issues as of period 6. The issues of formation of county library organizations, library telecommunications rates, and EIN increased since period 5.



**Figure L.112. Issues in period 6.**

[Figure L.113](#) shows issues by year in period 6. RAD legislation is a significant issue in both years. In late 1993, RAD legislation was passed in the Pennsylvania General Assembly, and in early 1994, the legislation was approved by the Allegheny County Commissioners. In 1994, RAD funding became the major issue. The prevalence of this issue reflects how arts and cultural groups like ACLA prepared to petition for RAD funding. Other significant issues in 1994 were the RAD board, library telecommunications rates, formation of county library organizations, and EIN. These issues confirm the description and chronology in section [0](#) where



it was found that EIN, the RAD legislation, ACLA, and civil society groups like the Pennsylvania Economy League became a new means for unifying libraries in Pittsburgh.

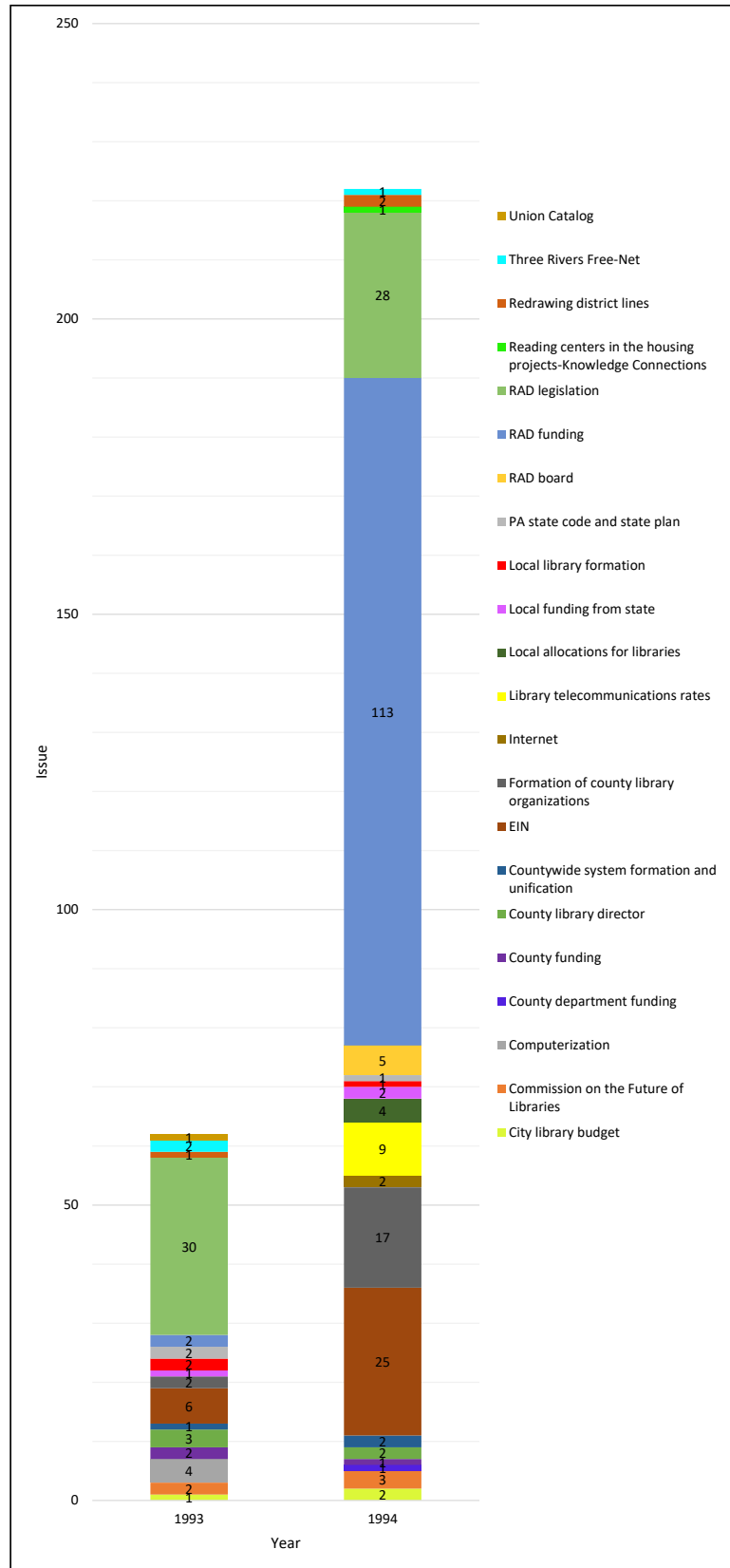
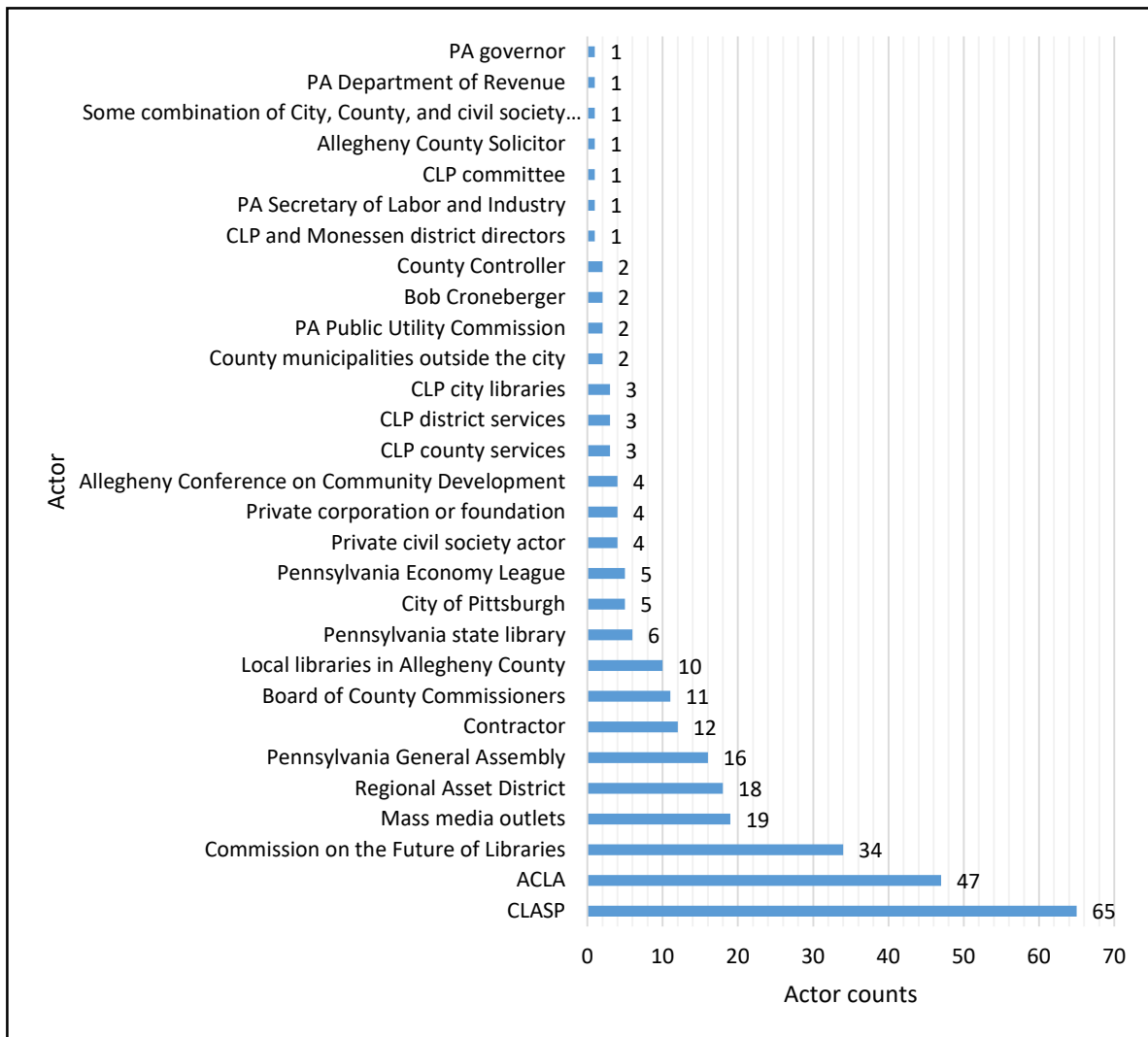


Figure L.113. Issues by year in period 6.

*Actors and audiences.* [Figure L.114](#) shows the actors in period 6. The most frequent actor was CLASP (N=65), followed by ACLA (N=47), Commission on the Future of Libraries (N=34), mass media outlets (N=19), Regional Asset District (N=18), and Pennsylvania General Assembly (N=16). [Figure L.115](#) shows actors by year. CLASP was a dominant actor in both years. ACLA emerged only in 1994. Commission on the Future of Libraries was active in both years, but more so in 1994. Contractor and local libraries in Allegheny County emerged as visible actors in 1994 as library groups prepared for RAD hearings. The Regional Asset District became active in 1994 after legislation was passed at the state and county levels.



**Figure L.114. Actors in period 6.**

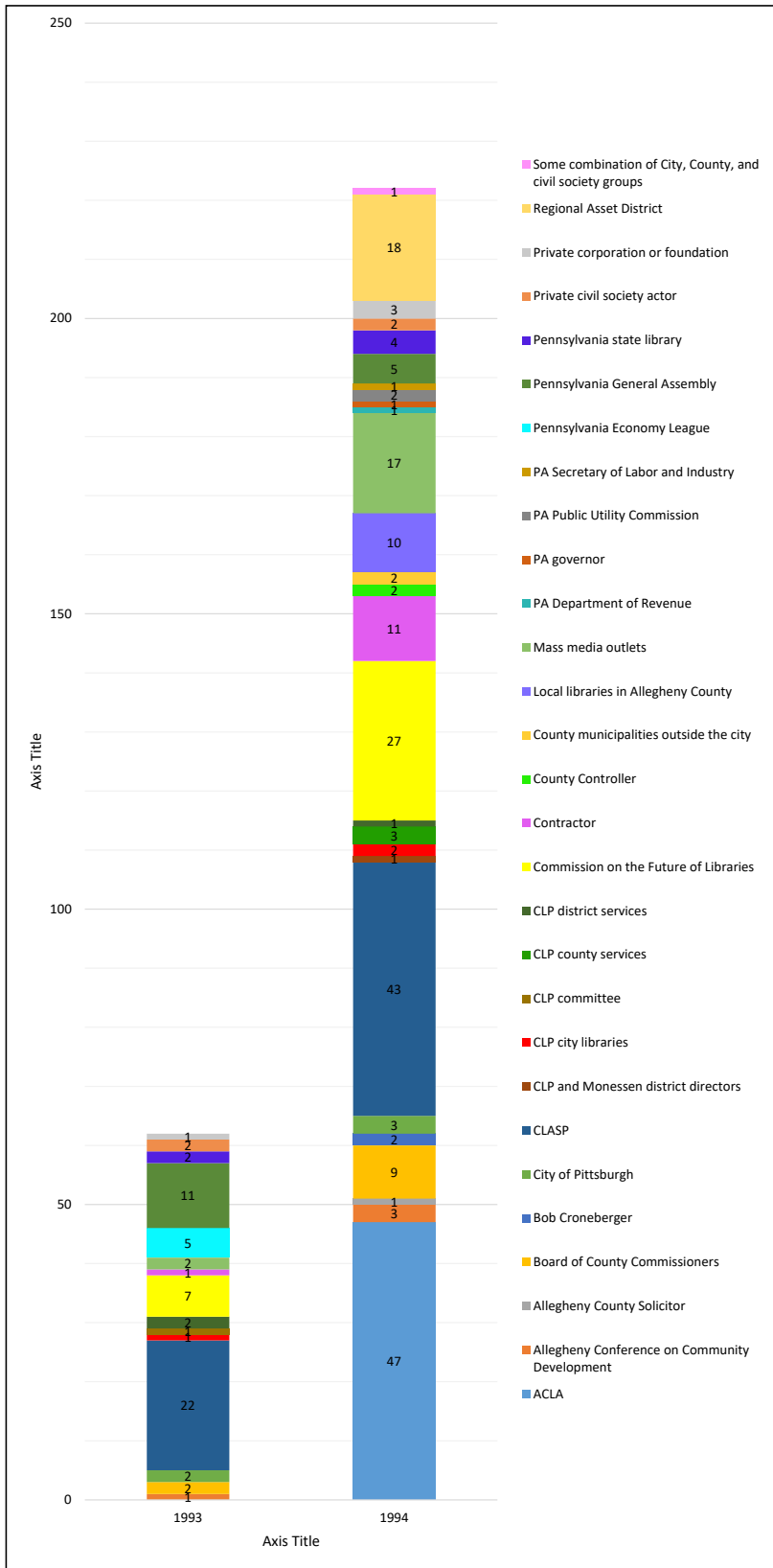
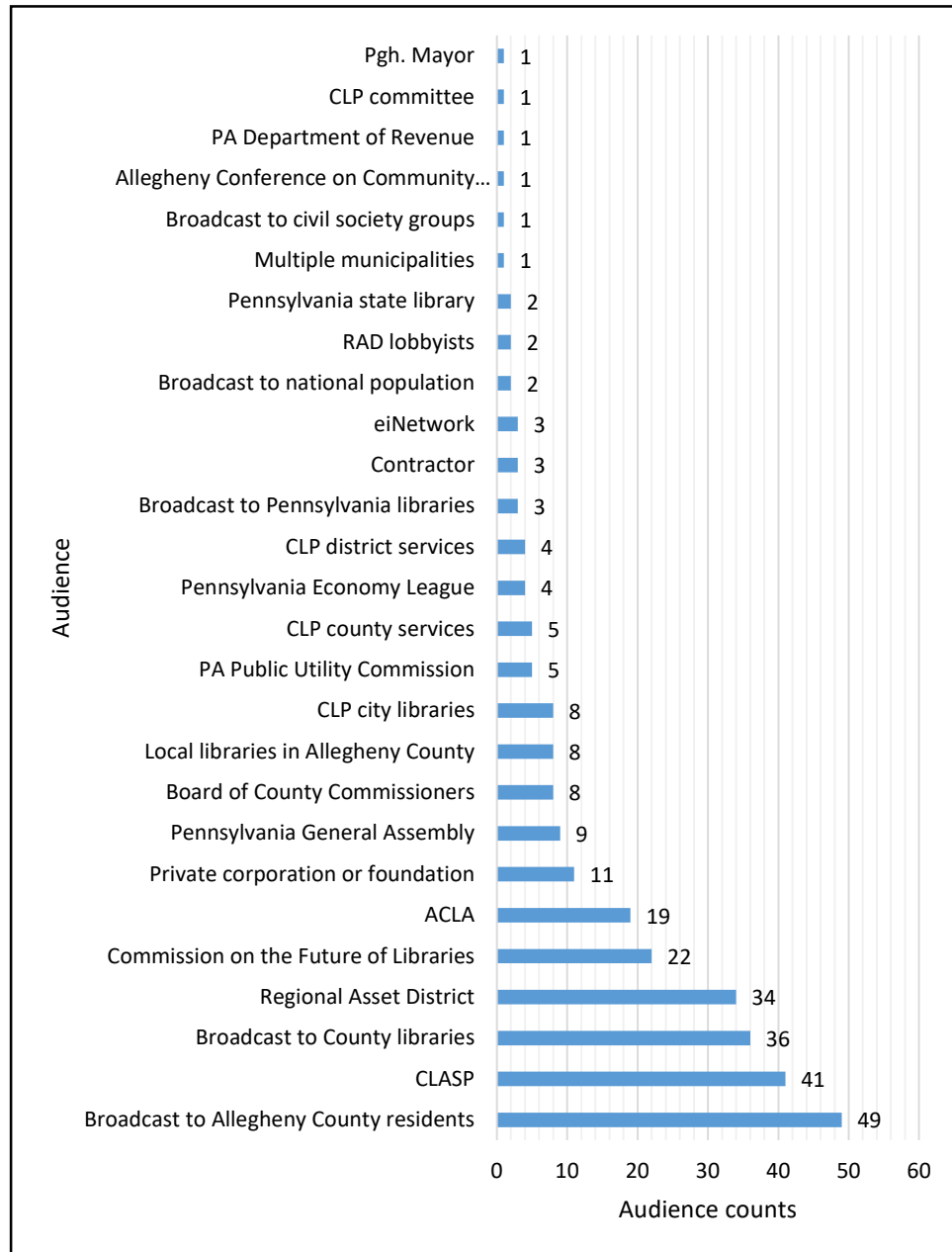
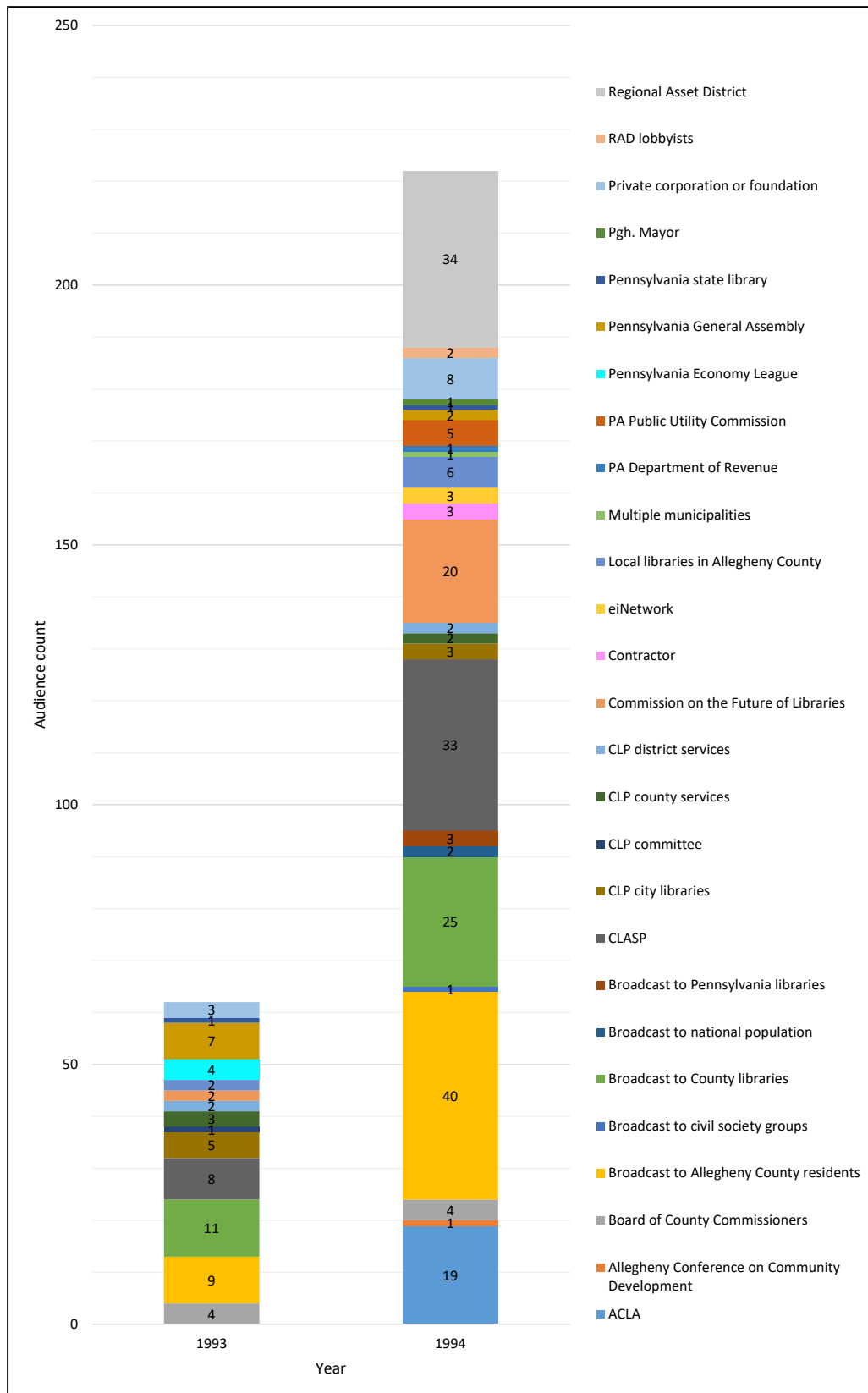


Figure L.115. Actors by year in period 6.

[Figure L.116](#) shows the audiences of period 6. The most frequent audience was broadcast to Allegheny County residents (N=49), followed by CLASP (N=41), broadcast to county libraries (N=36), Regional Asset District (N=34), Commission on the Future of Libraries (N=22), and ACLA (N=19). [Figure L.117](#) shows audiences by year in period 6. Many of the audiences in 1993 were also audiences in 1994, but the volume of transmission to those audiences increased in 1994. Broadcast to Allegheny County residents were visible in both years, but they increased in 1994. Regional Asset District became a new audience in 1994.



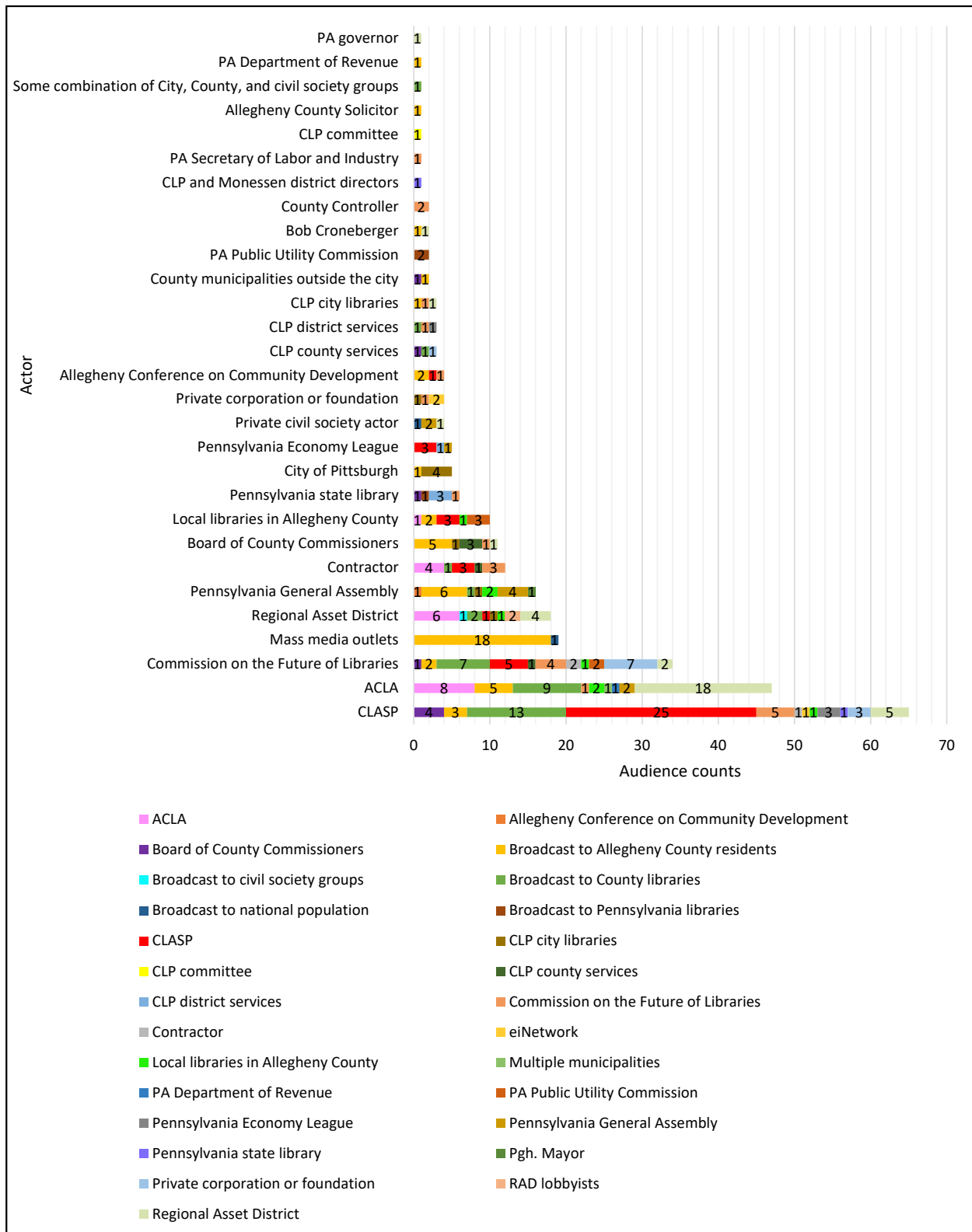
**Figure L.116. Audiences in period 6.**



**Figure L.117. Audience by year in period 6.**

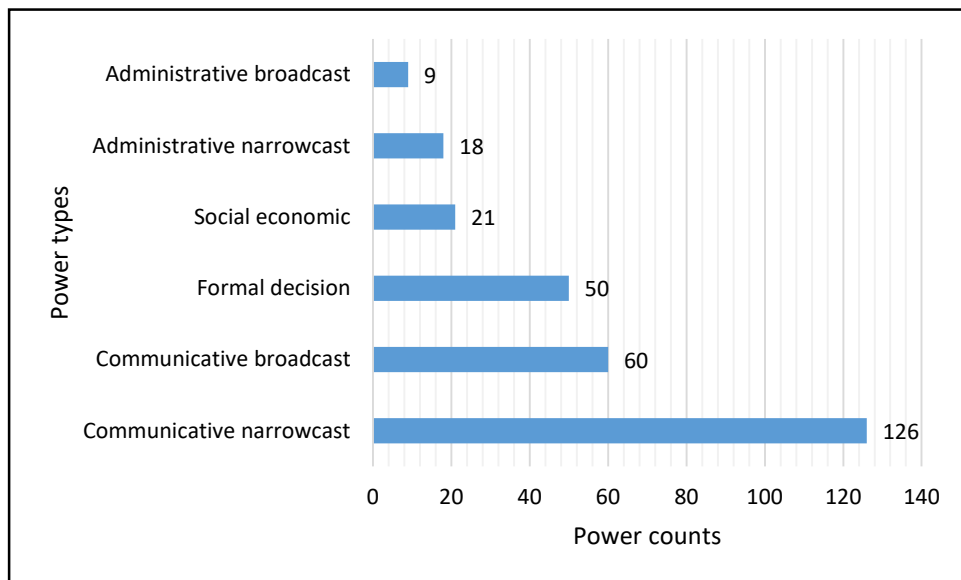


[Figure L.118](#) shows actor and audience pairings in period 6. CLASP, the most frequent actor, transmitted to several audiences, including itself (N=25), broadcast to county libraries (N=13), Regional Asset District (N=5), and Commission on the Future of Libraries (N=5). ACLA, the successor of CLASP and also a dominant actor in period 6, transmitted to Regional Asset District (N=18), broadcast to county libraries (N=9), and itself (N=8). Mass media outlets were almost exclusive broadcasters to Allegheny County residents (N=18).

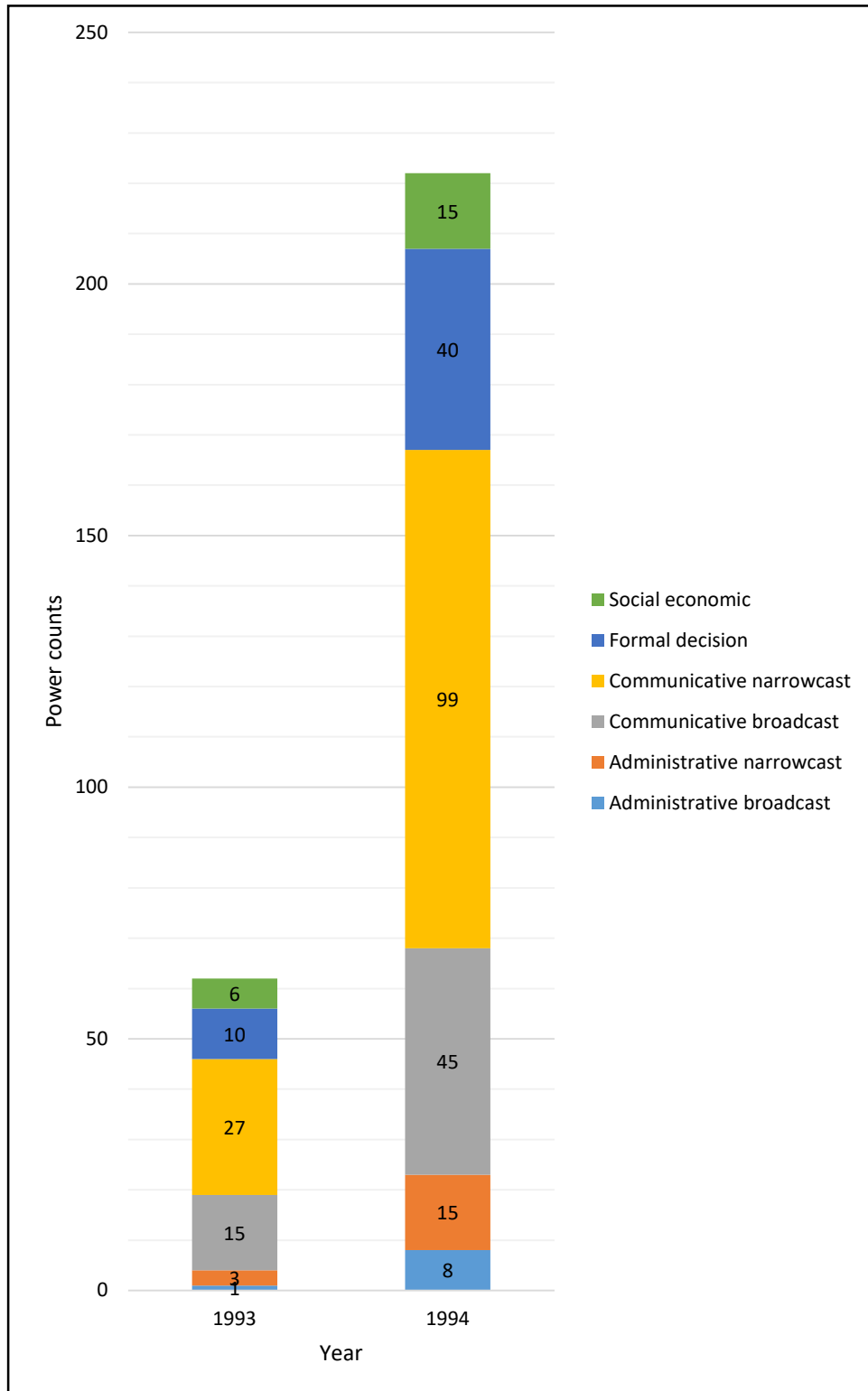


**Figure L.118. Actor and audience combinations in period 6.**

**Power.** [Figure L.119](#) shows the types of power in period 6. The most prevalent form of power was communicative narrowcast (N=126), followed by communicative broadcast (N=60), formal decision (N=50), social economic (N=21), administrative narrowcast (N=18), and administrative broadcast (N=9). These types of power are shown by year in [Figure L.120](#). All forms of power were present in both years, and all forms substantially increased in frequency from 1993 to 1994.



**Figure L.119. Power in period 6.**



**Figure L.120. Power by year in period 6.**

Actor, audience, and power combinations are shown in [Figure L.121](#). CLASP, the most frequent actor, transmitted communicative narrowcasts to a several state, library, civil society, and county audiences, as well as to itself. It also transmitted formal decision and administrative narrowcast power to itself. Both CLASP and ACLA transmitted communicative broadcasts to Allegheny County residents and libraries. ACLA had a significant number (N=18) of communicative broadcasts to the Regional Asset District. A complete picture of the actors/audiences in period 6, their power relationships, and the directions of power is shown in [Figure L.122](#).

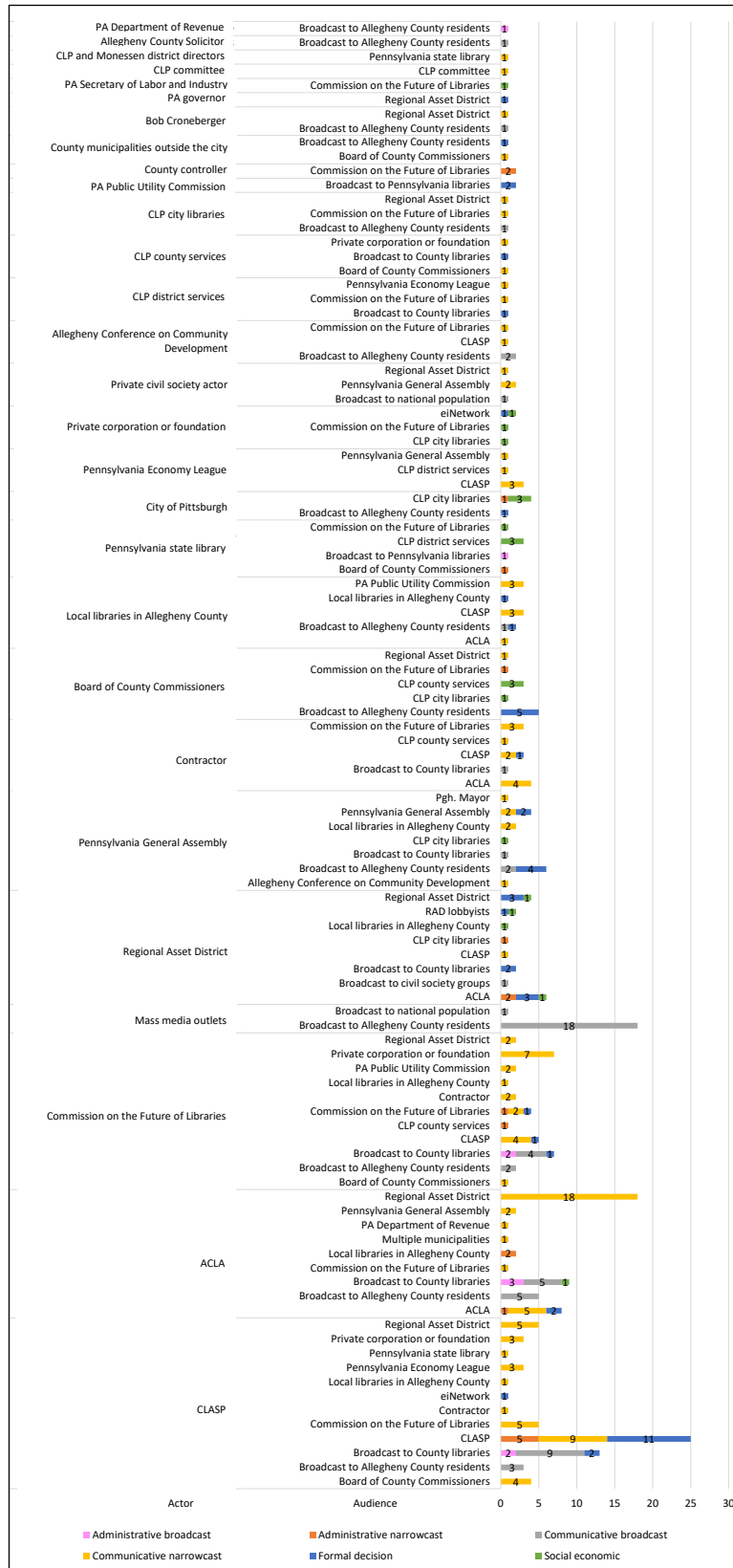
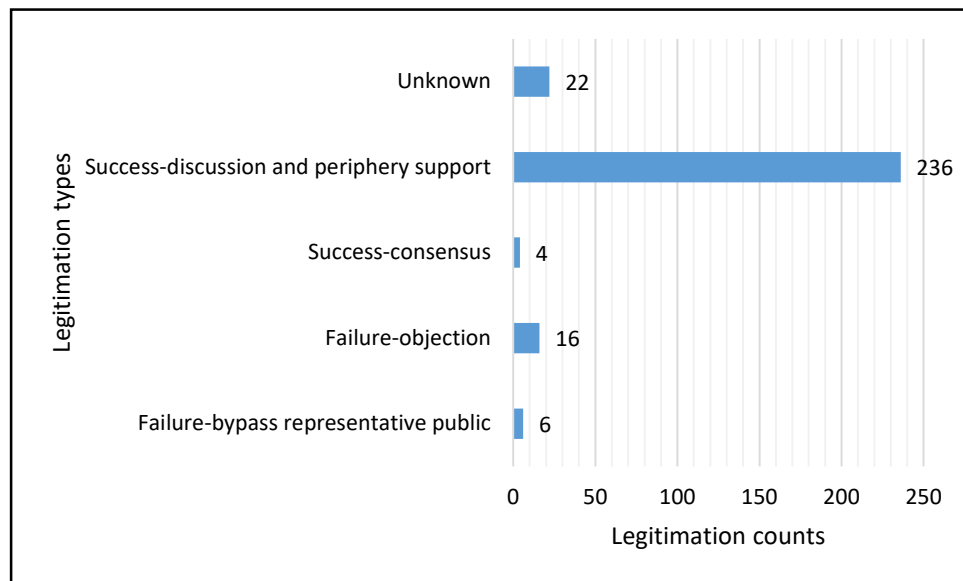


Figure L.121. Actor, audience, and power combinations in period 6.

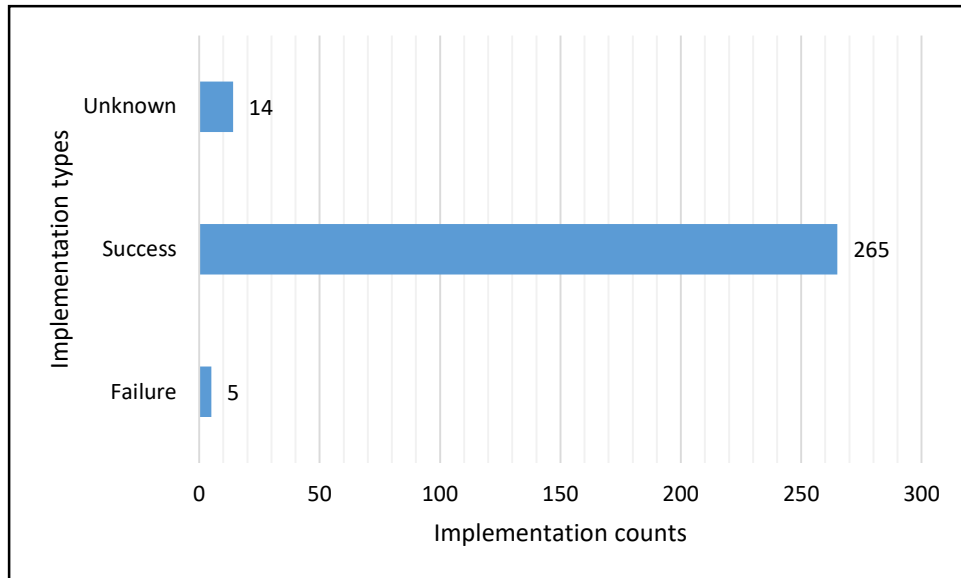


seen in both years is shown in [Figure L.126](#) where legitimization and implementation pairings are organized by year.

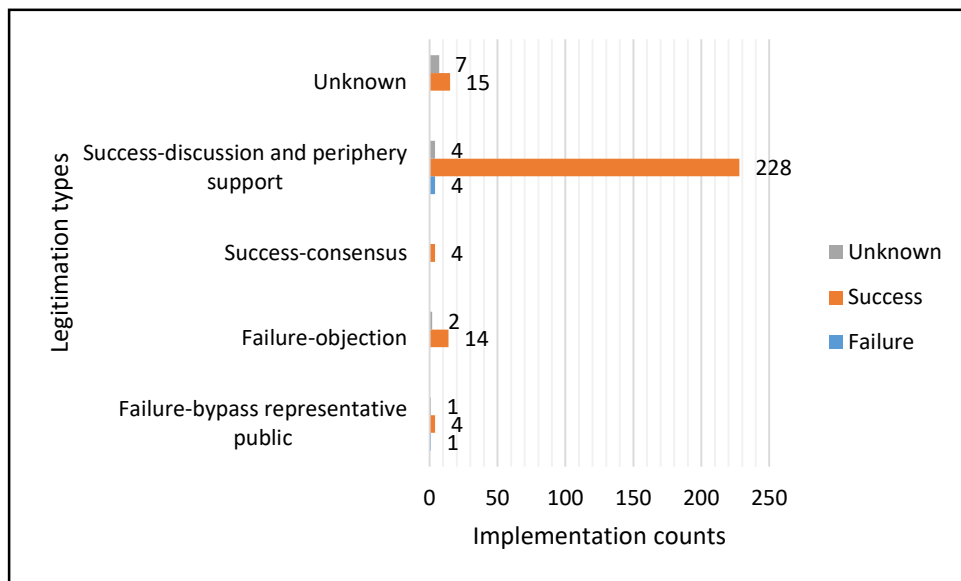


**Figure L.123. Legitimation in period 6.**

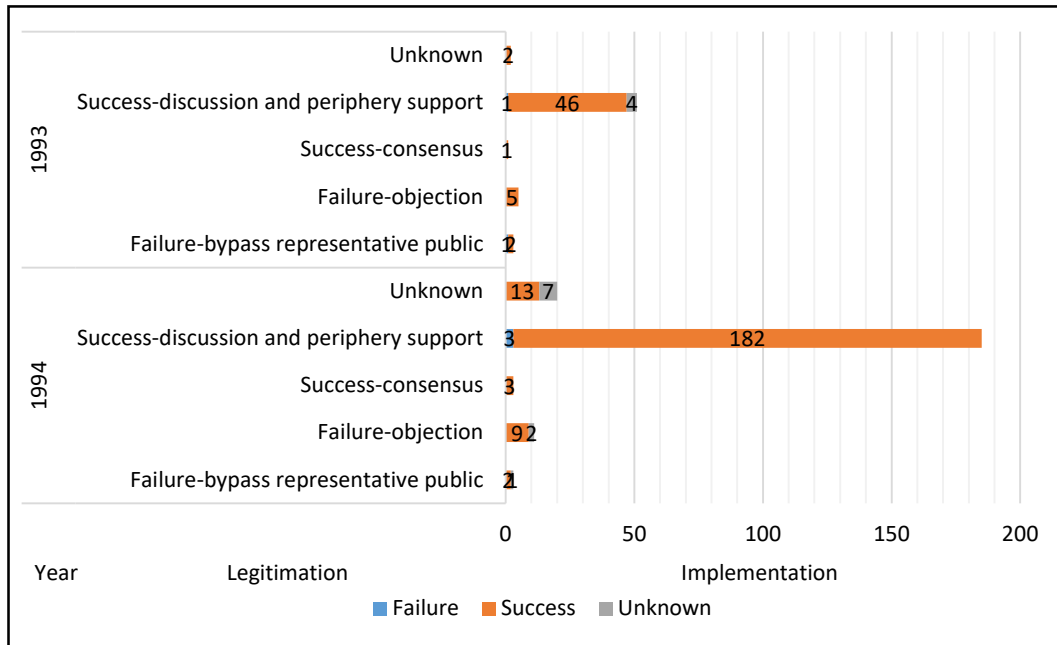




**Figure L.124. Implementation in period 6.**

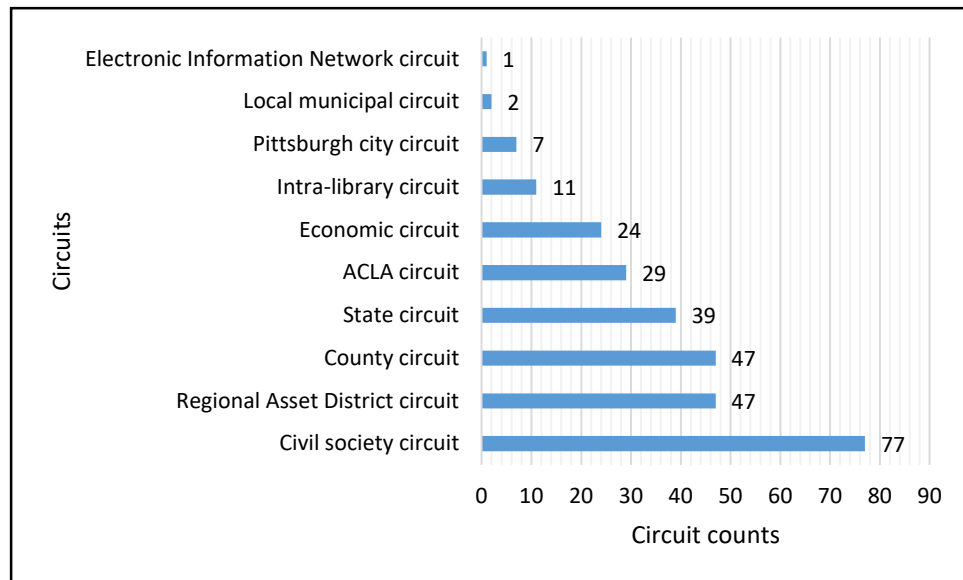


**Figure L.125. Legitimation and implementation combinations in period 6.**



**Figure L.126. Legitimation and implementation combinations by year in period 6.**

**Circuits.** [Figure L.127](#) shows the circuits in period 6. The most prevalent circuit was civil society (N=77), followed by Regional Asset District (N=47), county (N=47), state (N=39), ACLA (N=29), economic (N=24), intra-library (N=11), Pittsburgh city (N=7), local municipal (N=2), and Electronic Information Network (N=1). [Figure L.128](#) shows these circuits by year. It can be seen that civil society, county, economic, intra-library, Pittsburgh, and state circuits were active in both years, but traffic increased in 1994. ACLA and Regional Asset District circuits appeared for the first time in 1994.



**Figure L.127. Circuits in period 6.**

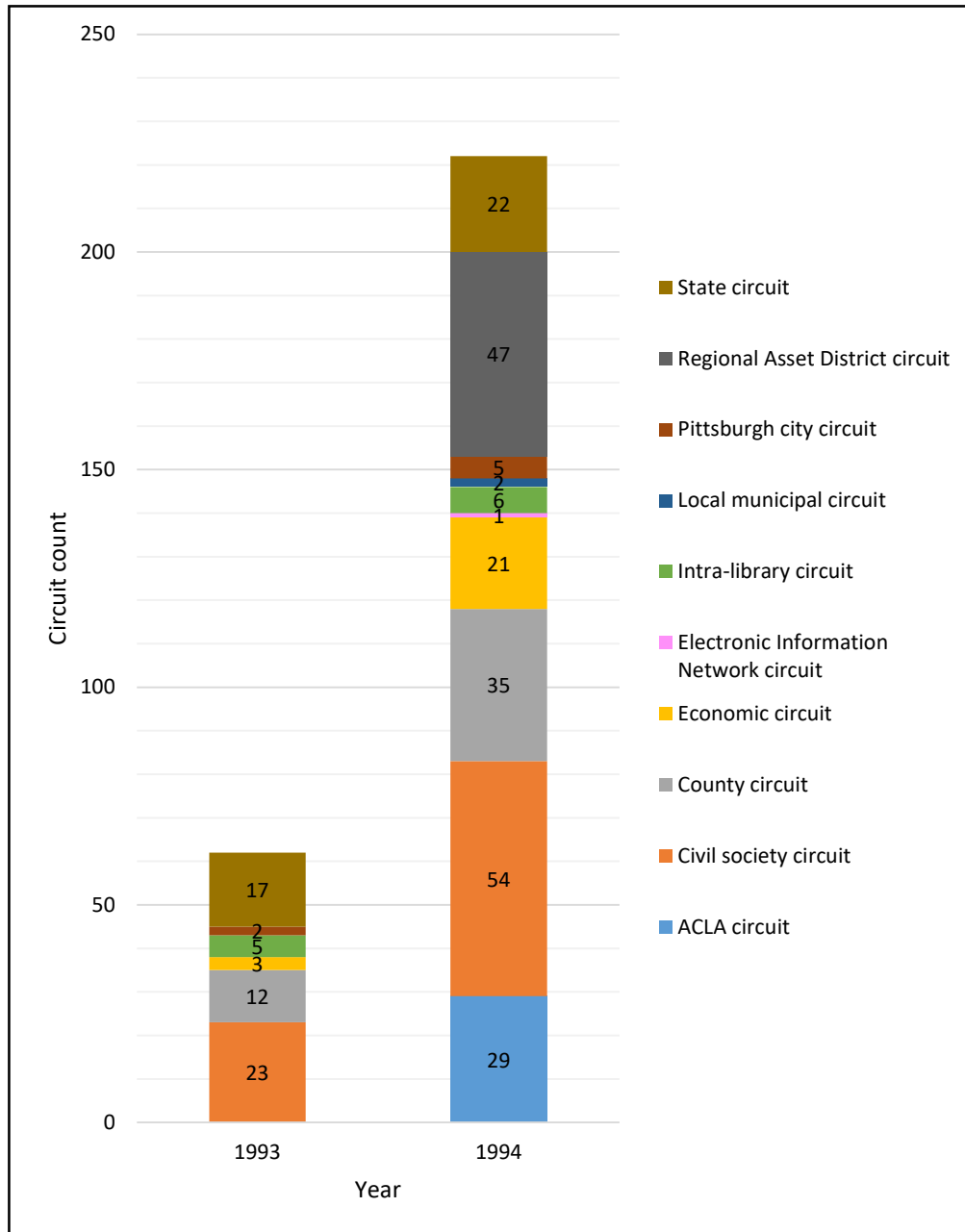
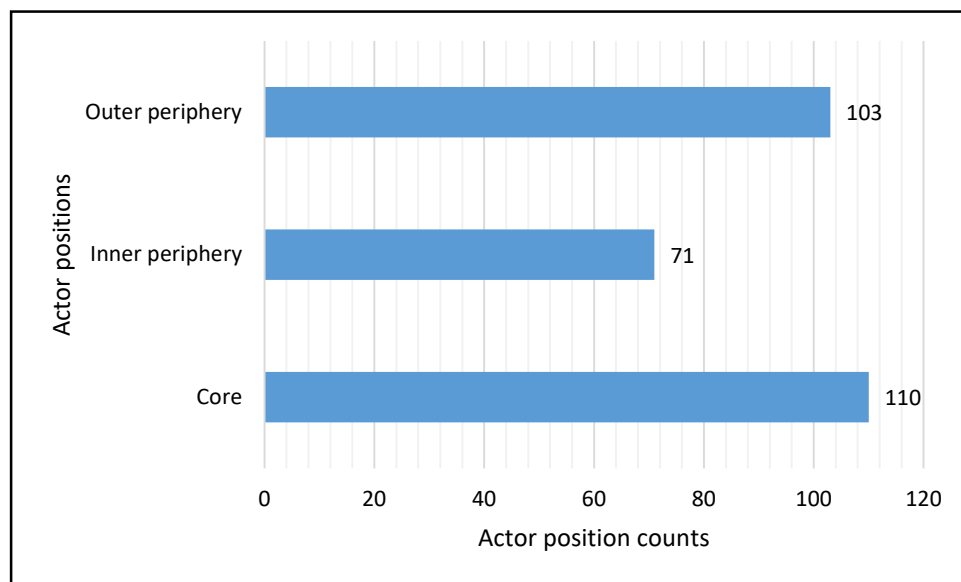


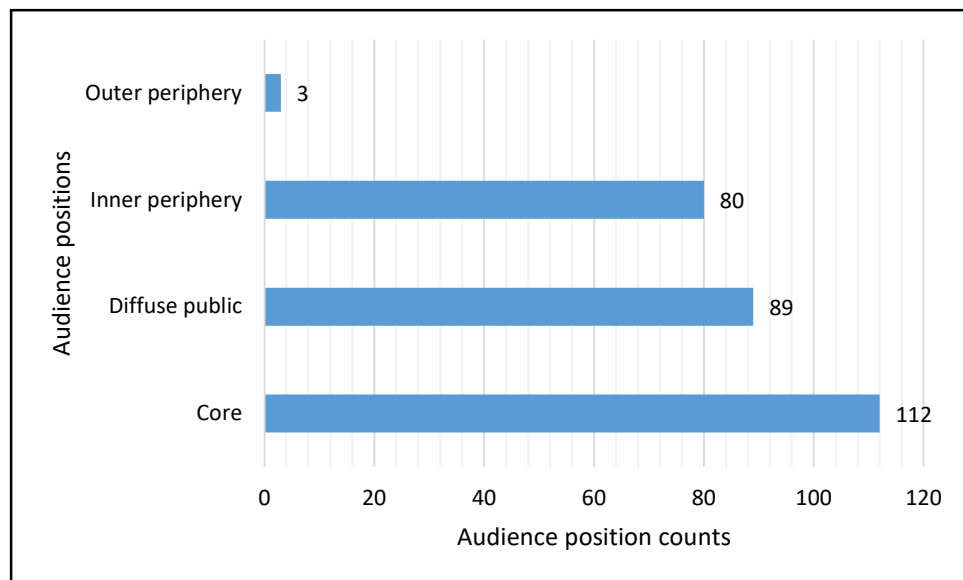
Figure L.128. Circuits by year in period 6.

[Figure L.129](#) shows actor positions in period 6. The most frequent position was core (N=110), followed by outer periphery (N=103) and inner periphery (N=71). [Figure L.130](#) shows audience positions in period 6. The most frequent was core (N=112), followed by diffuse public

(N=89), inner periphery (N=80), and outer periphery (N=3). Actor position, audience position, and circuit combinations are shown by year in [Figure L.131](#). Civil society circuit was active in both years and transmissions followed a variety of pathways. When the Regional Asset District circuit appeared in 1994, most transmissions were sent from outer periphery to core. In the ACLA circuit, most transmissions were sent from the core. A general view of all the circuits and actor/audiences in period 6, along with their positions and the directions of power transmissions, is shown in [Figure L.132](#).



**Figure L.129. Actor positions in period 6.**



**Figure L.130. Audience positions in period 6.**

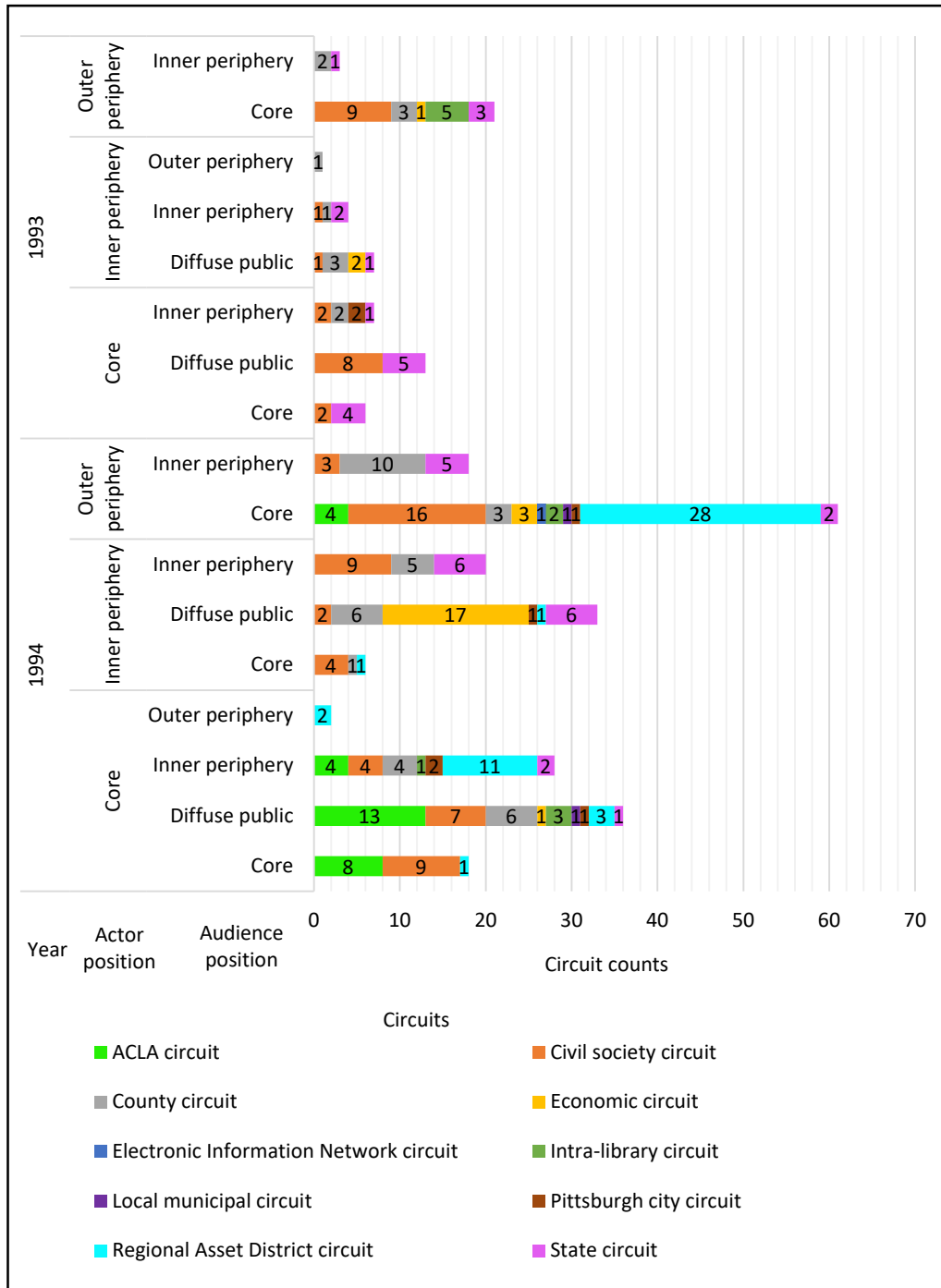
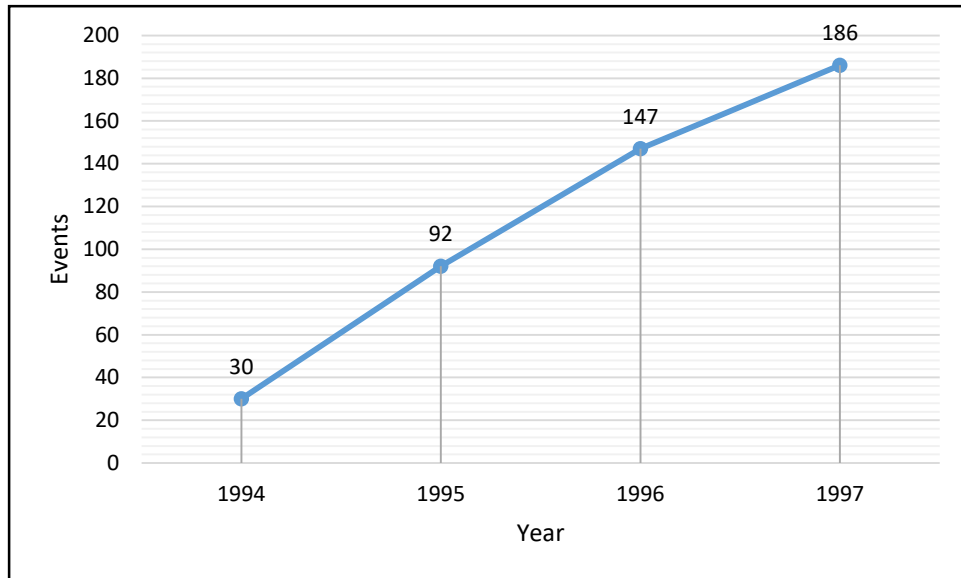


Figure L.131. Actor position, audience position, and circuit combinations by year in period 6.

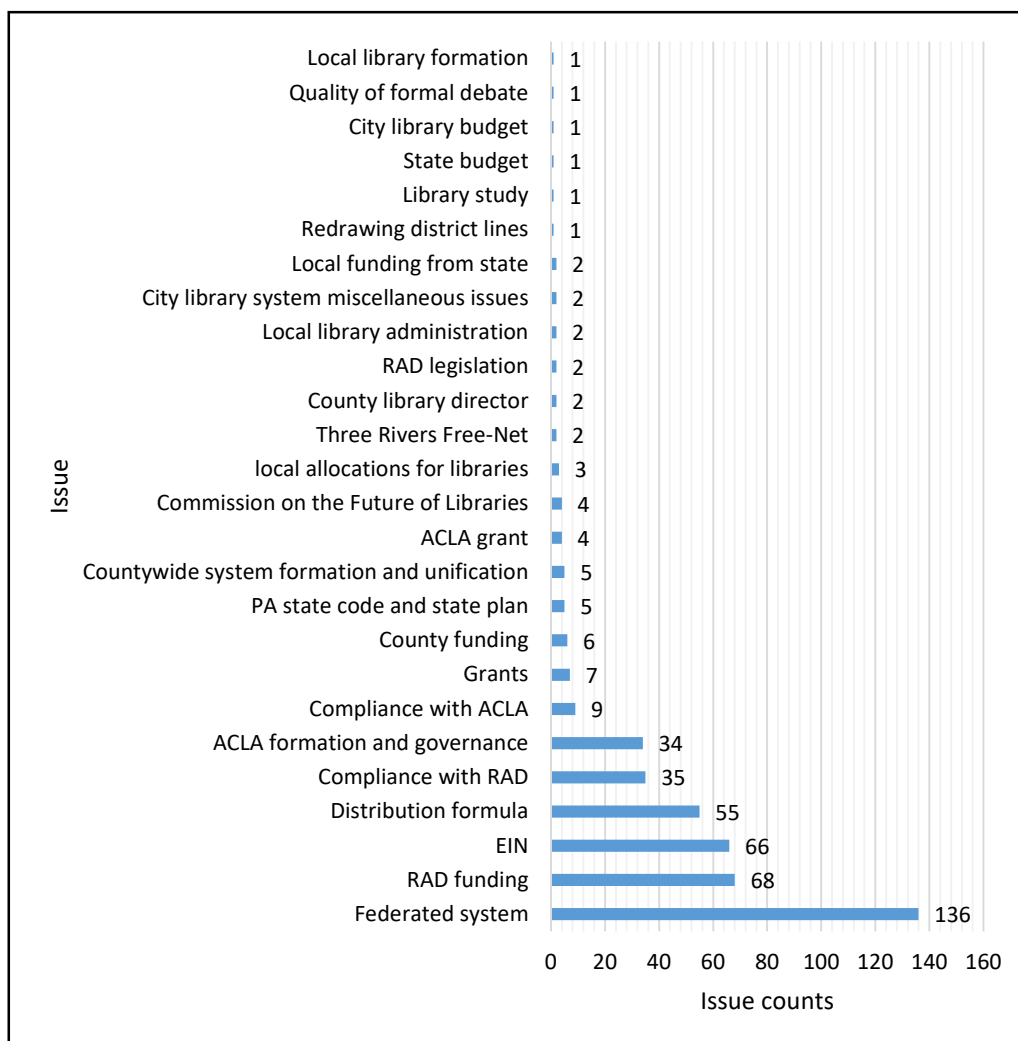






**Figure L.133. Communicative events by year in period 7.**

**Issues.** [Figure L.134](#) shows the issues in period 7. The predominant issue was federated system (N=136), followed by RAD funding (N=68), EIN (N=66), distribution formula (N=55), compliance with RAD (N=35), and ACLA formation and governance (N=34). The issues of period 7 are shown by year in [Figure L.135](#). RAD funding was a major issue in all the years of period 7. Federated system became a major issue in 1996, then discourse about that issue increased in 1997. EIN was an issue in all four years, as was the distribution formula. ACLA formation and governance became an issue in 1995, then grew as an issue in 1996 and 1997.



**Figure L.134. Issues in period 7.**

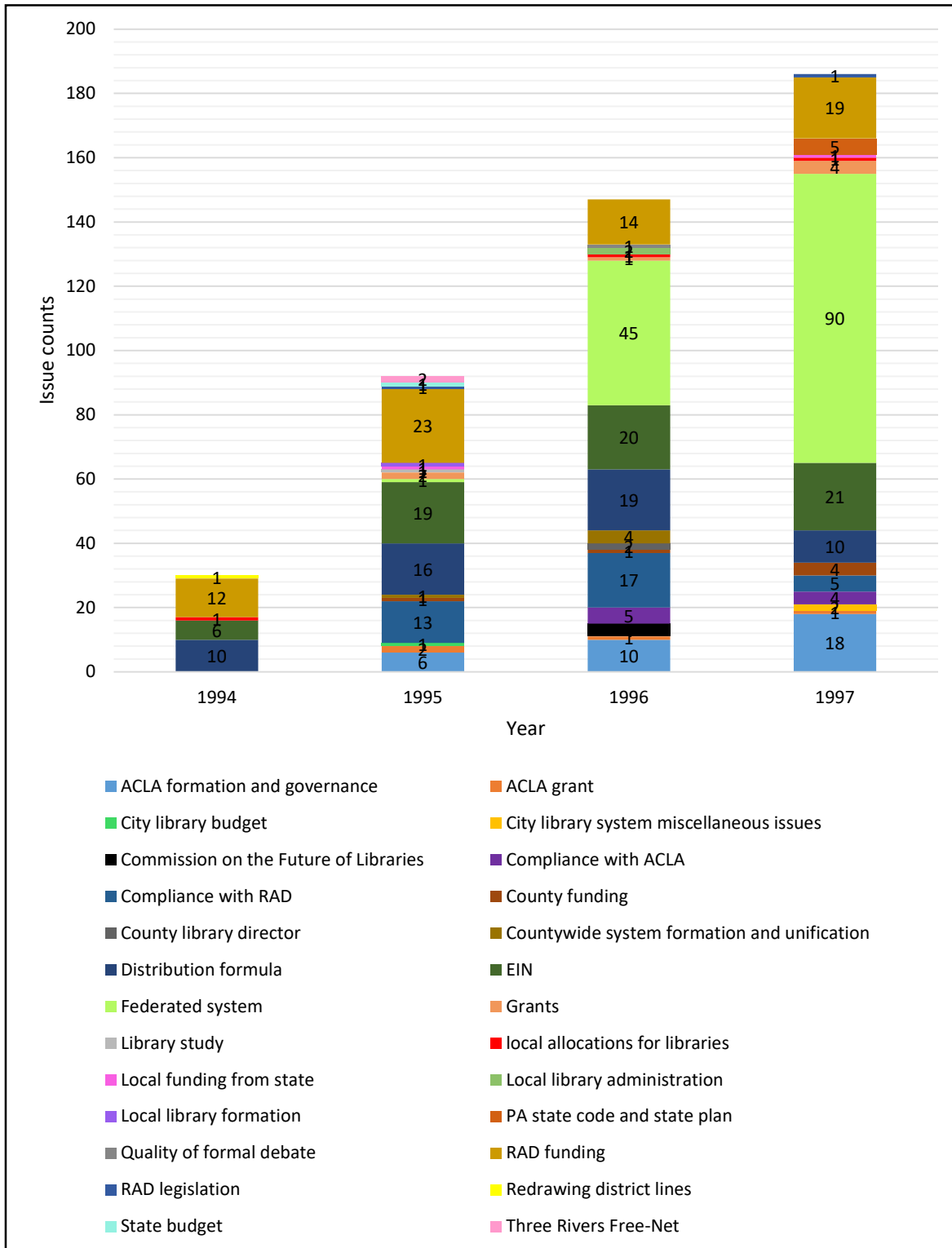
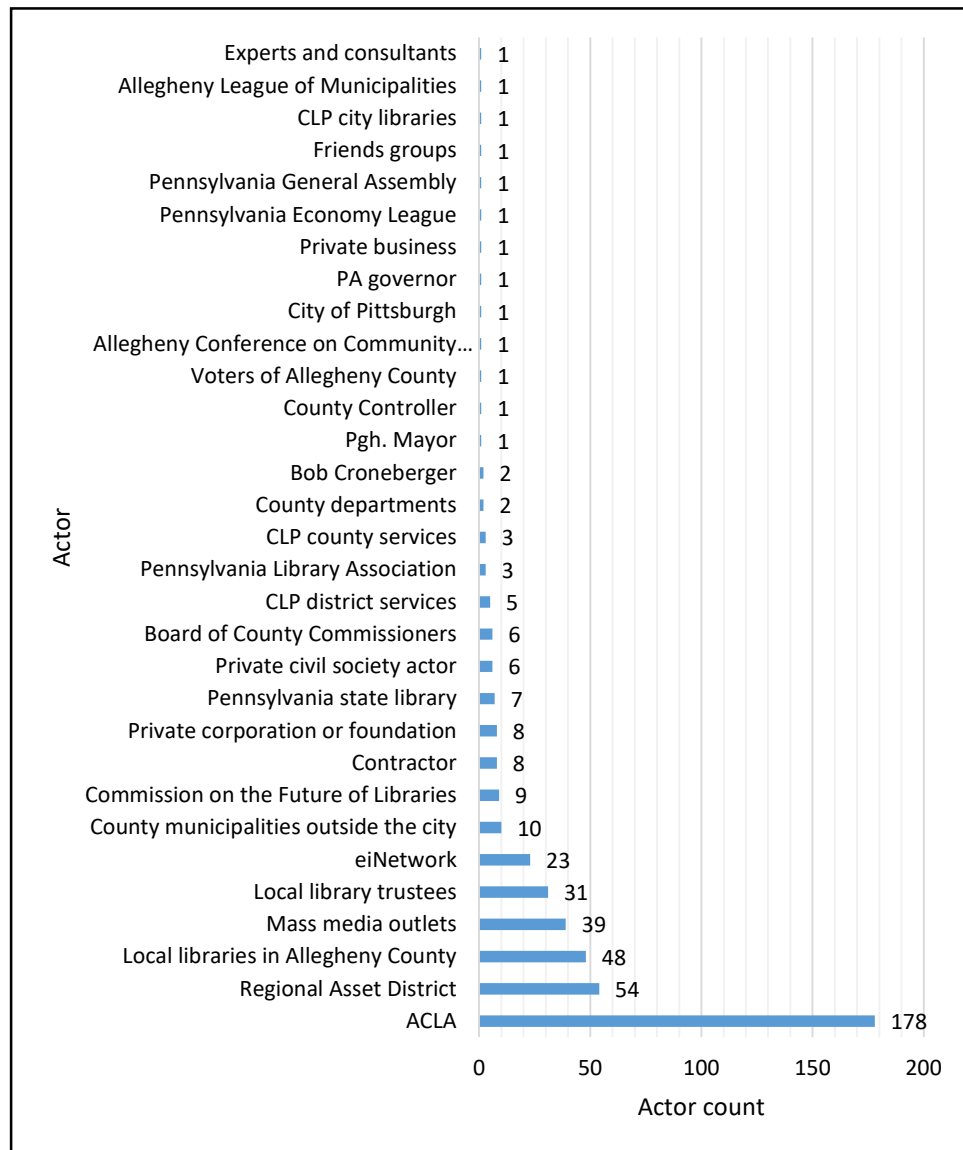


Figure L.135. Issues by year in period 7.

*Actors and audiences.* [Figure L.136](#) shows the actors of period 7. The predominant actor was ACLA (N=178), followed by Regional Asset District (N=54), local libraries in Allegheny county (N=48), mass media outlets (N=39), local library trustees (N=31), and eiNetwork (N=23). These actors are shown by year in [Figure L.137](#). ACLA was a frequent actor in all four years, but its activity increased as the period progressed. EiNetwork was also a visible actor in all four years, especially 1995 and 1996. Local libraries in Allegheny County increased in activity as the years progressed. Regional Asset District maintained a consistent presence throughout the period.



**Figure L.136. Actors in period 7.**

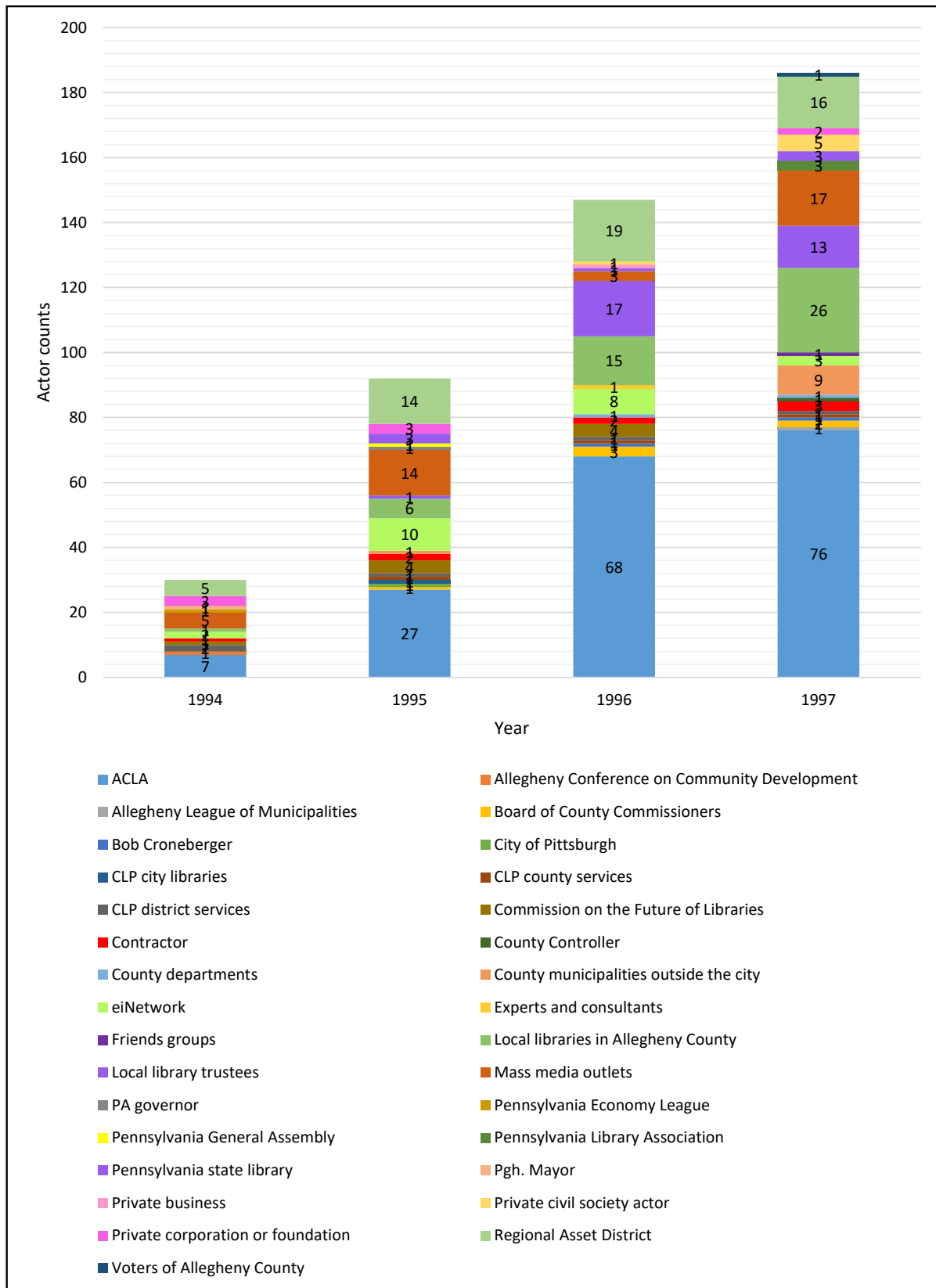
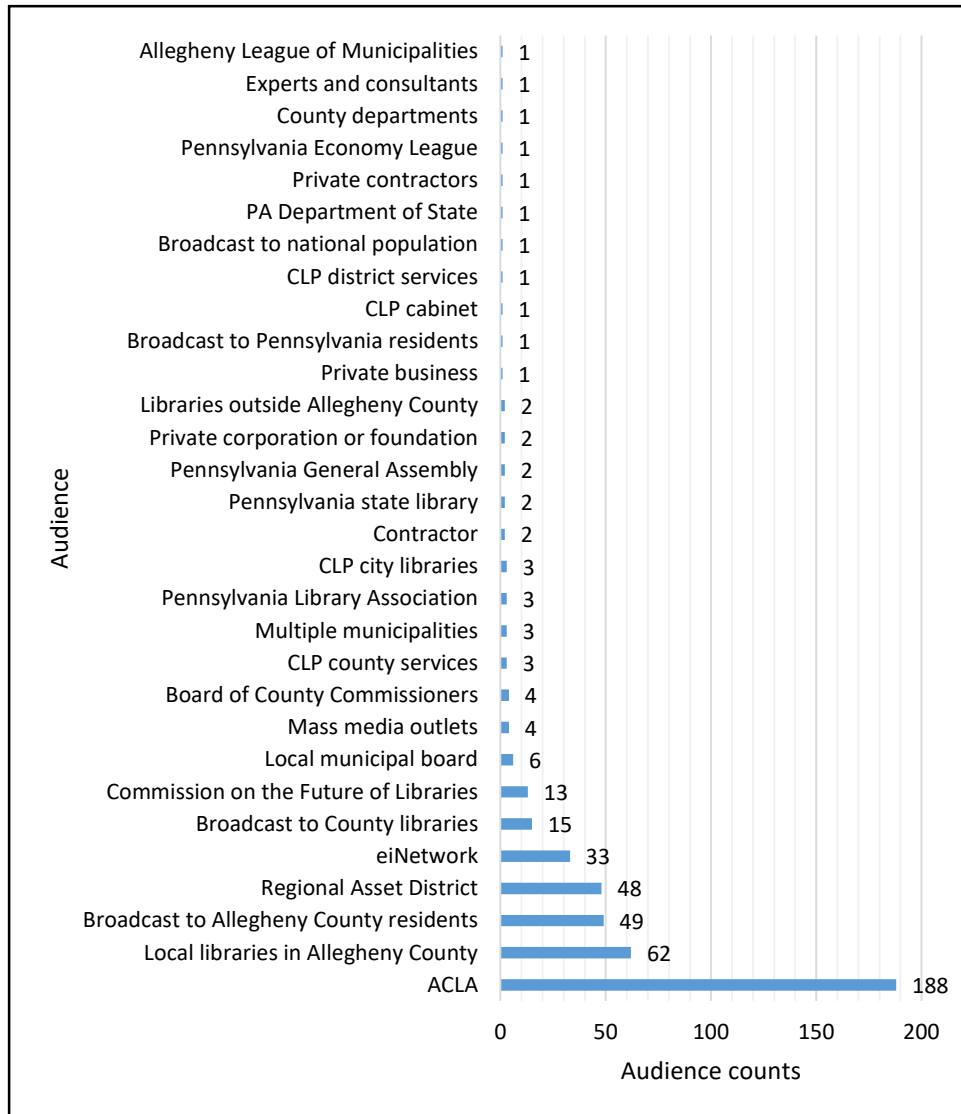


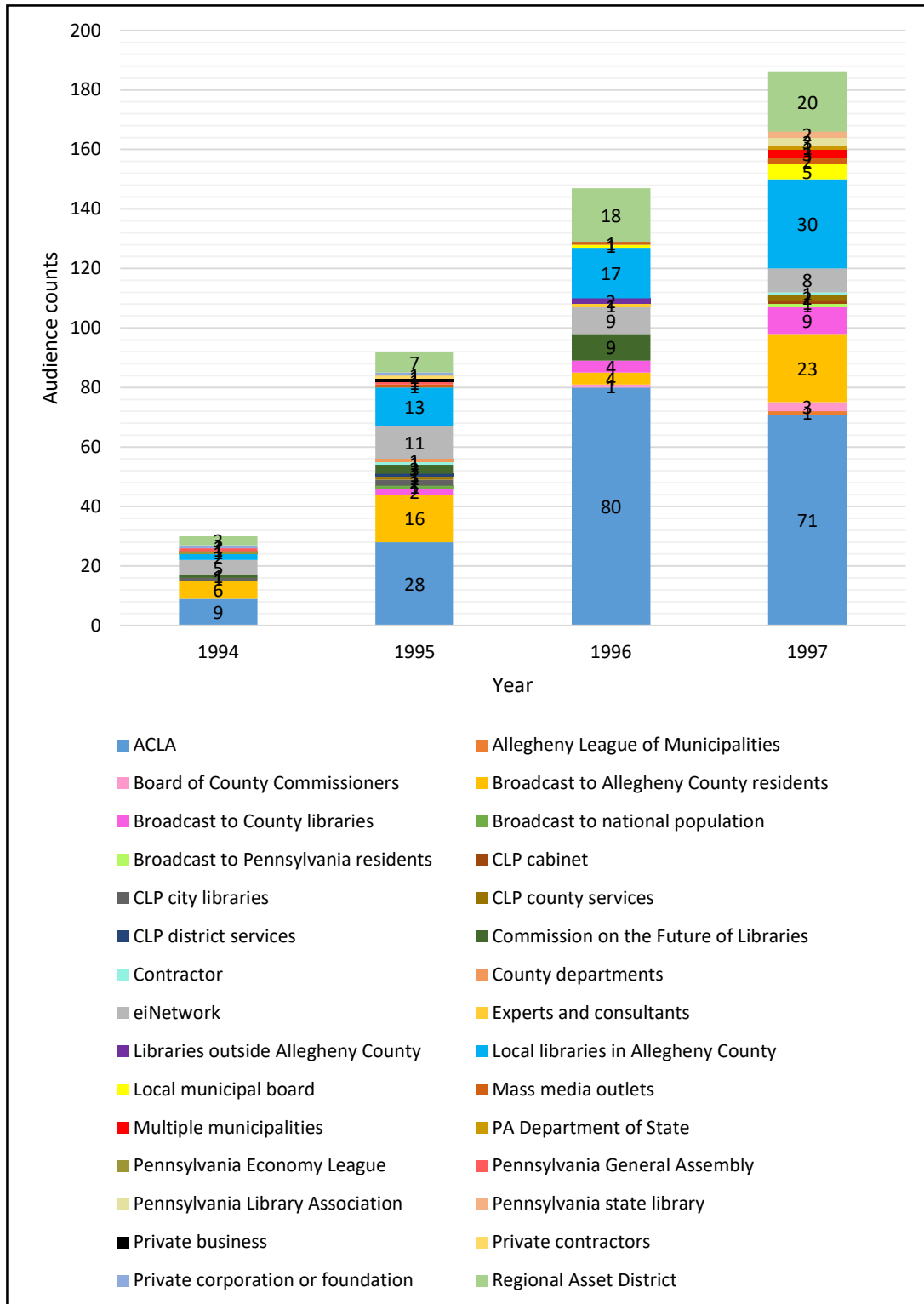
Figure L.137. Actors by year in period 7.

[Figure L.138](#) shows the audiences in period 7. The most prevalent audience was ACLA (N=188), followed by local libraries in Allegheny County (N=62), broadcast to Allegheny County residents (N=49), Regional Asset District (N=48), eiNetwork (N=33), broadcast to county libraries (N=15), and Commission on the Future of Libraries (N=13). Audiences are shown by year in [Figure L.139](#). ACLA was a major audience in all years, especially 1996 and 1997. Broadcast to Allegheny County residents, eiNetwork, local libraries in Allegheny County, and Regional Asset District were also significant audiences throughout the period. Actor and audience combinations are shown in [Figure L.140](#). ACLA communicated most within the organization, with local libraries in Allegheny County, and with the Regional Asset District. Local libraries and the Regional Asset District reciprocated by communicating frequently with ACLA.

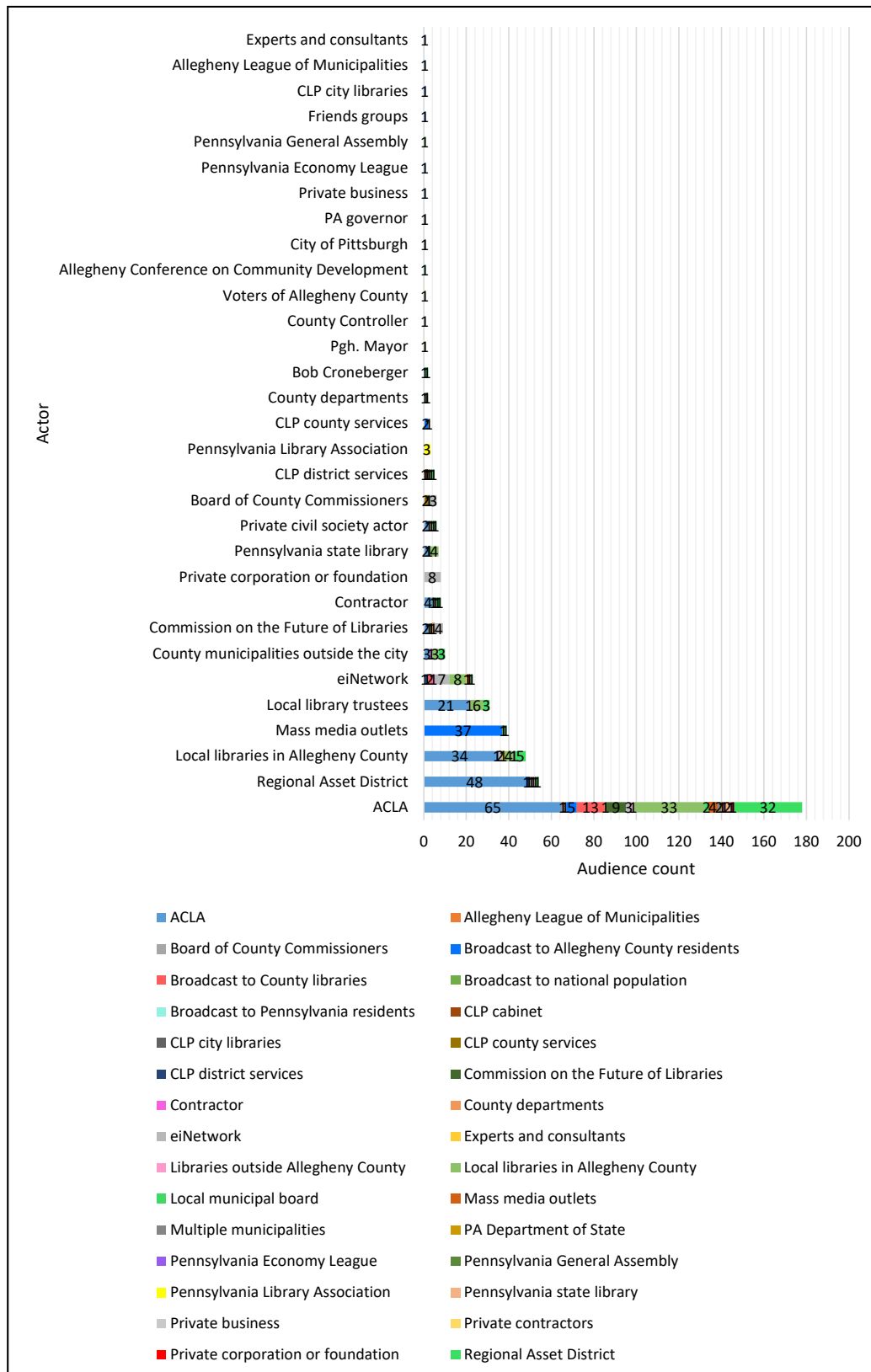


**Figure L.138. Audiences in period 7.**



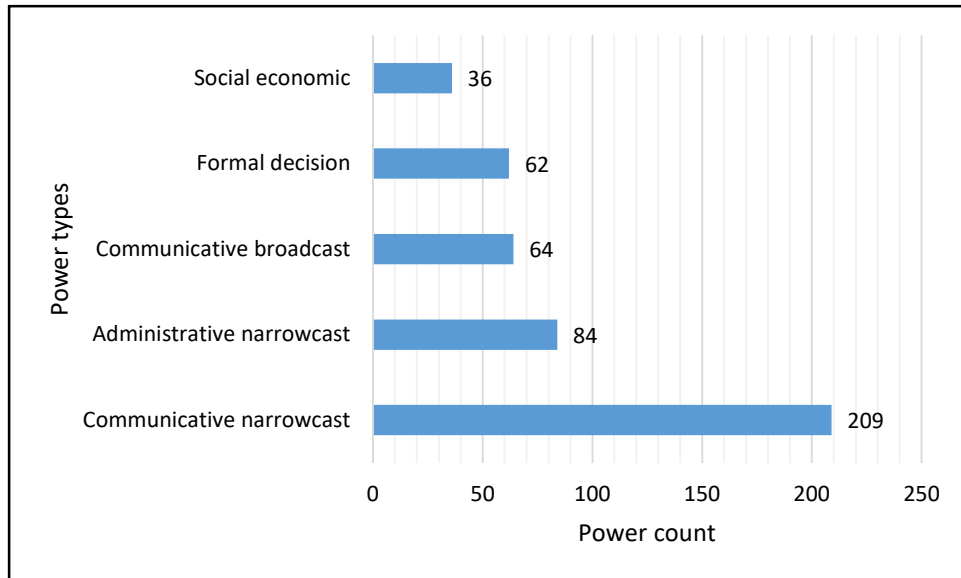


**Figure L.139. Audiences by year in period 7.**

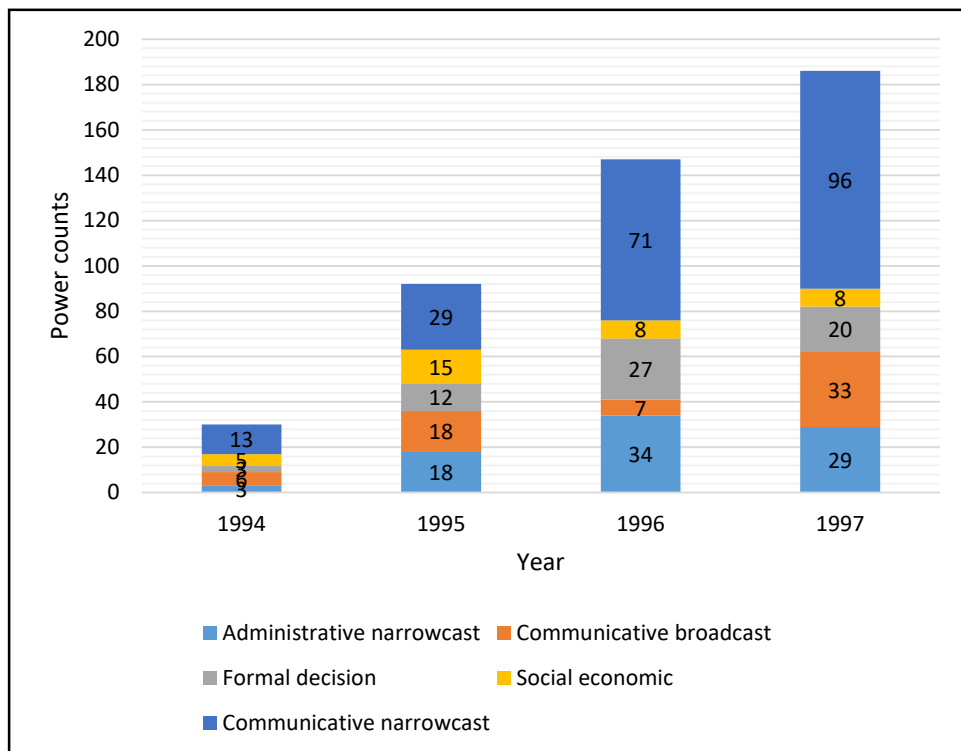


**Figure L.140. Actor and audience combinations in period 7.**

**Power.** [Figure L.141](#) shows the numbers and types of power in period 7. The most frequent type of power was communicative narrowcast (N=209), followed by administrative narrowcast (N=84), communicative broadcast (N=64), formal decision (N=62), and social economic (N=36). [Figure L.142](#) shows the types of power by year. All types of power were present in all years. Communicative narrowcast grew in frequency throughout the period. Formal decision and administrative narrowcast grew from 1994 to 1996, then declined slightly in 1997. Communicative broadcasts grew from 1994 to 1995, wavered in 1996, then increased again in 1997. Social economic increased in frequency from 1994 to 1995, declined in 1996, and remained the same from 1996 to 1997. [Figure L.143](#) shows the actor, audience, and power combinations in period 7. ACLA was characterized by communicative narrowcasts, administrative narrowcasts, and formal decisions within its own organization. ACLA also transmitted broadcasts to Allegheny County libraries, administrative narrowcasts to local libraries in Allegheny County, and communicative narrowcasts to the Regional Asset District. The Regional Asset District communicated with ACLA through administrative narrowcast, formal decision, and social economic power. Local libraries in Allegheny County targeted ACLA with communicative narrowcasts. Mass media outlets transmitted communicative broadcasts to Allegheny County residents, and local library trustees transmitted communicative narrowcasts to ACLA. A general, overall picture of the actors, audiences, types of power, and their directions can be seen in [Figure L.144](#). ACLA, local libraries in Allegheny County, eiNetwork, and Regional Asset district are larger nodes with more connections.



**Figure L.141. Power in period 7.**



**Figure L.142. Power by year in period 7.**

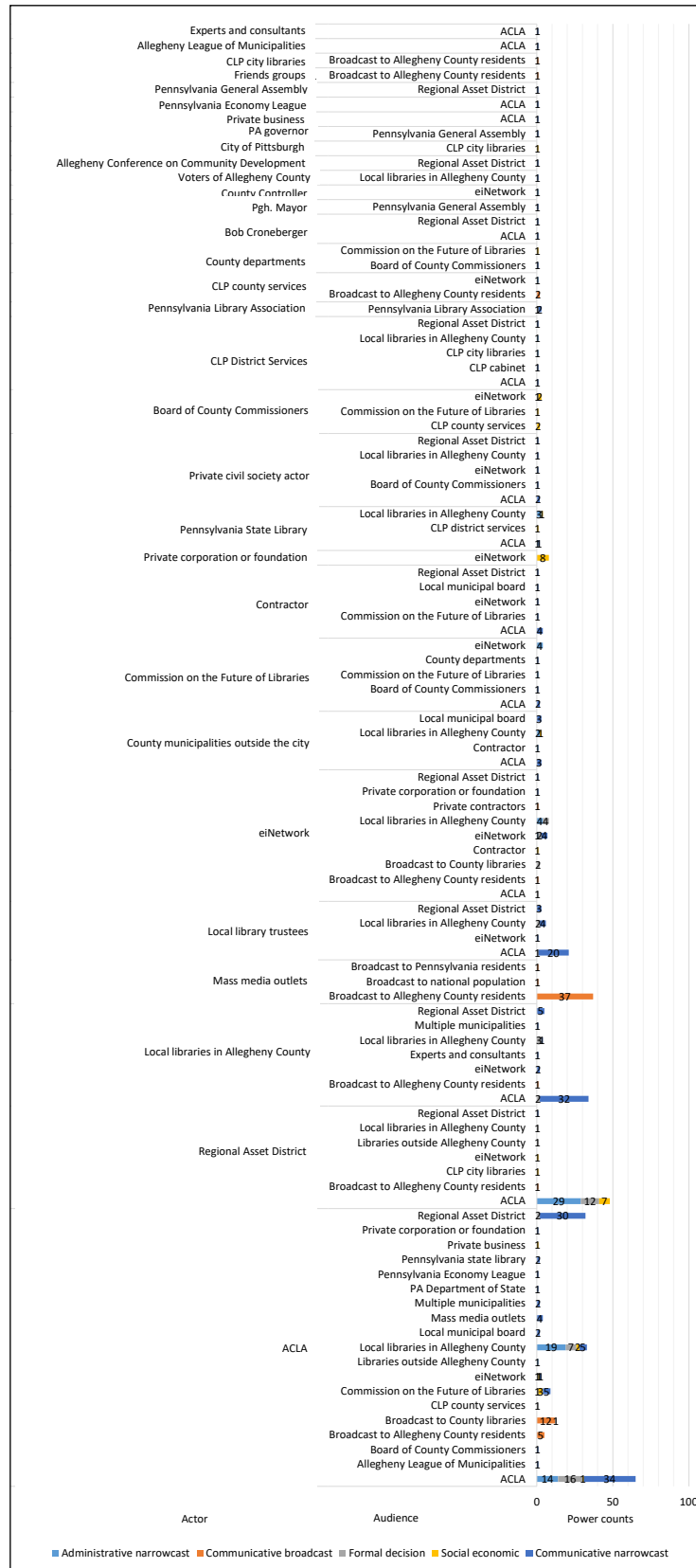


Figure L.143. Actor, audience, and power combinations in period 7.



period 7. The figure illustrates how, in each year, more events were successfully legitimated and implemented.

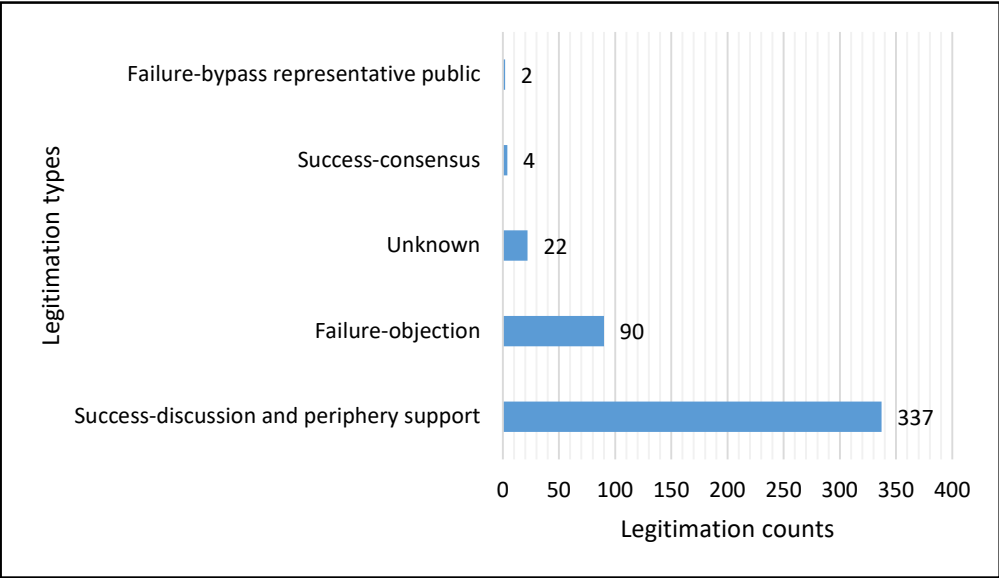


Figure L.145. Legitimation in period 7.

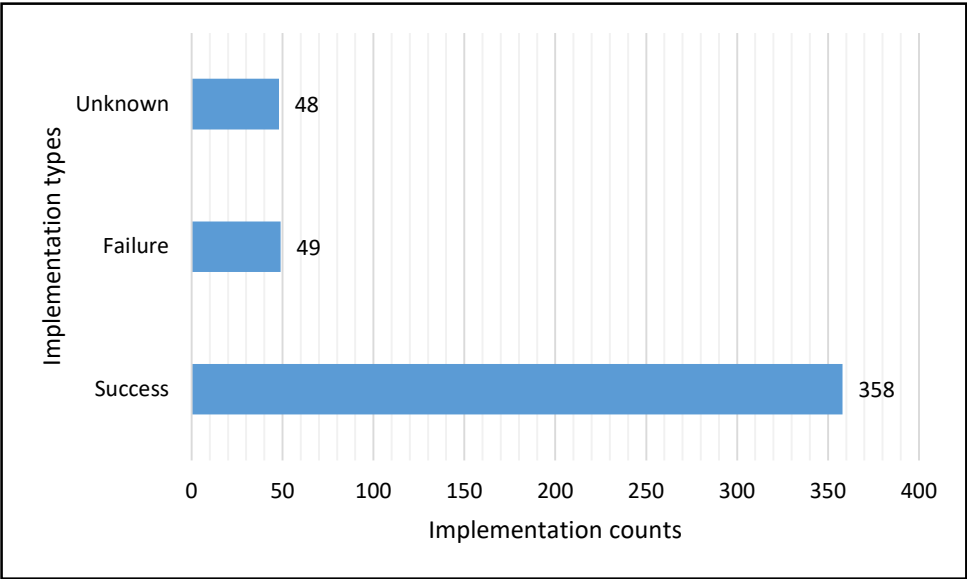
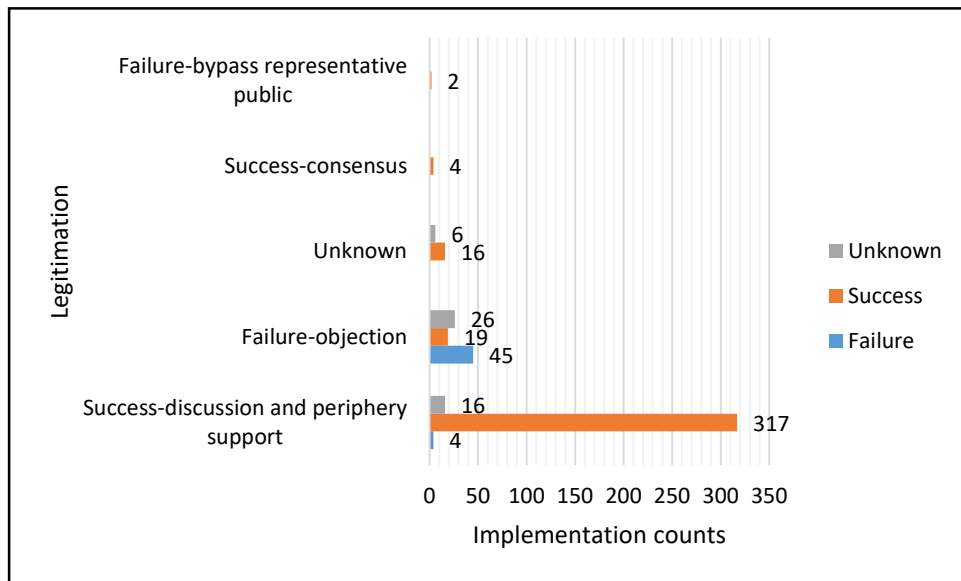
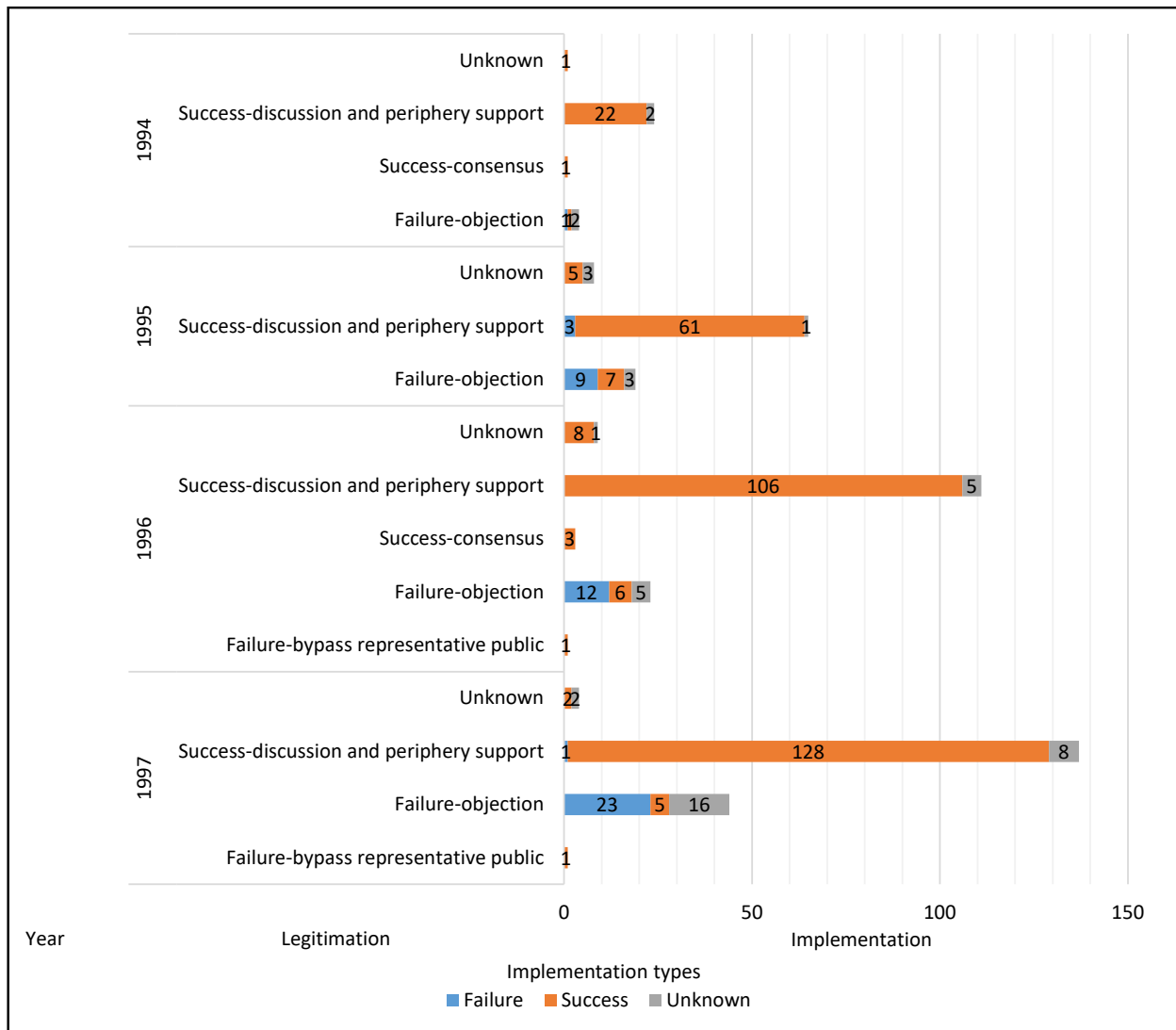


Figure L.146. Implementation in period 7.



**Figure L.147. Legitimation and implementation combinations in period 7.**

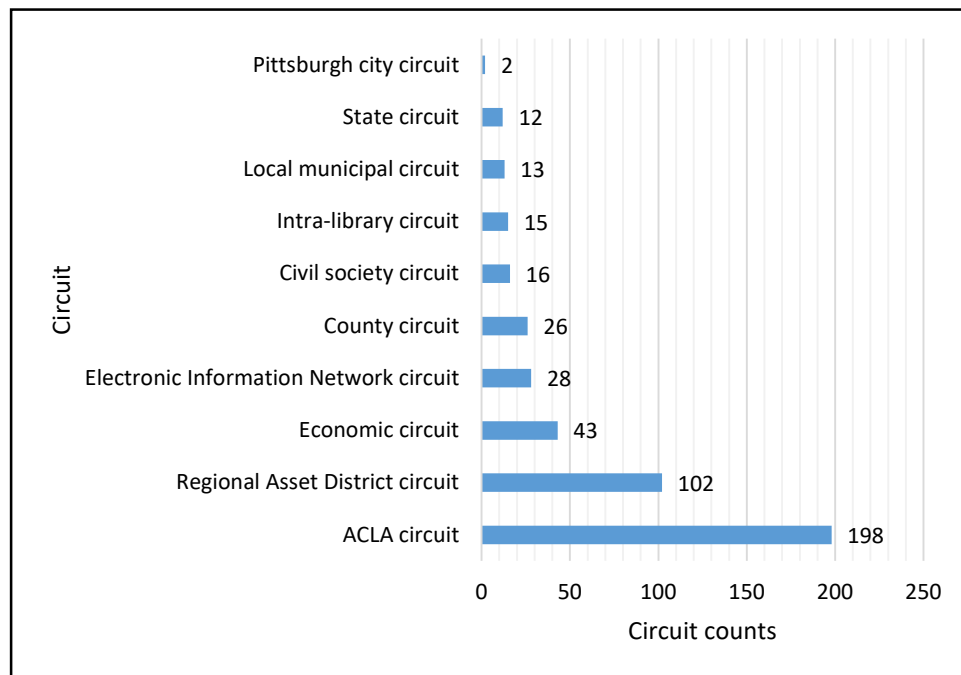




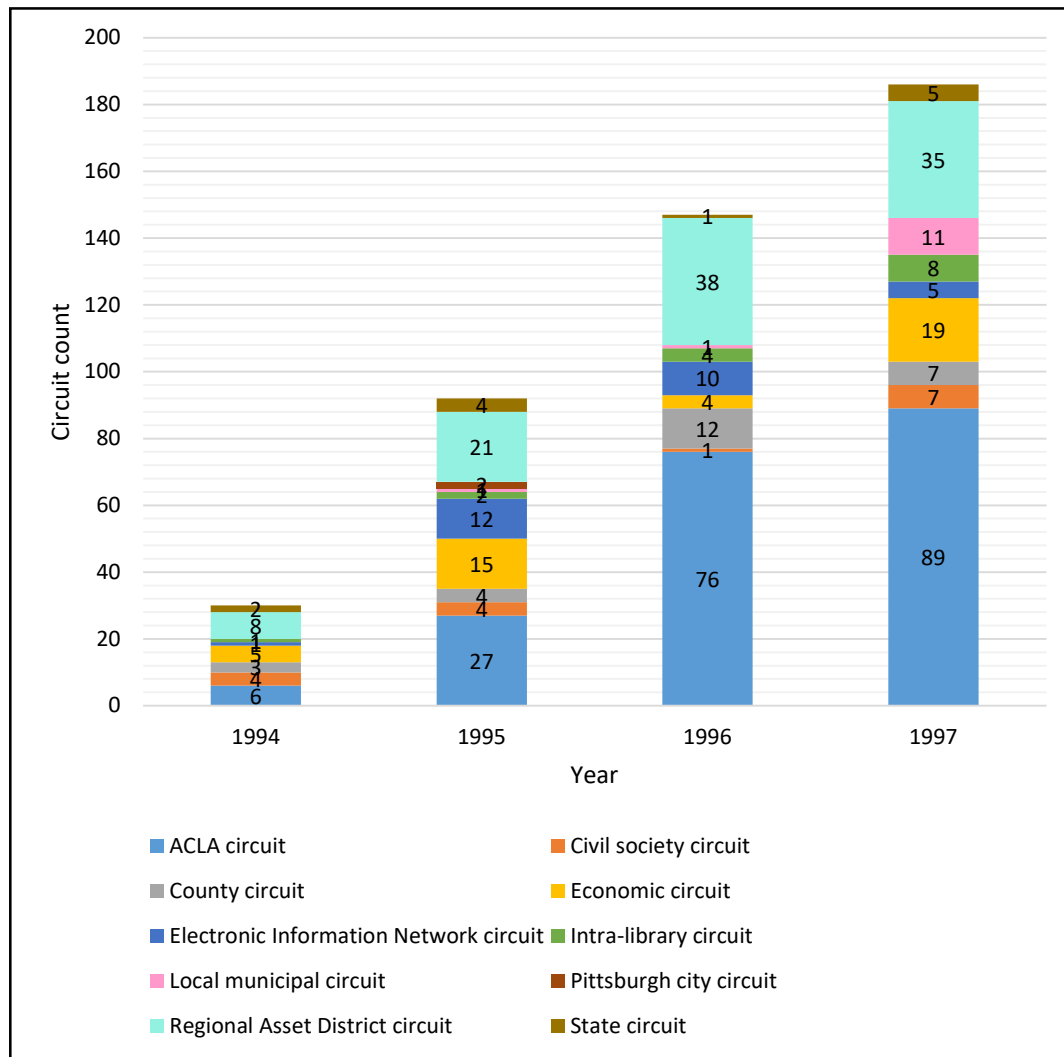
**Figure L.148. Legitimation and implementation combinations by year in period 7.**

**Circuits.** [Figure L.149](#) shows the circuits in period 7. The predominant circuit was ACLA (N=198), followed by Regional Asset District (N=102), economic (N=43), Electronic Information Network (N=28), county (N=26), civil society (N=16), intra-library (N=15), local municipal (N=13), state (N=12), and Pittsburgh city (N=2). [Figure L.150](#) shows circuits by year in period 7. The ACLA circuit increased in activity over the years. Regional Asset District also

increased in frequency from 1994 to 1996, then decreased slightly in 1997. Local municipal circuit had a relatively substantial increase in traffic in 1997.



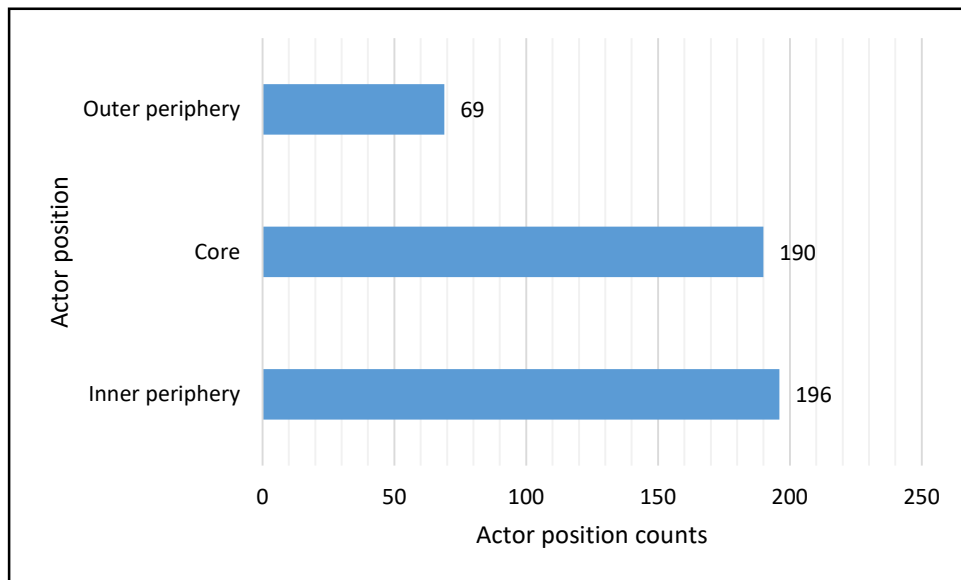
**Figure L.149. Circuits in period 7.**



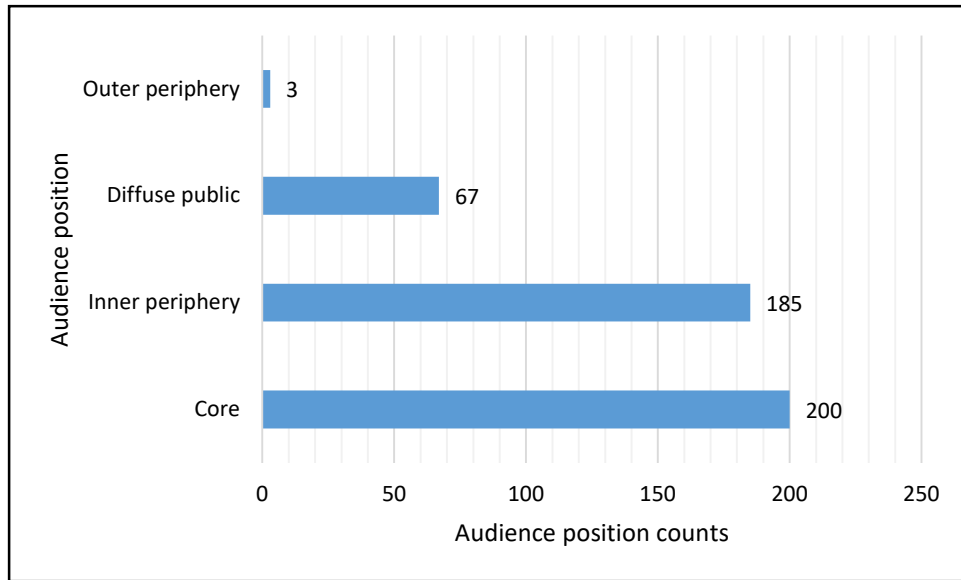
**Figure L.150. Circuits by year in period 7.**

[Figure L.151](#) shows the actor positions in period 7. The most frequent position was inner periphery (N=196), followed by core (N=190) and outer periphery (N=69). [Figure L.152](#) shows the audience positions in period 7. The most frequent audience position was core (N=200), followed by inner periphery (N=185), diffuse public (N=67), and outer periphery (N=3). [Figure L.153](#) shows the actor position, audience position, and circuit combinations by year in period 7. The primary pathways in the Regional Asset District circuit were from outer periphery and inner

periphery to core, and from core to inner periphery. The ACLA circuit, which increased in traffic over time, had a variety of pathways. A general view of the circuits, actor/audiences, positions, and power directions can be seen in [Figure L.154](#). The ACLA circuit and ACLA as an organization are the two dominant nodes in the tessellation.



**Figure L.151. Actor positions in period 7.**



**Figure L.152. Audience positions in period 7.**

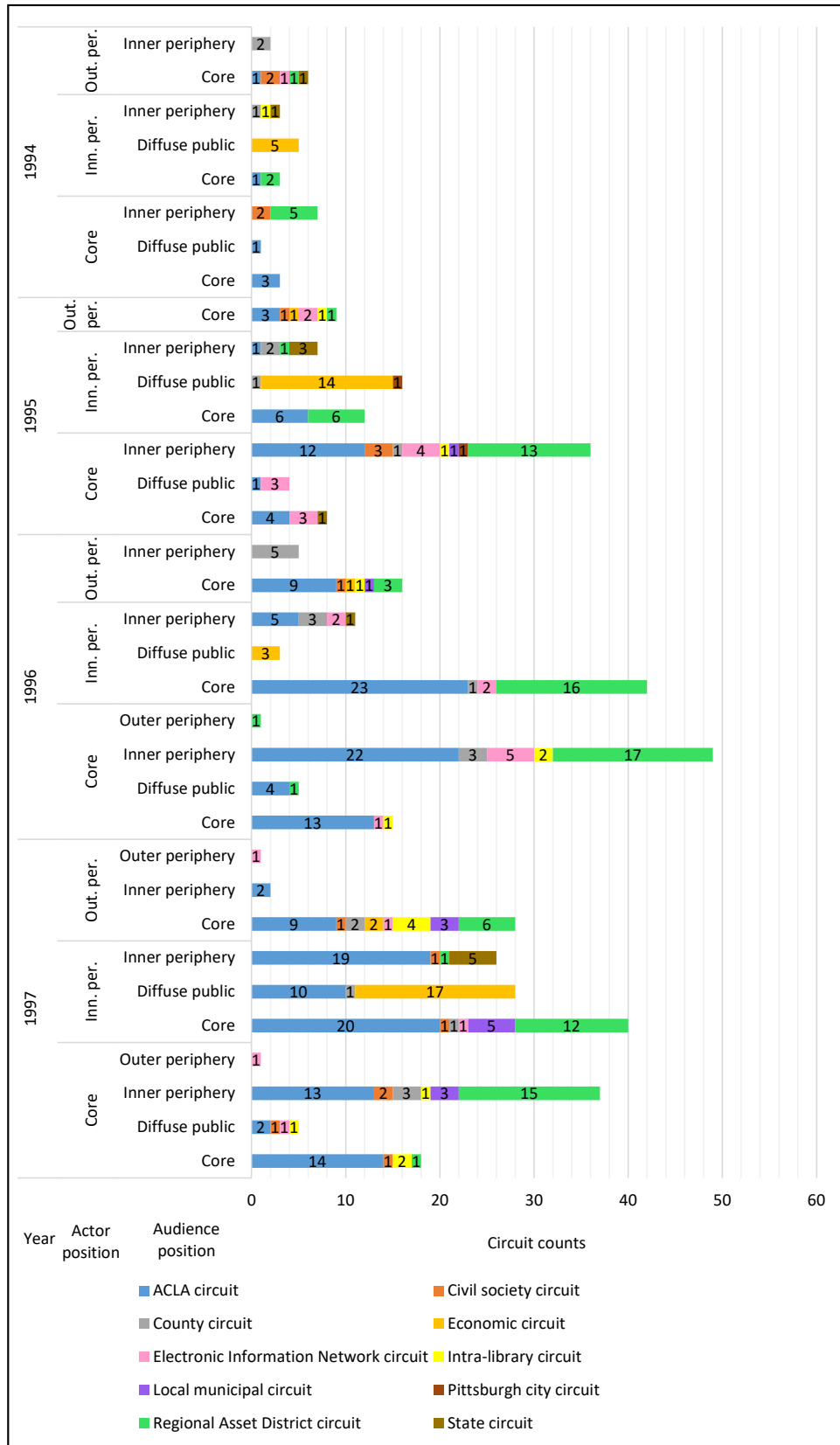


Figure L.153. Actor position, audience position, and circuit combinations by year in period 7.

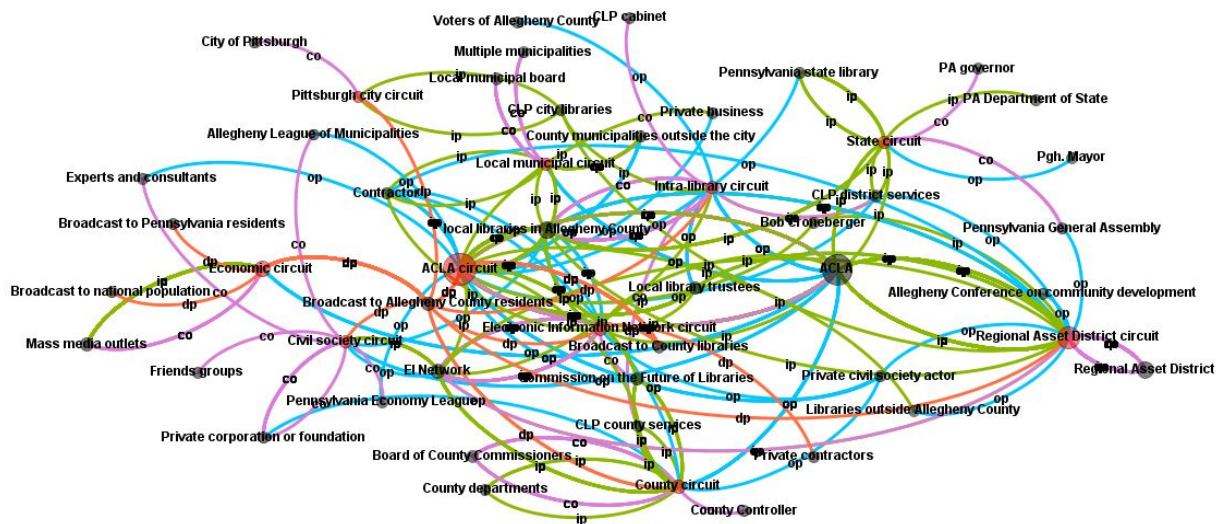
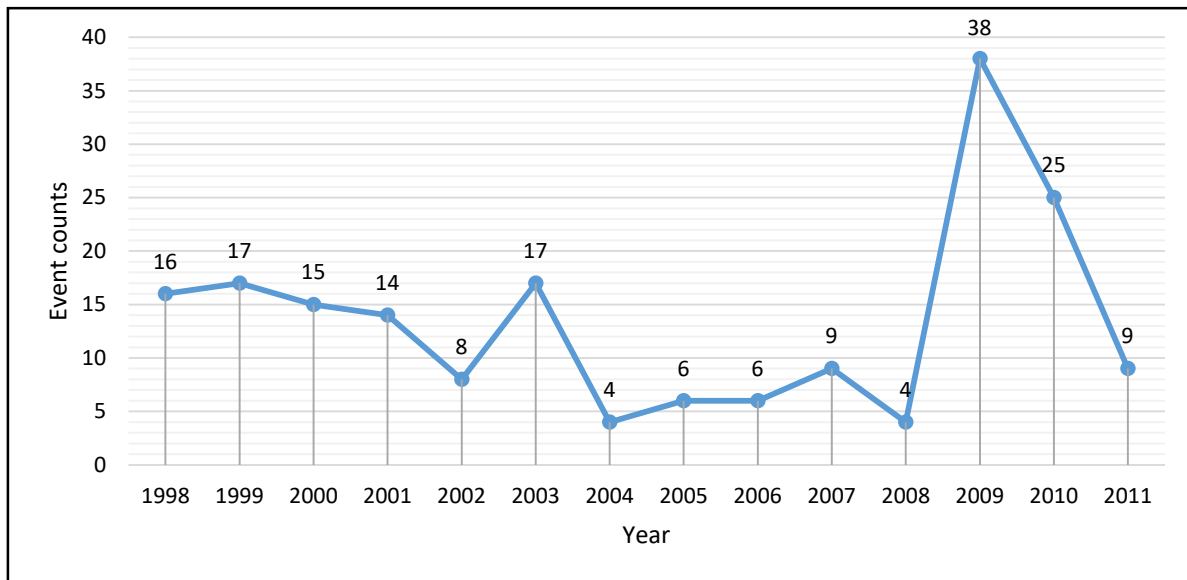


Figure L.154. Actor-circuit graph for period 7.

## PERIOD 8: 1998–2011

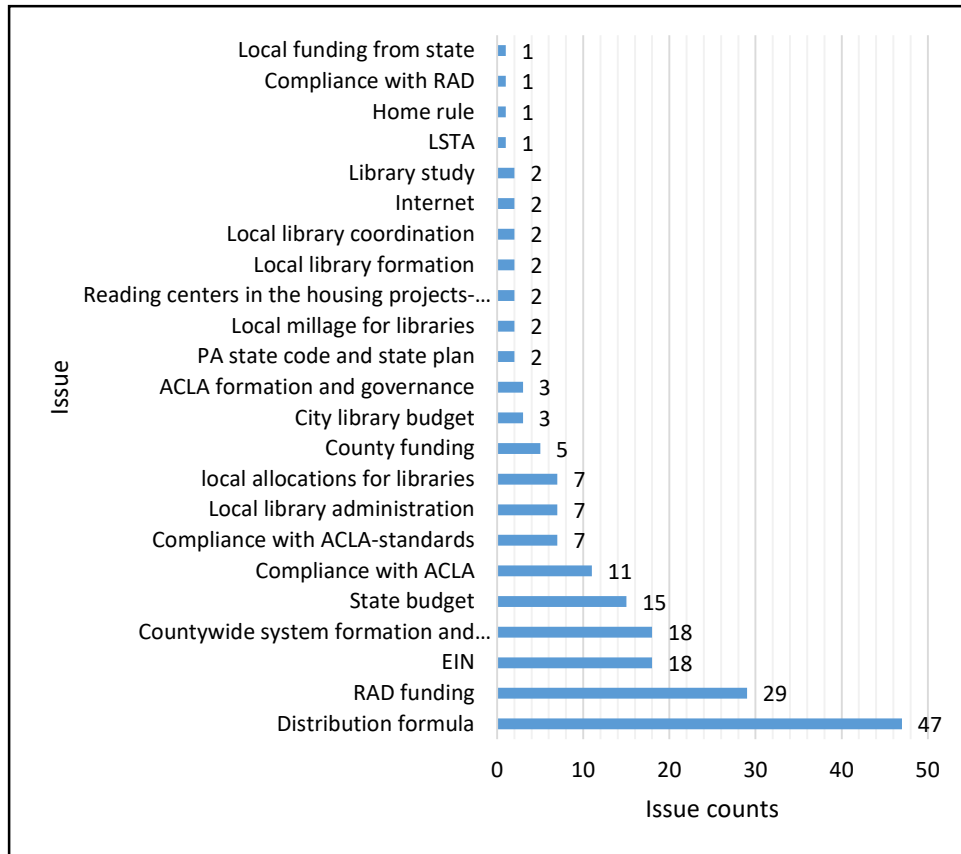
**Events.** A total of N=188 communicative events were identified in period 8 ([Figure L.155](#)). The events are continuous throughout the 14 years of the period. They begin with N=16 events in 1998, drop to N=8 events in 2002, increase to N=17 events in 2003, drop to under 10 events from 2004 to 2008, increase dramatically to N=38 events in 2009, then fall to N=35 events in 2010 and N=9 events in 2011.



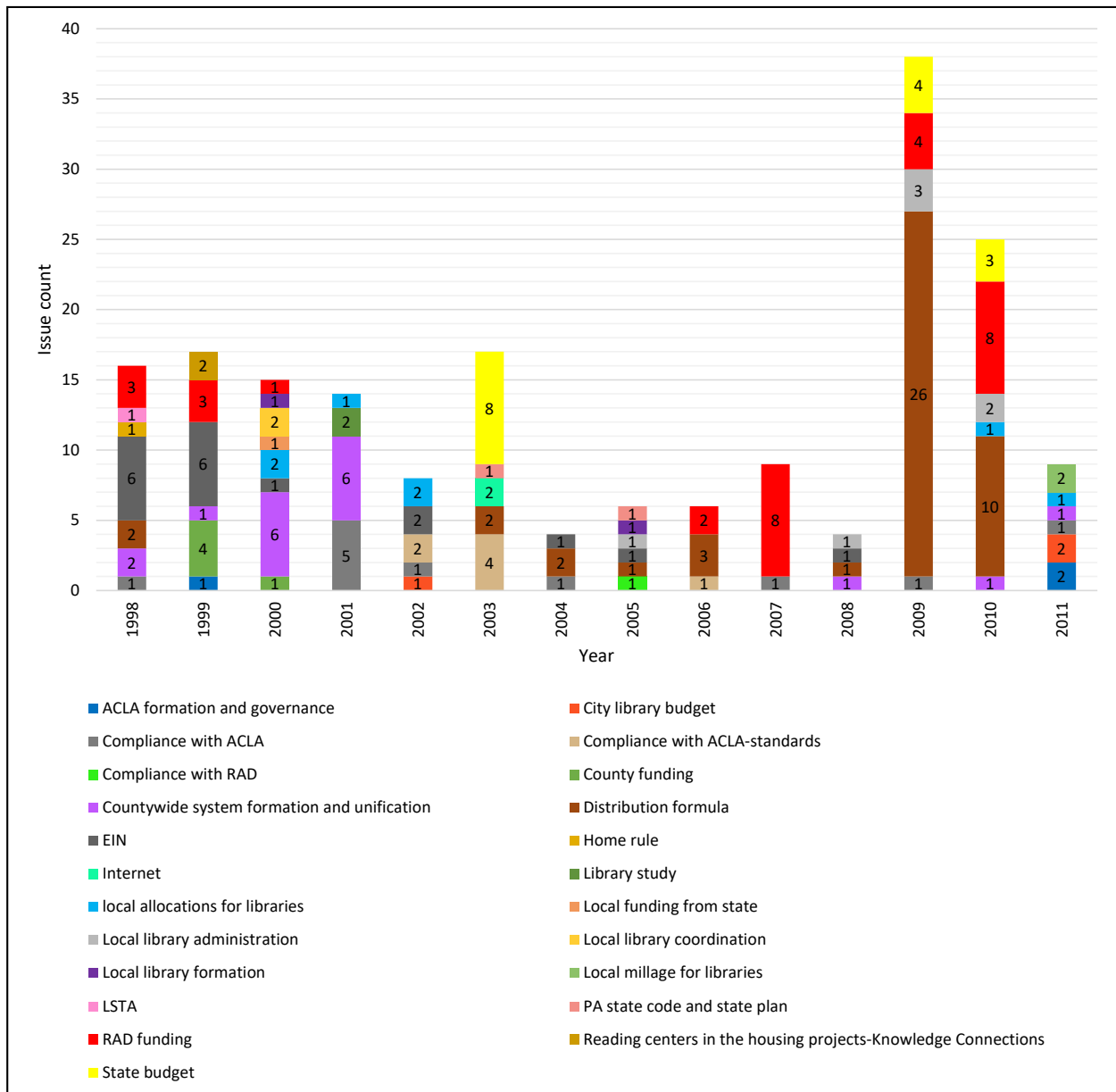
**Figure L.155. Communicative events in period 8.**

*Issues.* [Figure L.156](#) shows the issues in period 8. The predominant issue was distribution formula (N=47), followed by RAD funding (N=29), EIN (N=18), countywide system formation and unification (N=18), state budget (N=15), and compliance with ACLA (N=11). [Figure L.157](#) shows issues by year in period 8. Countywide system formation and unification and EIN were significant issues at the start of the period, from 1998 to 2001. RAD funding was raised in as a significant issue in several years, including 1998, 199, 2000, 2006, 2007, 2009, and 2010. The distribution formula was a minor issue in several years, but dominated discourse in 2009 and 2010. The state budget was a major issue in 2003, then again in 2009 and 2010.





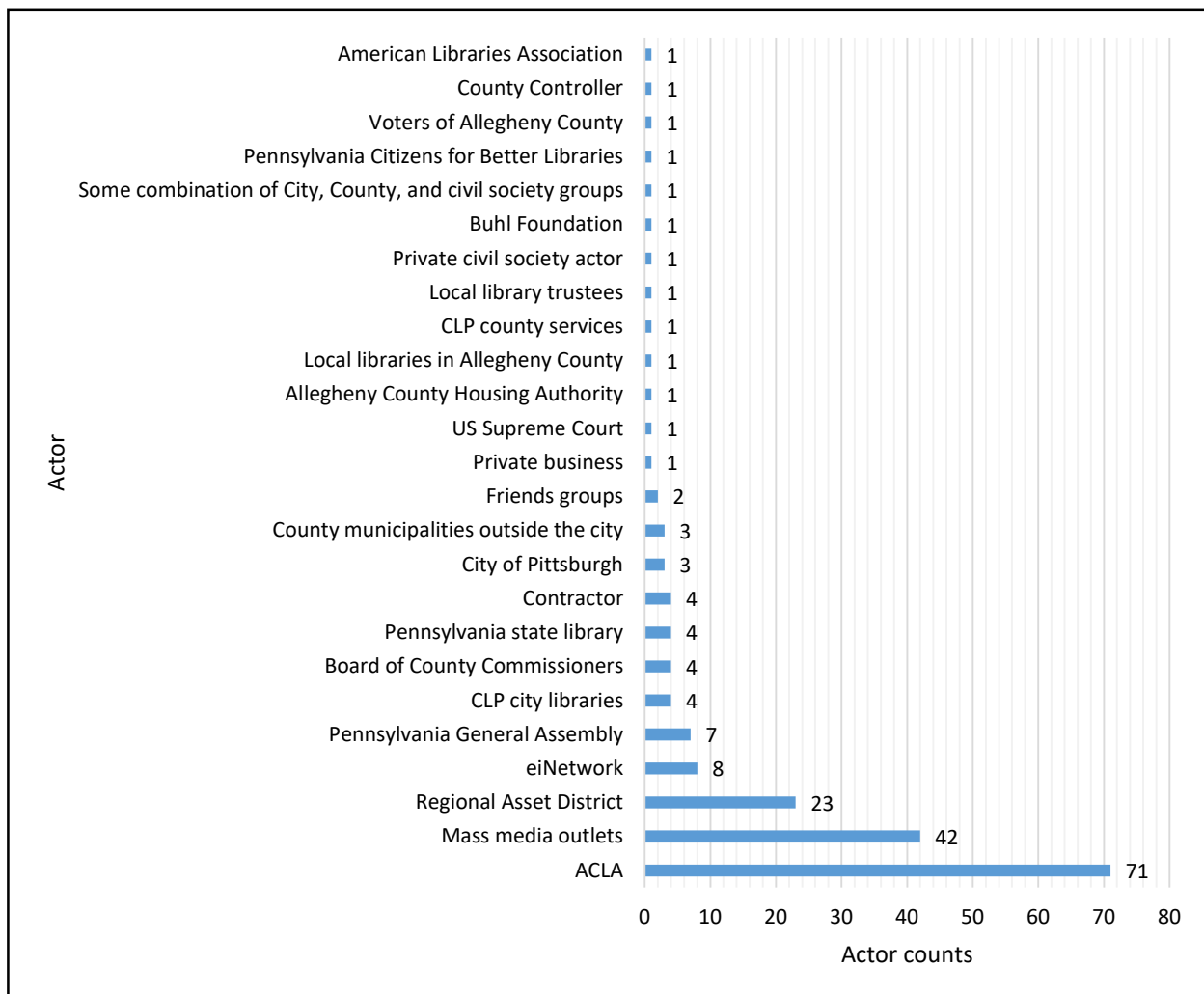
**Figure L.156. Issues in period 8.**



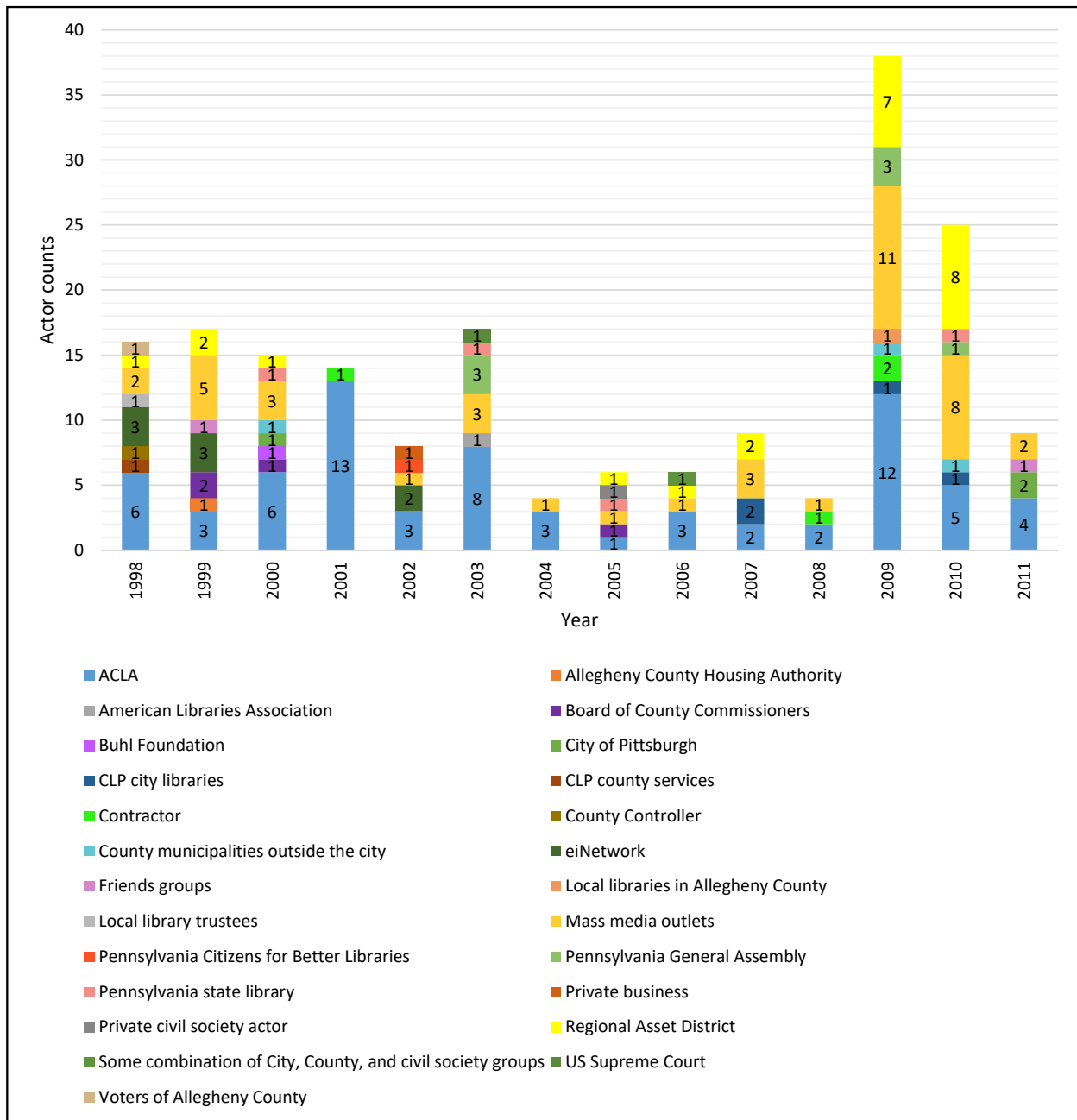
**Figure L.157. Issues by year in period 8.**

*Actors and audiences.* [Figure L.158](#) shows the actors in period 8. The most prevalent actor was ACLA (N=71), followed by mass media outlets (N=42), Regional Asset District (N=23), eiNetwork (N=8), and Pennsylvania General Assembly (N=7). Actors are shown by

year in [Figure L.159](#). ACLA was an actor in all years of the period. The Regional Asset District and mass media outlets were also active in most years.



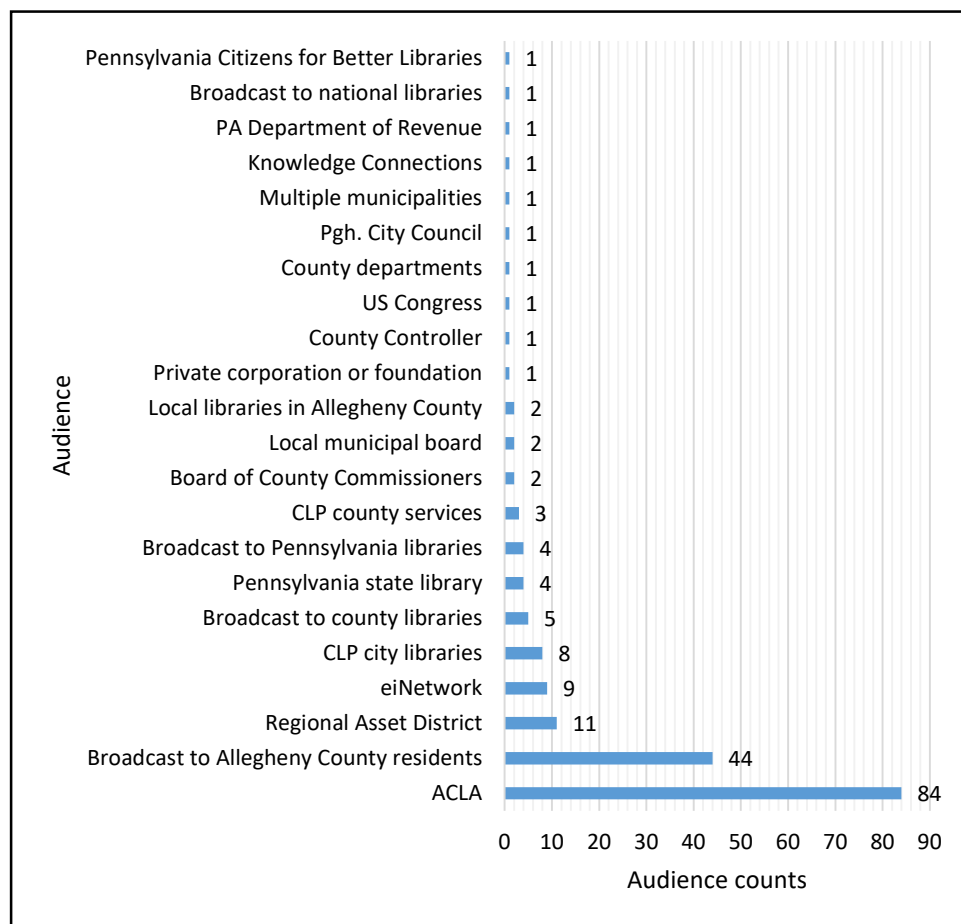
**Figure L.158. Actors in period 8.**



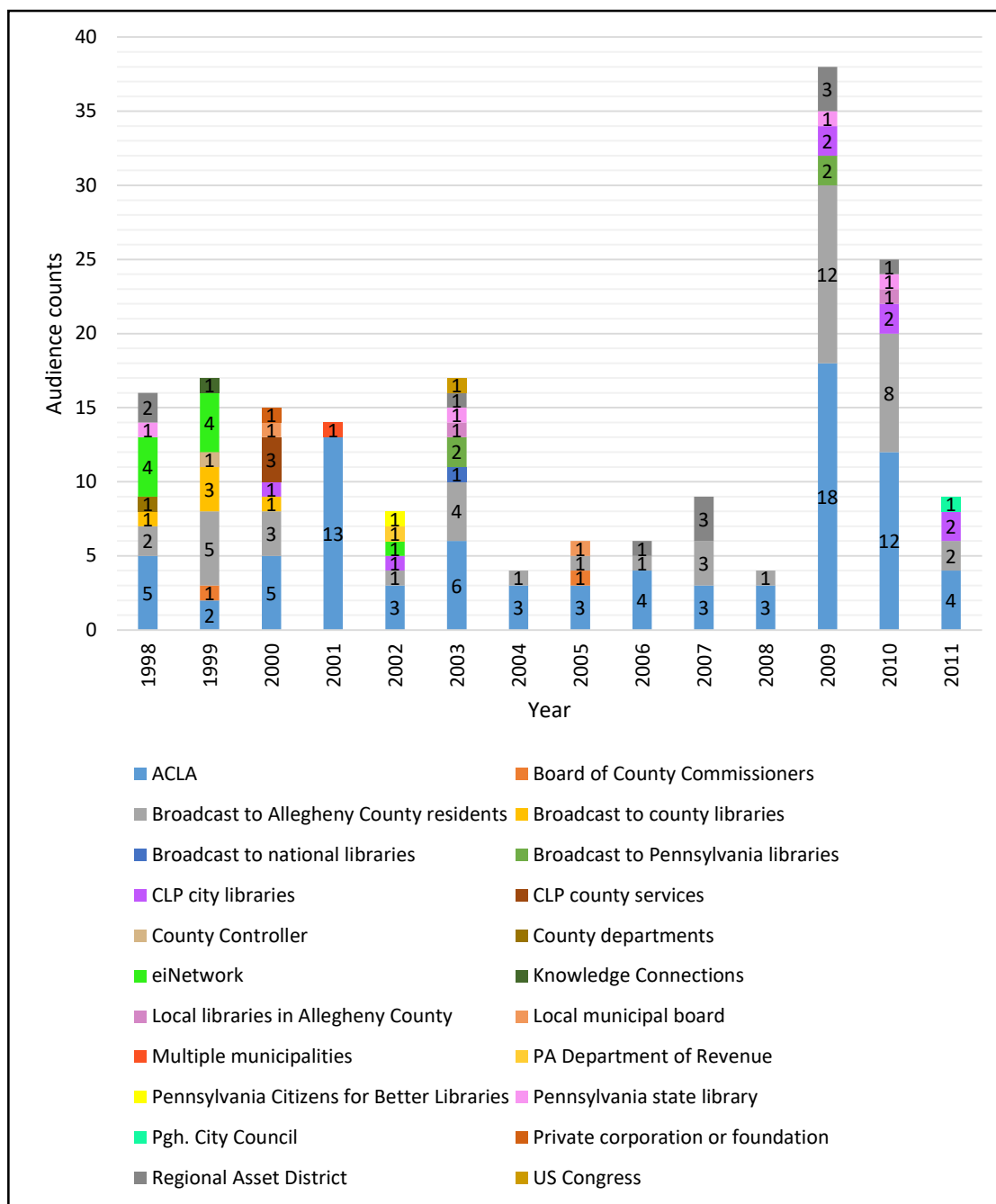
**Figure L.159. Actors by year in period 8.**

[Figure L.160](#) shows the audiences in period 8. The most frequent audience was ACLA (N=84), followed by broadcast to Allegheny County residents (N=44), Regional Asset District (N=11), eiNetwork (N=9), and CLP city libraries. Audiences are shown by year in [Figure L.161](#).

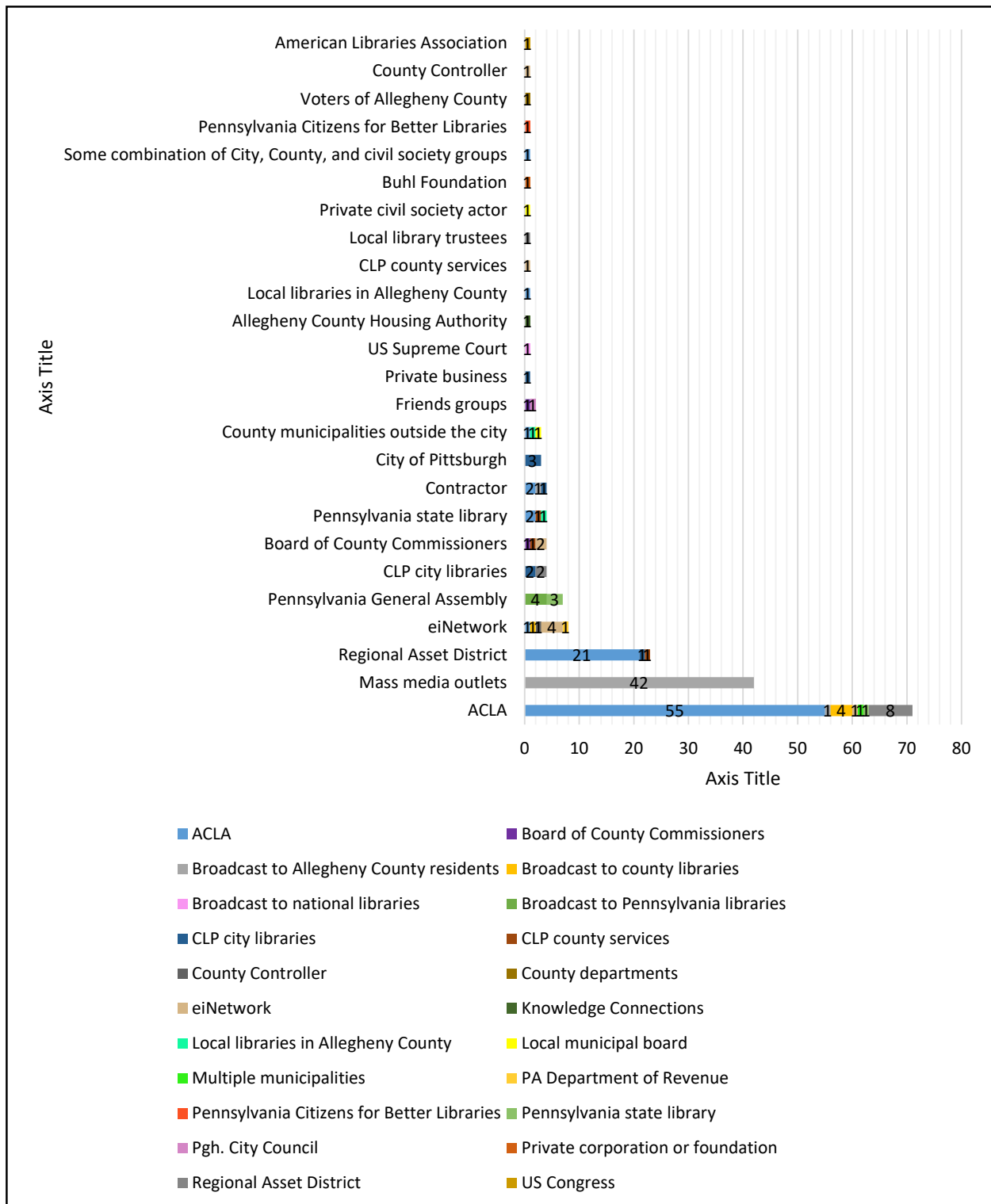
ACLA was an audience throughout all the years in period 8. Broadcasts to Allegheny County residents and Regional Asset District appeared as audiences in most years. EiNetwork was a significant audience in the first 2 years of the period, and Carnegie Library of Pittsburgh city library system was a visible audience in the last 3 years. [Figure L.162](#) shows actor-audience combinations in period 8. ACLA communicated mostly within its own organization, to the Regional Asset District, and broadcasted to county libraries. Mass media outlets broadcasted to Allegheny County residents. The Regional Asset District communicated to ACLA



**Figure L.160. Audiences in period 8.**

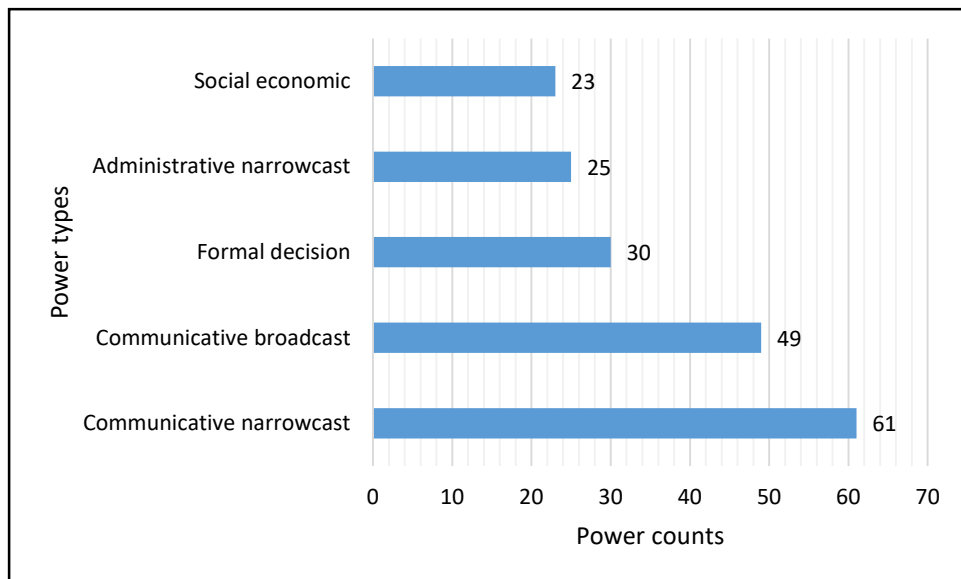


**Figure L.161. Audiences by year in period 8.**



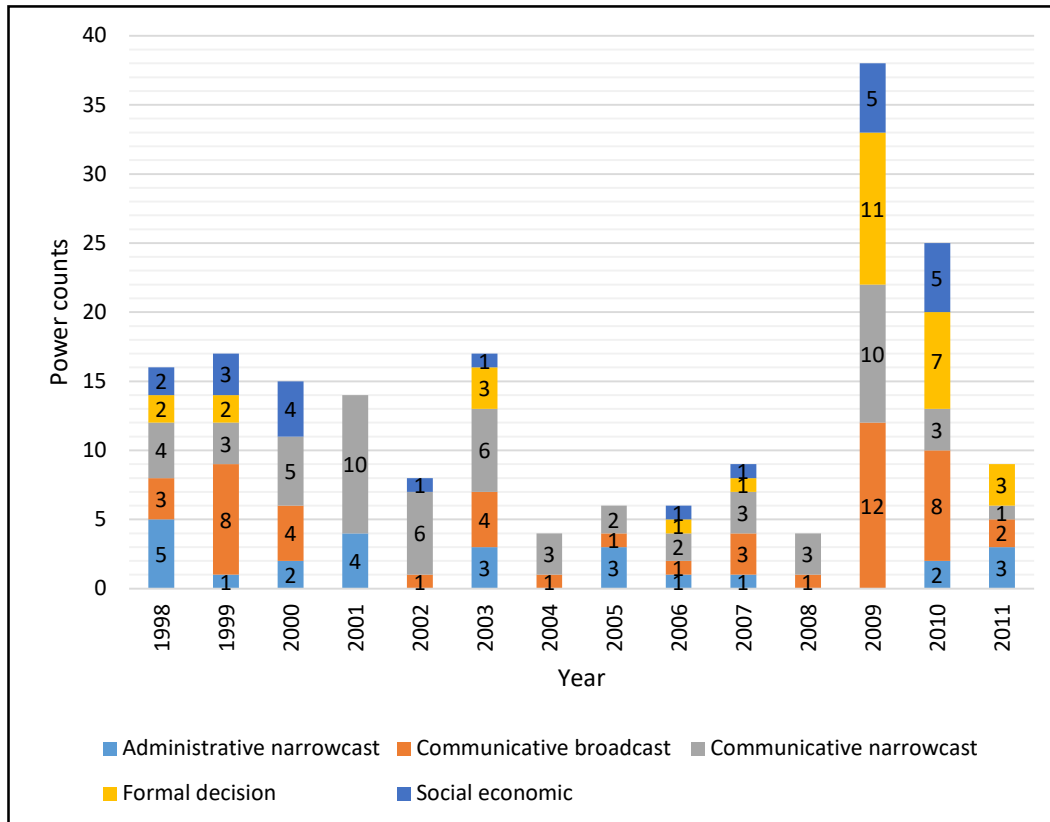
**Figure L.162. Actor and audience combinations in period 8.**

**Power.** [Figure L.163](#) shows the numbers and types of power in period 8. The most frequent type of power was communicative narrowcast (N=61), followed by communicative broadcast (N=49), formal decision (N=30), administrative narrowcast (N=25), and social economic (N=23). [Figure L.164](#) shows the numbers and types of power by year. Communicative narrowcasts were transmitted in every year, especially 2001 and 2009. Administrative narrowcasts, social economic power, and communicative broadcasts were transmitted in almost every year. Formal decision was most transmitted in 2009 and 2010.



**Figure L.163. Power in period 8.**





**Figure L.164. Power by year in period 8.**

[Figure L.165](#) shows the actor, audience, and power combinations in period 8. The lead actor, ACLA, transmitted communicative narrowcasts, administrative narrowcasts, and formal decisions within its own organization. It also transmitted communicative narrowcasts to the Regional Asset District and communicative broadcasts to county libraries. The second predominant actor, mass media outlets, transmitted communicative broadcasts to Allegheny County residents. The third predominant actor, Regional Asset District, transmitted predominantly administrative narrowcasts, formal decisions, and social economic power to ACLA. A general view of the actors, audiences, and power transmissions of period 8 is shown in [Figure L.166](#).

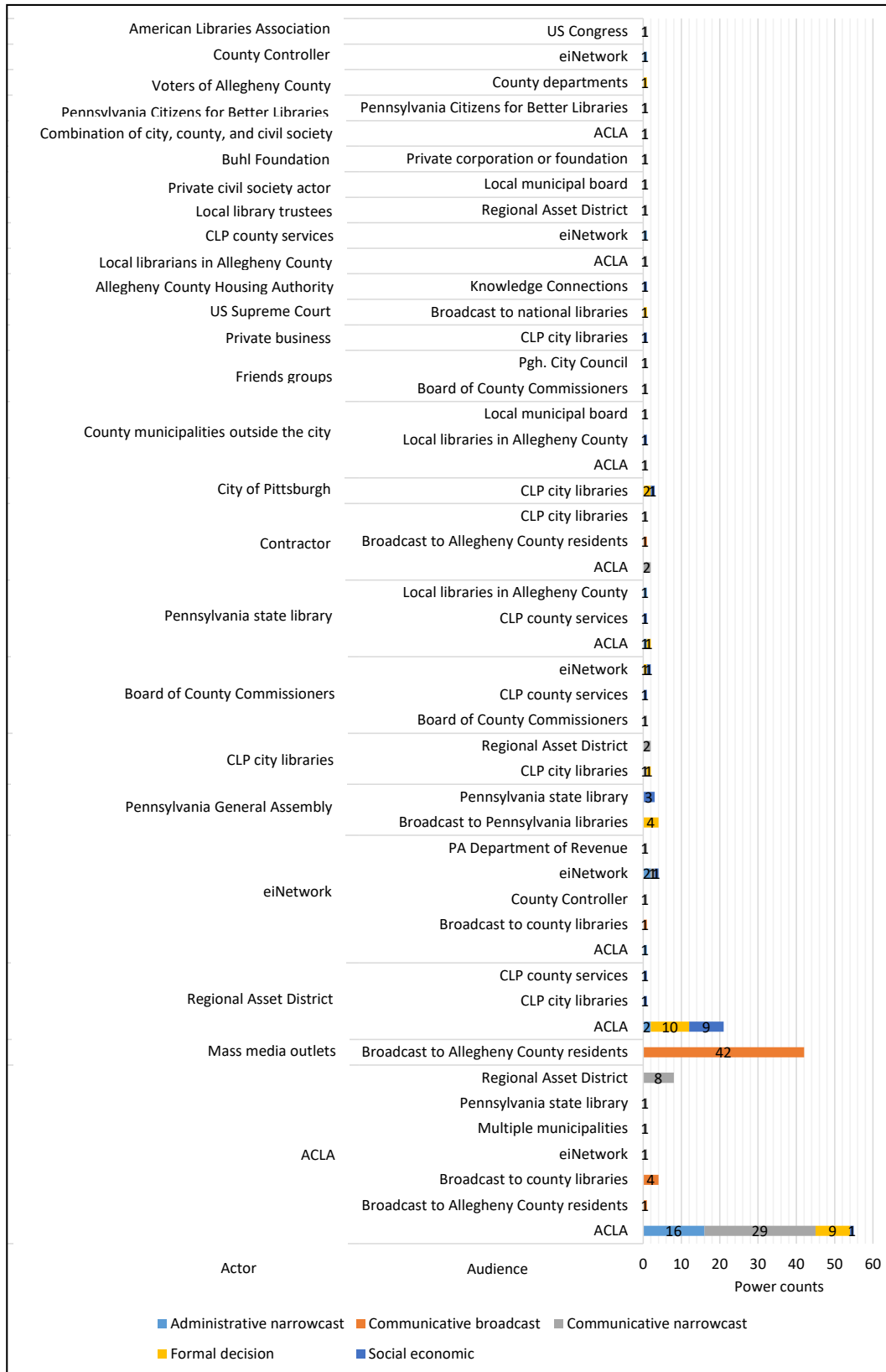
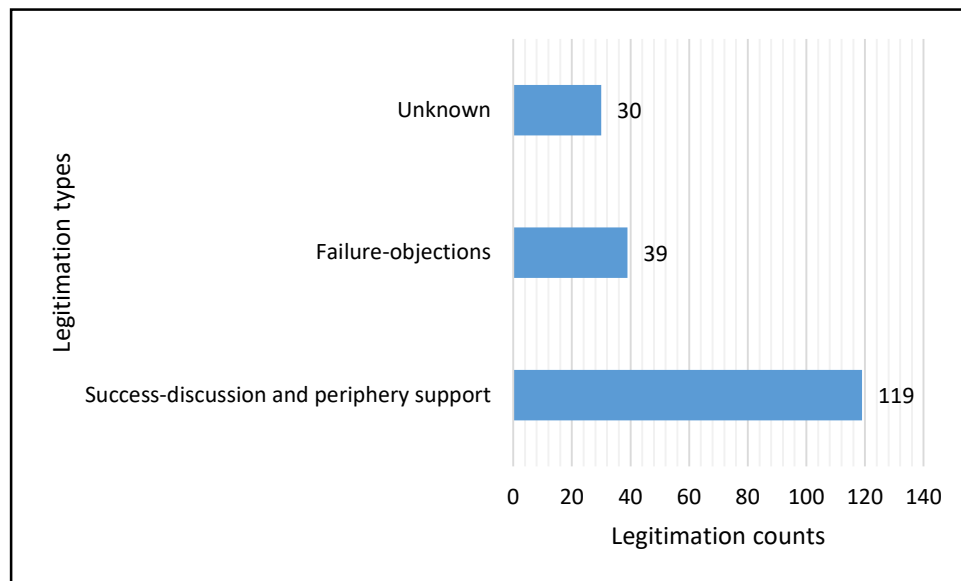


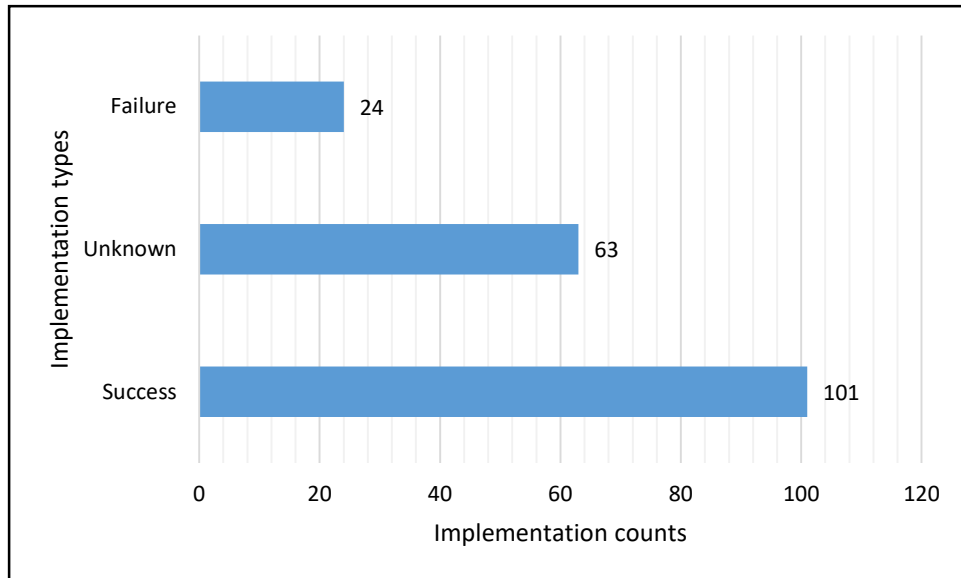
Figure L.165. Actor, audience, and power combinations in period 8.



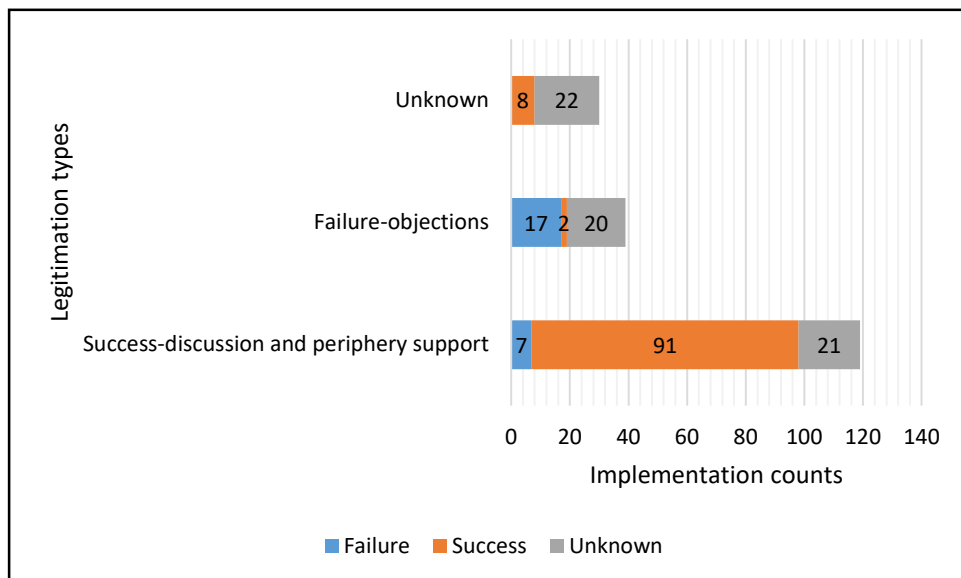
pattern, where most events were either unknown or failed implementation regardless of legitimization.



**Figure L.167. Legitimation in period 8.**



**Figure L.168. Implementation in period 8.**



**Figure L.169. Legitimation and implementation combinations in period 8.**

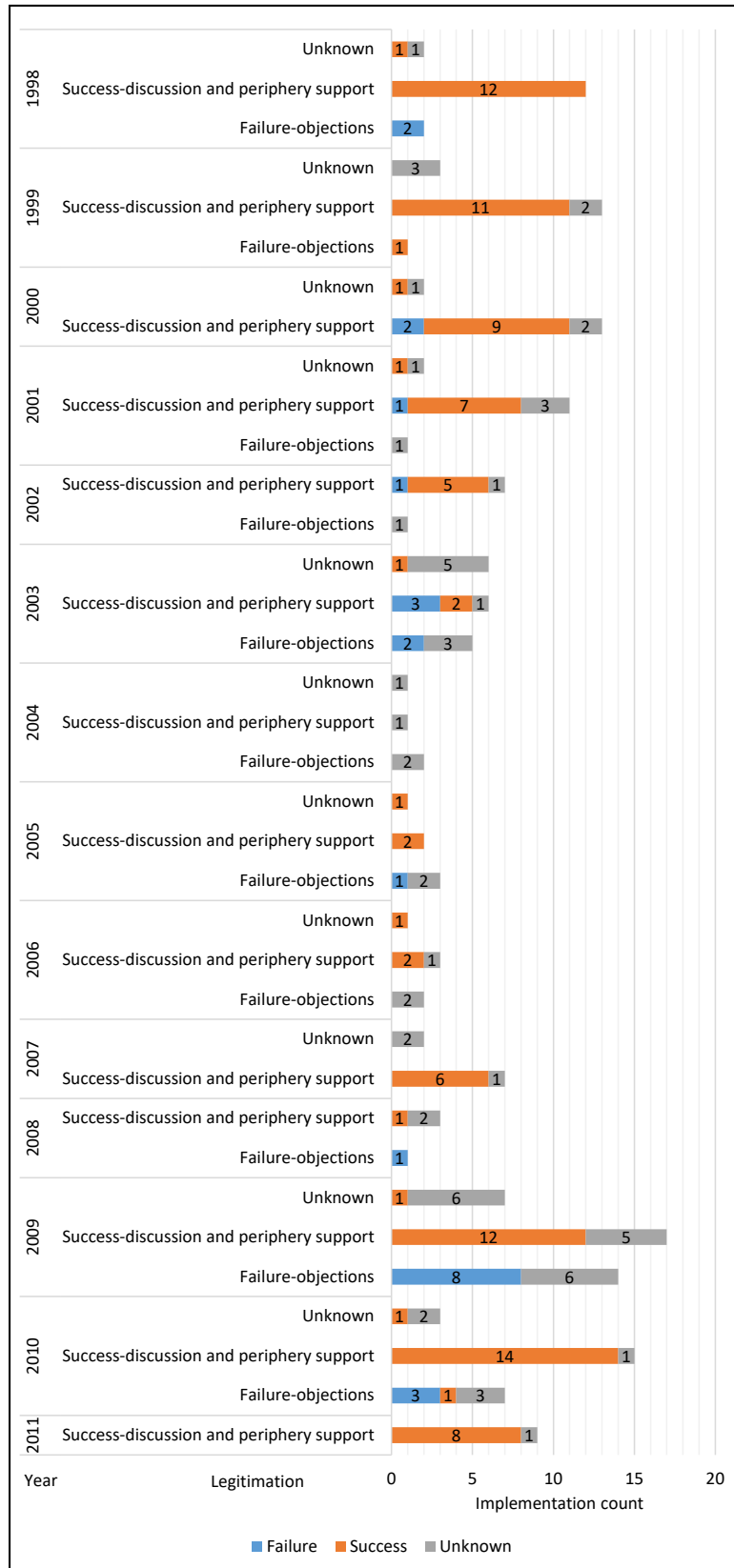
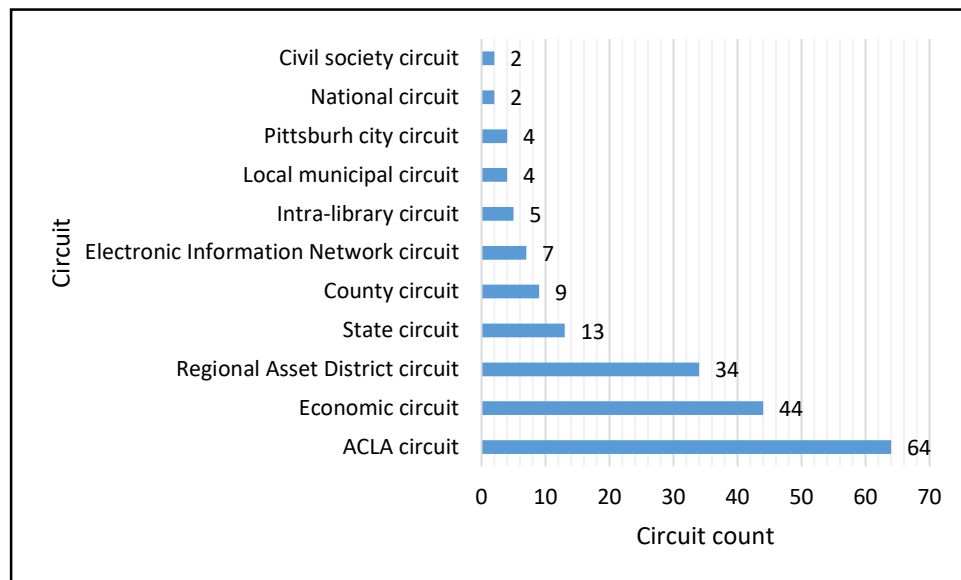
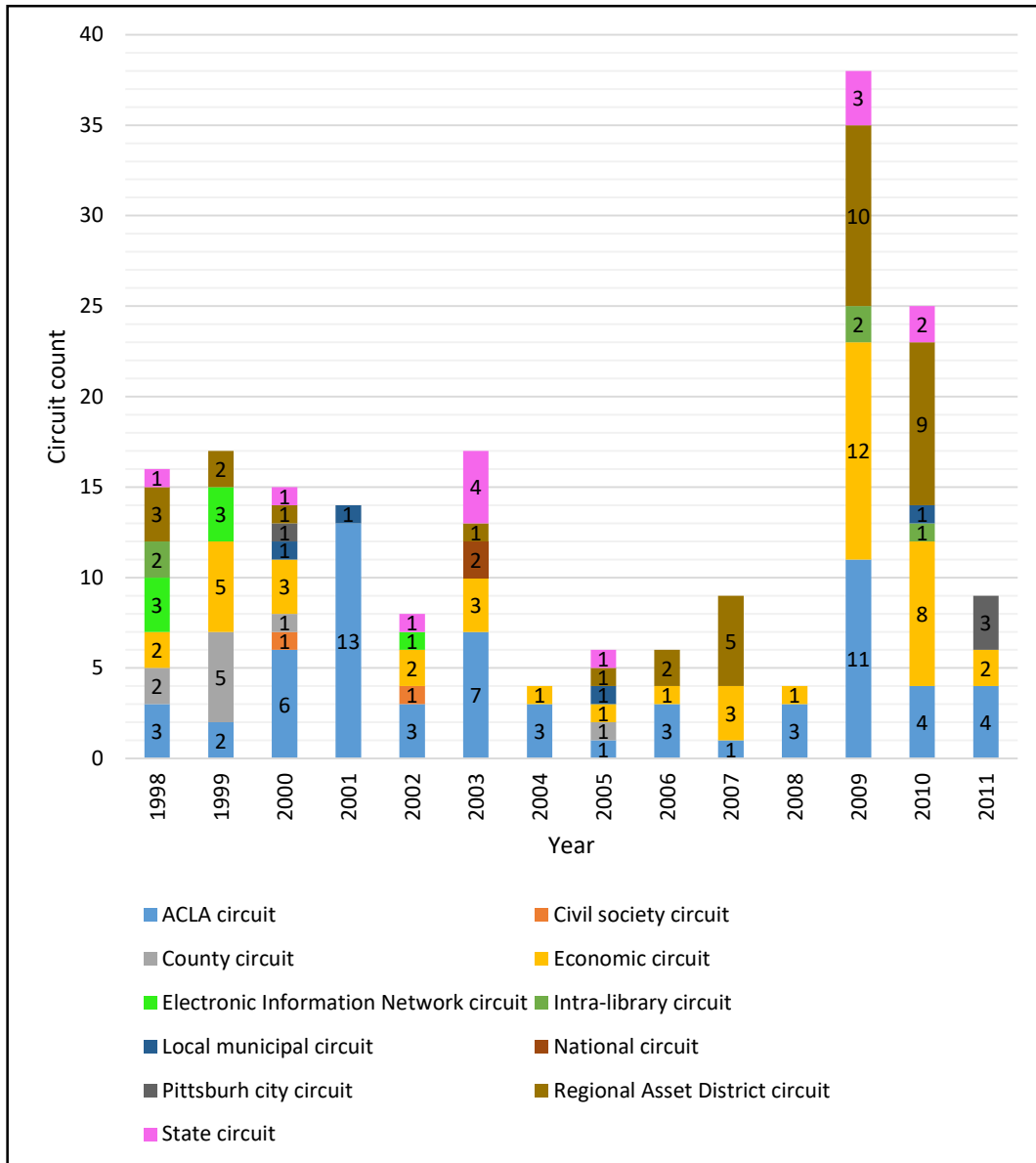


Figure L.170. Legitimation and implementation combinations by year in period 8.

**Circuits.** [Figure L.171](#) shows the circuits in period 8. The most active circuit was ACLA (N=64), followed by economic (N=44), Regional Asset District (N=34), state (N=13), and county (N=9). [Figure L.172](#) shows circuits by year in period 8. ACLA was an active circuit in all years of the period. Economic, state, and Regional Asset District circuits appeared in most other years.



**Figure L.171. Circuits in period 8.**

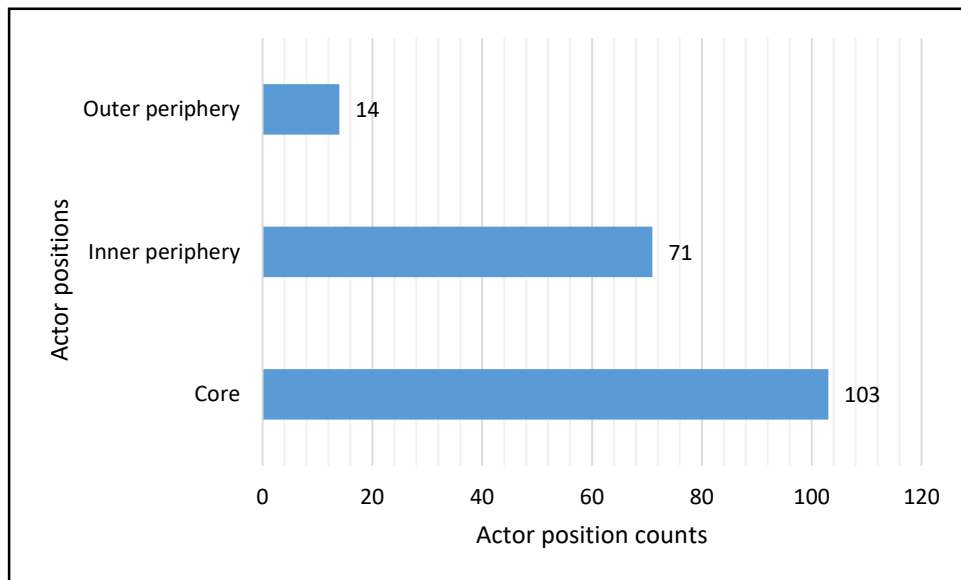


**Figure L.172. Circuits by year in period 8.**

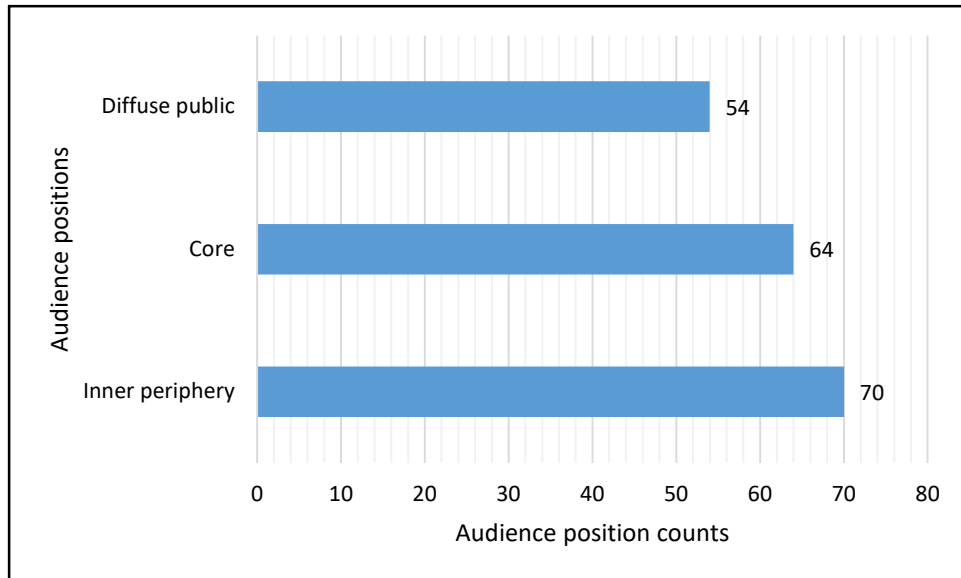
[Figure L.173](#) shows the actor positions in period 8. The most inhabited position was core (N=103), followed by inner periphery (N=71) and outer periphery (N=14). [Figure L.174](#) shows the audience positions in period 8. The most occupied audience position was inner periphery (N=70), followed by core (N=64) and diffuse public (N=54). [Figure L.175](#) shows actor position,



audience position, and circuit combinations by year in period 8. In the ACLA circuit, much of the activity originated from the core. In the Regional Asset District circuit, communications were sent between the core and other positions. [Figure L.176](#) shows an overall visualization of the circuits, actors/audiences, and their positions in period 8.



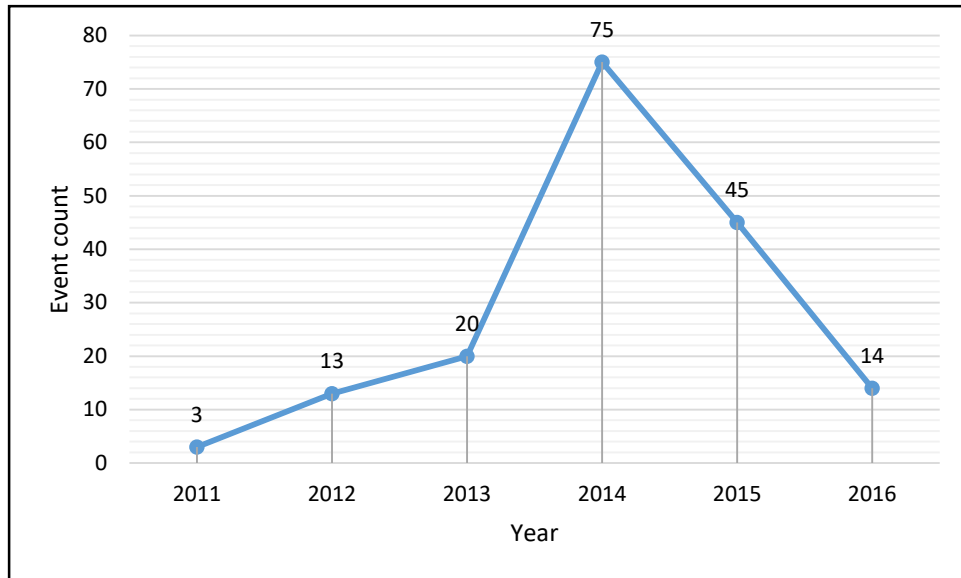
**Figure L.173. Actor positions in period 8.**



**Figure L.174. Audience positions in period 8.**

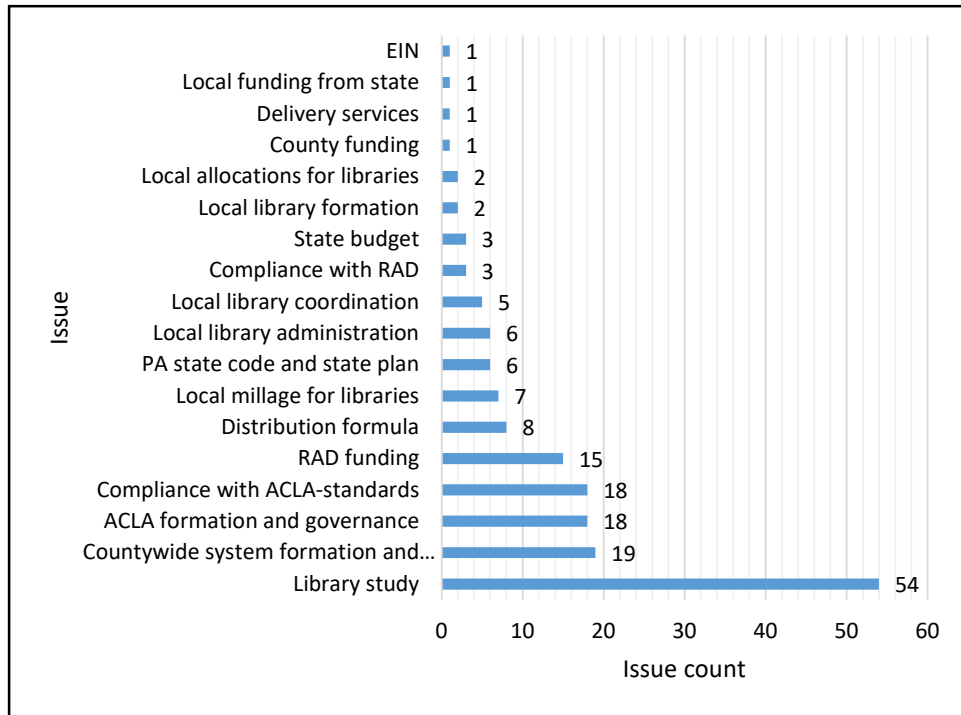




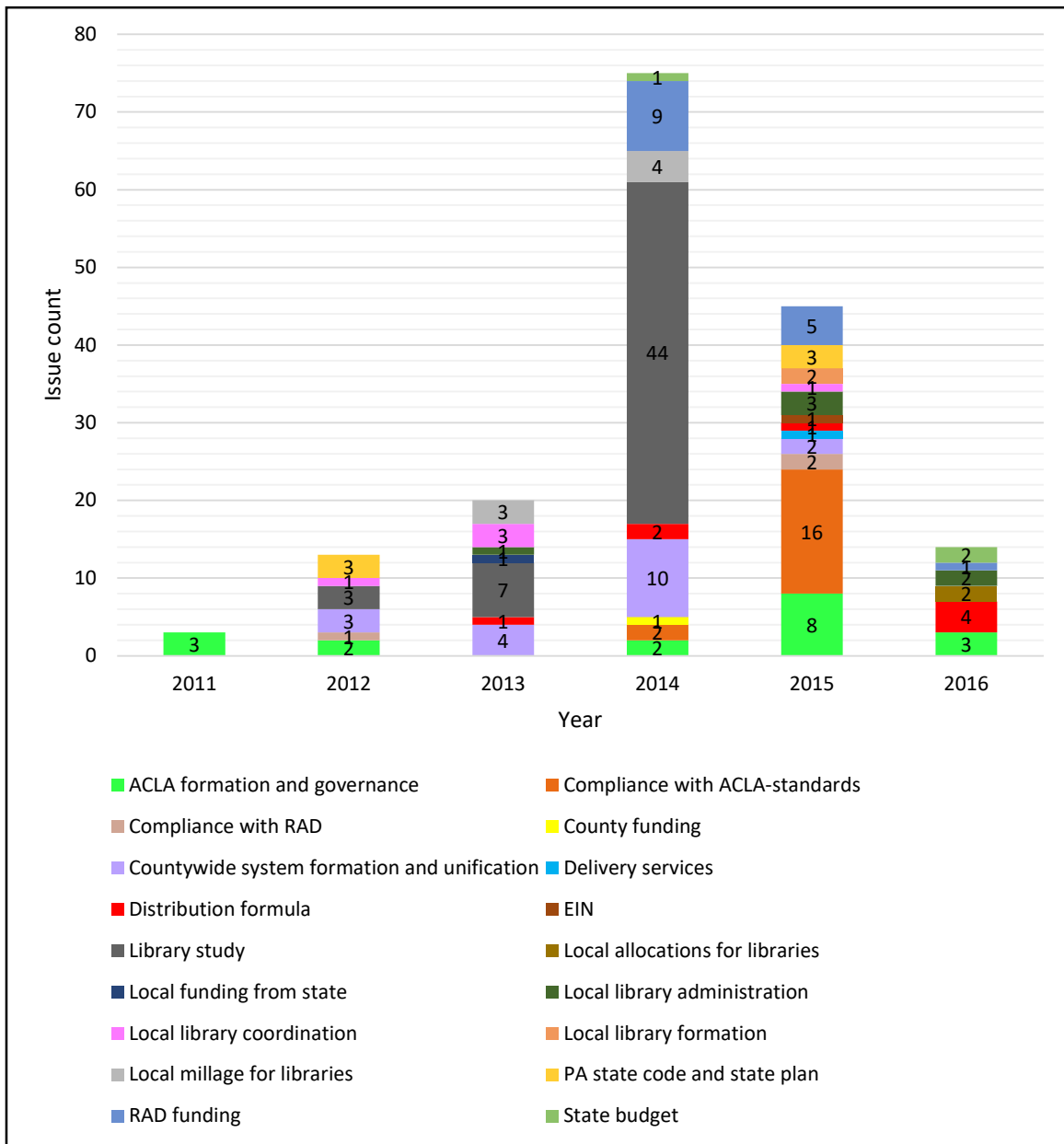


**Figure L.177. Communicative events by year in period 9.**

**Issues.** [Figure L.178](#) shows the issues in period 9. The predominant issue was library study (N=54), followed by countywide system formation and unification (N=19), ACLA formation and governance (N=18), compliance with ACLA-standards (N=18), and RAD funding (N=15). [Figure L.179](#) shows the issues by year in period 9. Library study was a significant issue in 2012, 2013, and 2014. ACLA formation and governance was a notable issue in all years except 2013. Compliance with ACLA-standards was a major issue in 2015. Countywide system formation and unification was an issue from 2012 to 2015.



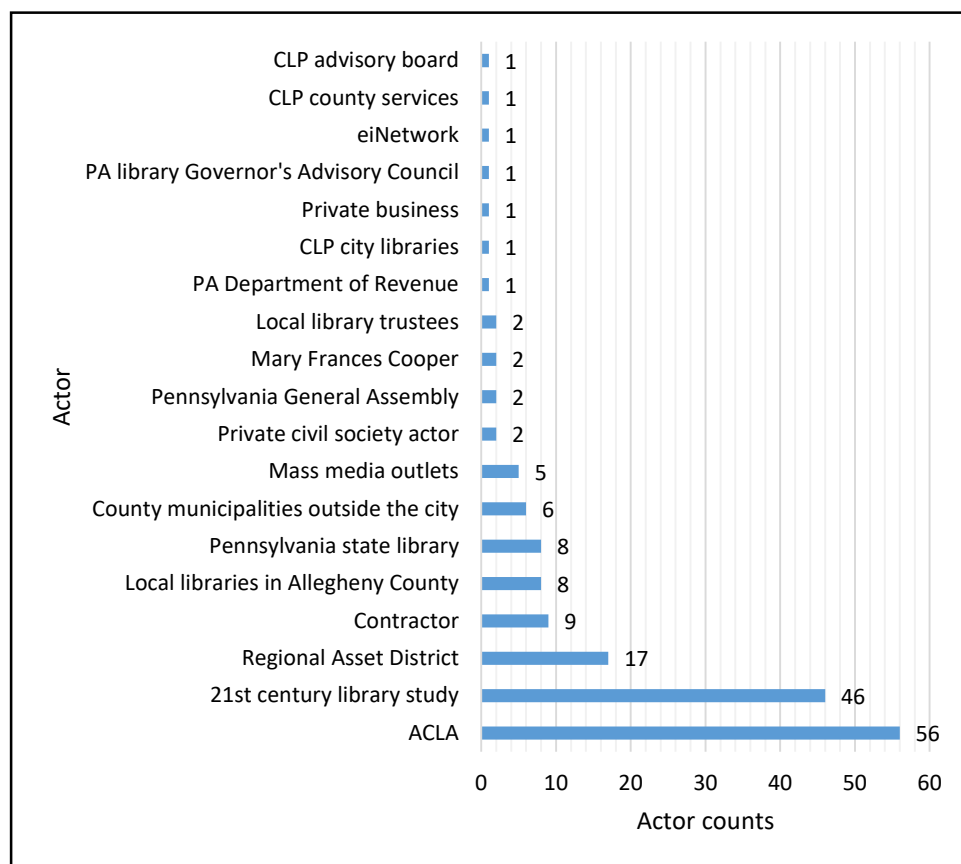
**Figure L.178. Issues in period 9.**



**Figure L.179. Issues by year in period 9.**

*Actors and audiences.* [Figure L.180](#) shows the actors in period 9. The most frequent actor was ACLA (N=56), followed by 21st century library study (N=46), Regional Asset District (N=17), contractor (N=9), local libraries in Allegheny County (N=8), and Pennsylvania state

library (N=8). [Figure L.181](#) shows the actors by year in period 9. ACLA was an actor from 2012 to 2016, but it overshadowed all other actors in 2015. The 21st century library study was a major actor in 2013 and 2014. Regional Asset District was identified as an actor in all years except 2013. Contractor was visible in all years except 2015. Pennsylvania state library was identified as an actor in 2012, 2013, 2014, and 2015.



**Figure L.180. Actors in period 9.**



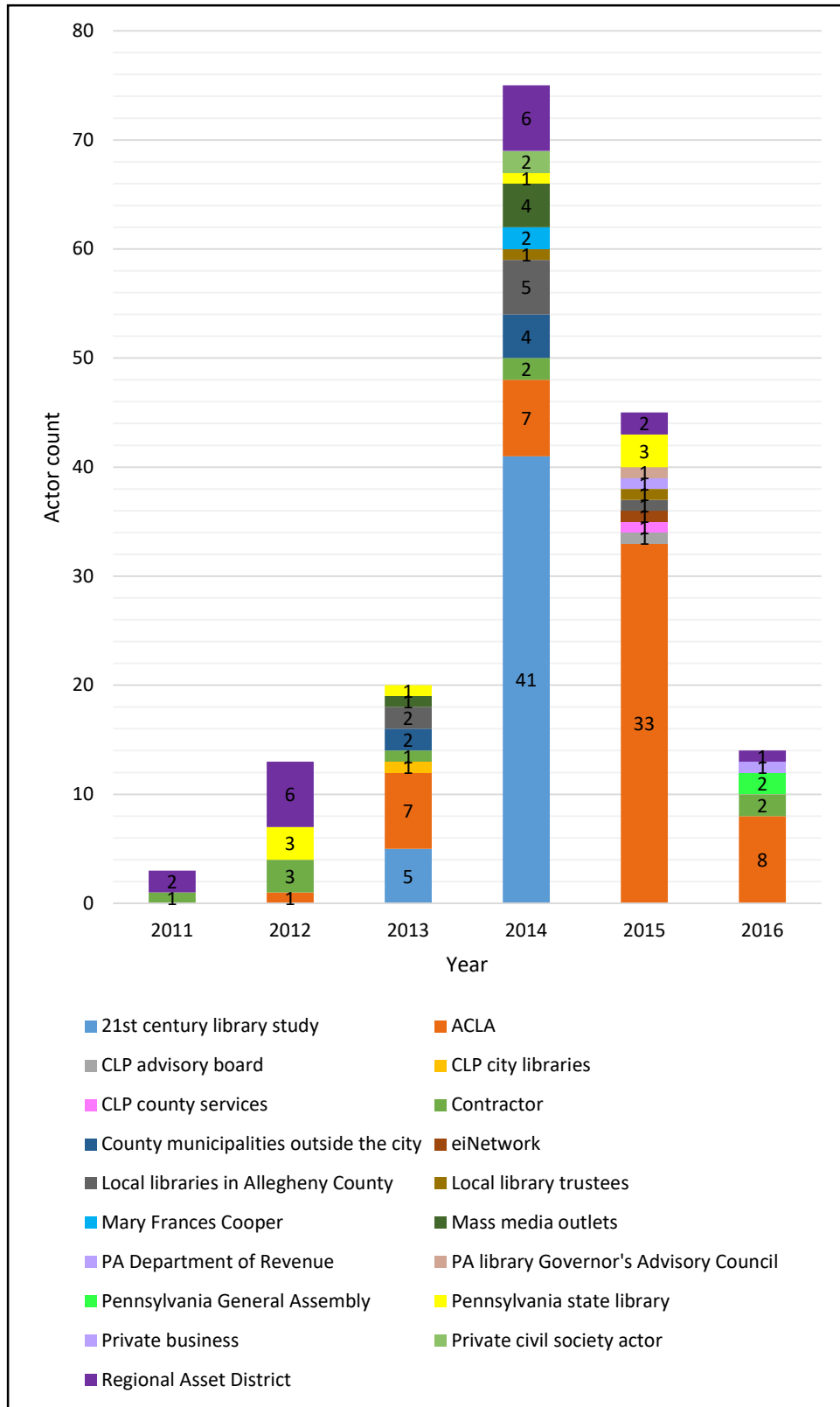
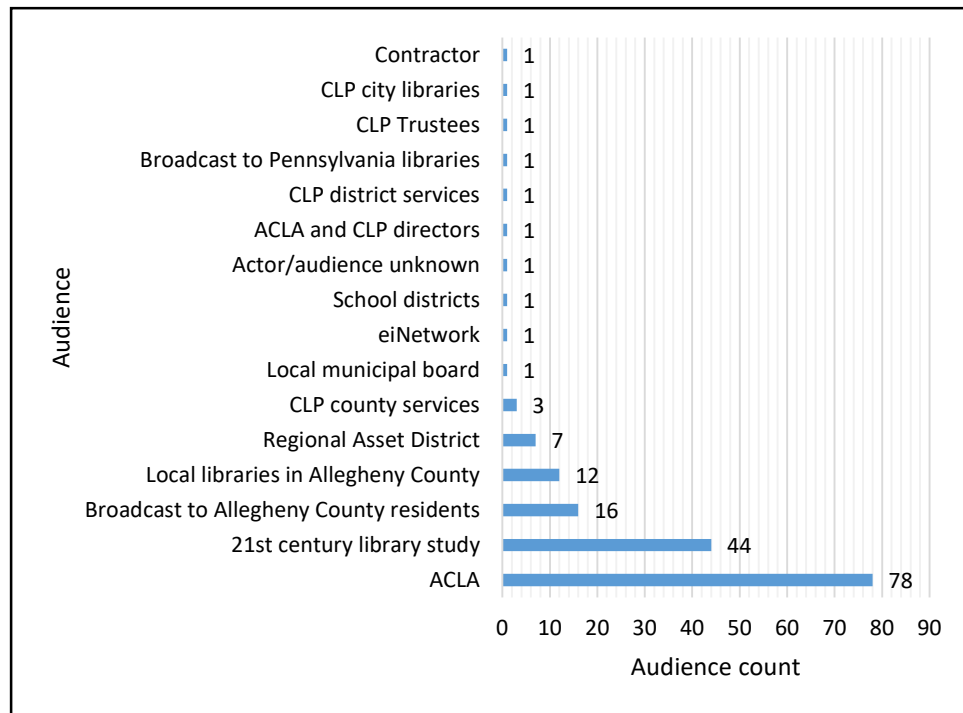
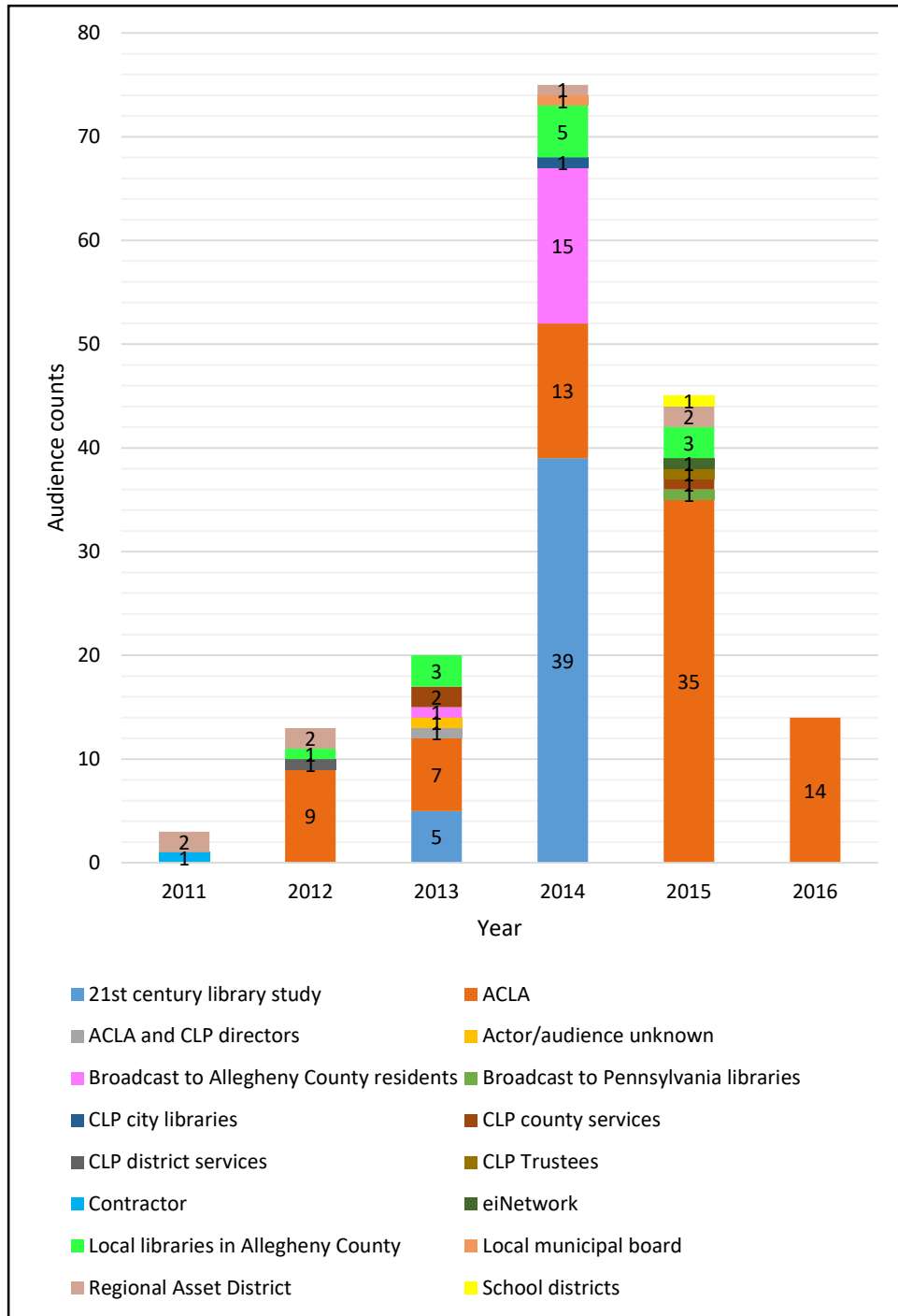


Figure L.181. Actors by year in period 9.

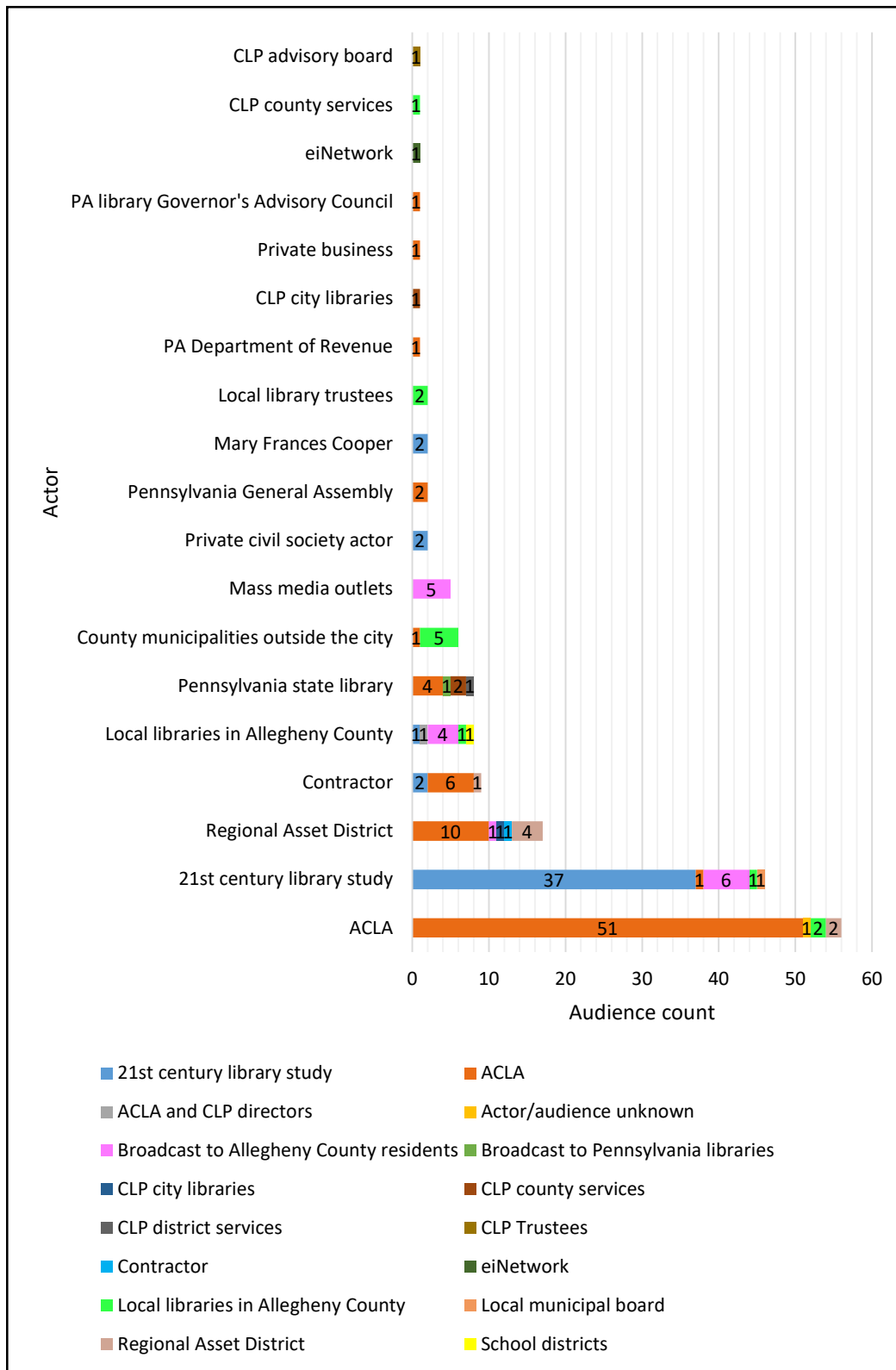
[Figure L.182](#) shows the audiences of period 9. The most prominent audience was ACLA (N=78), followed by 21st century library study (N=44), broadcast to Allegheny County residents (N=16), local libraries in Allegheny County (N=12), and Regional Asset District (N=7). Audiences are shown by year in [Figure L.183](#). ACLA was a major audience in all years except 2011. The 21st century library study was a significant audience in 2013 and 2014. Broadcast to Allegheny County residents was a major audience in 2014. Local libraries in Allegheny County were identified as audiences in 2012, 2013, 2014, and 2015. Actor and audience combinations are shown in [Figure L.184](#). ACLA communicated primarily within its own organization. Regional Asset District, contractors, and Pennsylvania state library also communicated with ACLA in significant ways. Broadcasts were transmitted to Allegheny County residents by 21st century library study, contractors, and mass media outlets. Transmissions were made to the 21st century library study from within the group and from contractors, local libraries in Allegheny County, private civil society actors, and Mary Frances Cooper, the director of Carnegie Library of Pittsburgh.



**Figure L.182. Audiences in period 9.**

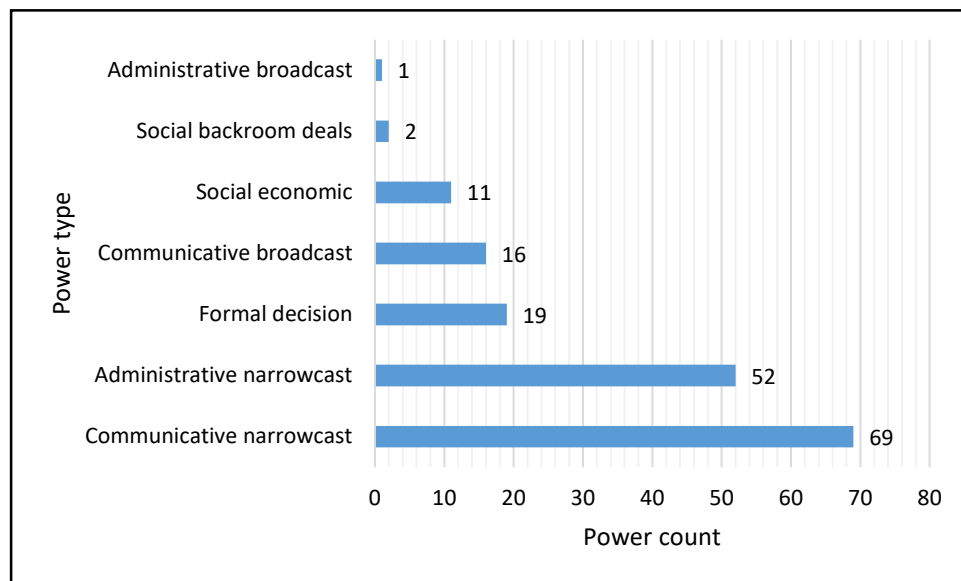


**Figure L.183. Audiences by year in period 9.**

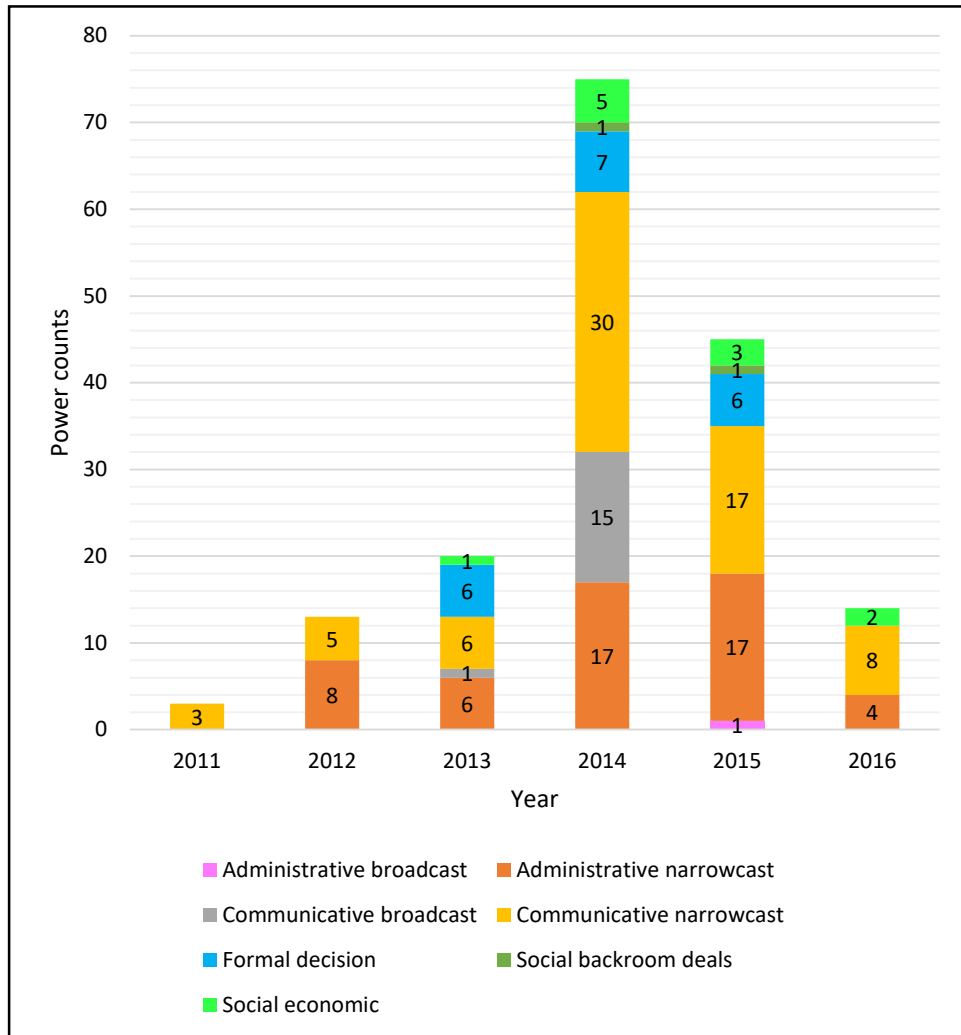


**Figure L.184. Actor and audience combinations in period 9.**

**Power.** [Figure L.185](#) shows the numbers and types of power in period 9. The predominant form of power was communicative narrowcast (N=69), followed by administrative narrowcast (N=52), formal decision (N=19), communicative broadcast (N=16), social economic (N=11), social backroom deals (N=2), and administrative broadcast (N=1). [Figure L.186](#) shows the numbers and types of power by year. Communicative narrowcast was a significant form of power in all years in period 9. Administrative narrowcast was a significant form of power in all years except 2011. Formal decision was identified in 2013, 2014, and 2015. Communicative broadcasts were made in 2013 and 2014. Social economic power was identified in 2013, 2014, 2015, and 2016. Social backroom deals were found in 2014 and 2015.



**Figure L.185. Power in period 9.**



**Figure L.186. Power by year in period 9.**

[Figure L.187](#) shows actor, audience, and power combinations in period 9. ACLA transmitted administrative narrowcasts, communicative narrowcasts, formal decision, social backroom deals, and social economic power within its own organization. The 21st century library study transmitted administrative narrowcasts and communicative narrowcasts within itself. A general view of the actors, audiences, types of power, and directions of power in period 9 is shown in [Figure L.188](#).

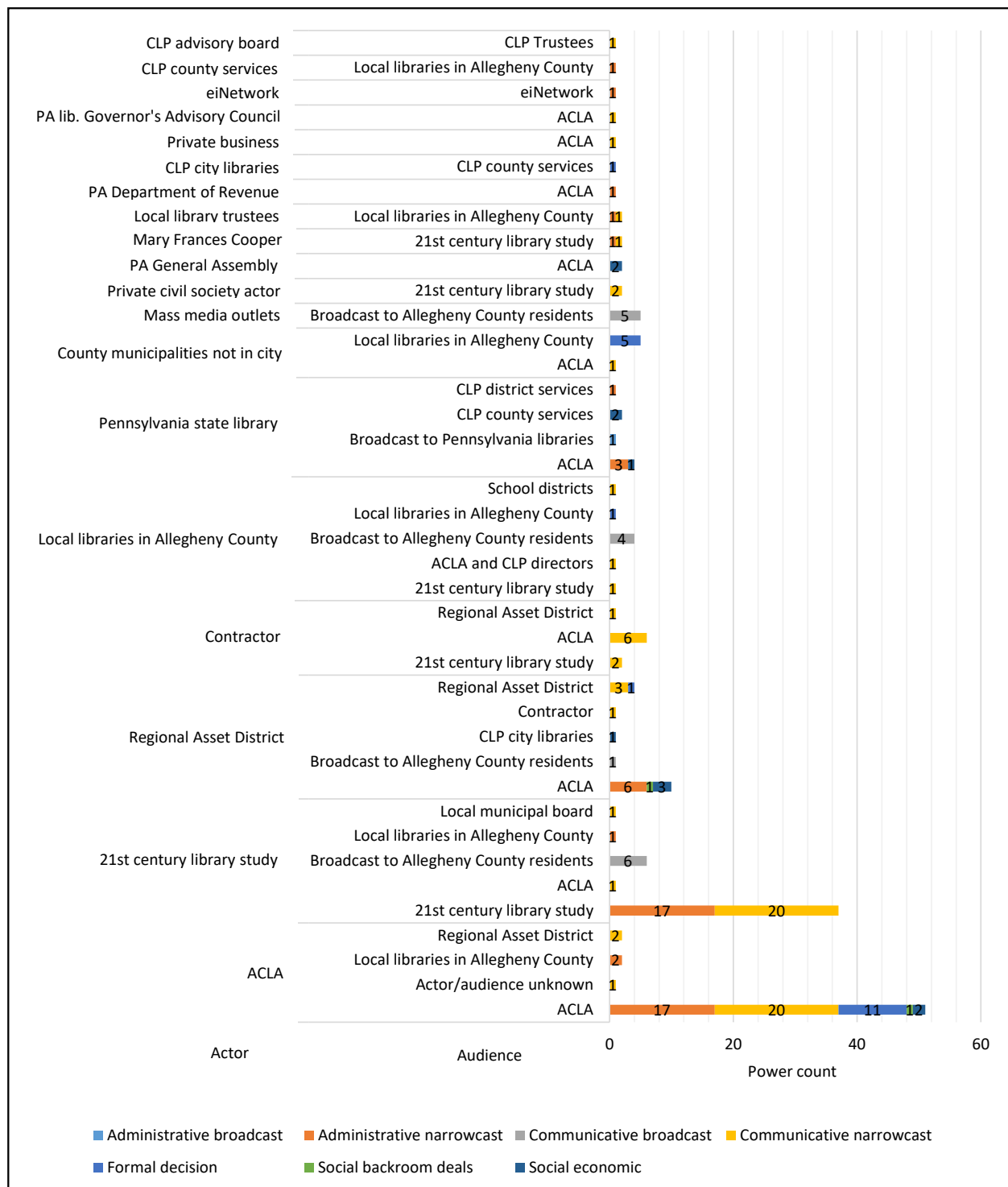
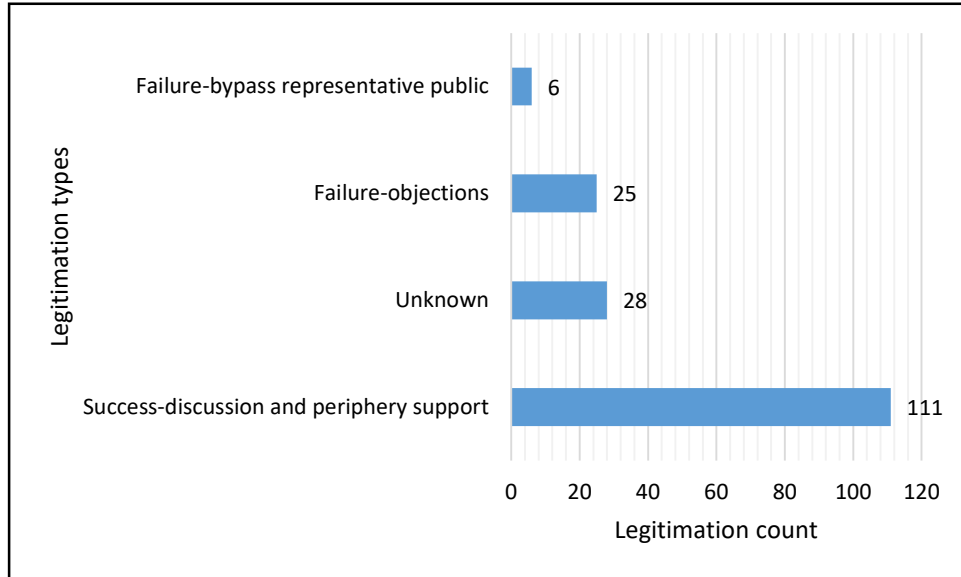


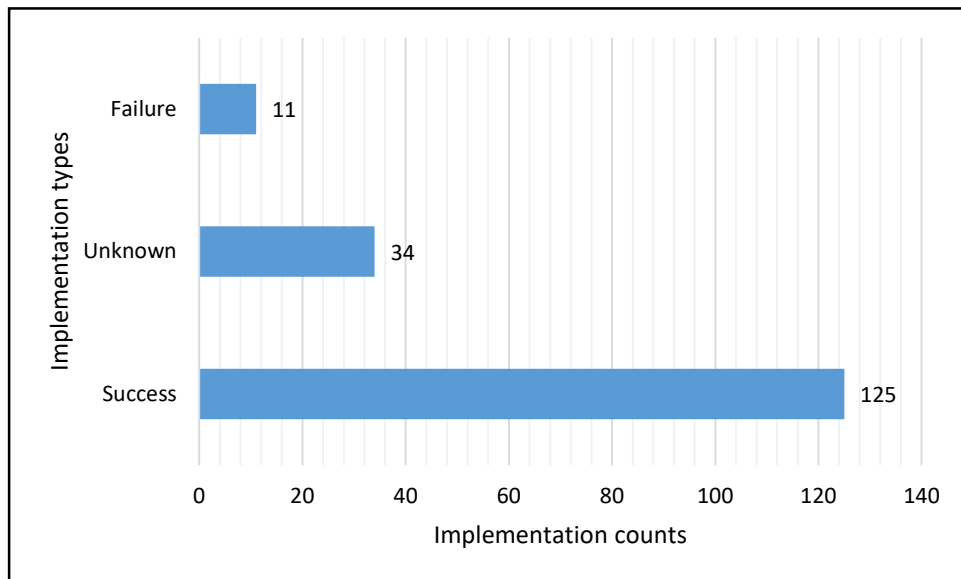
Figure L.187. Actor, audience, and power combinations in period 9.



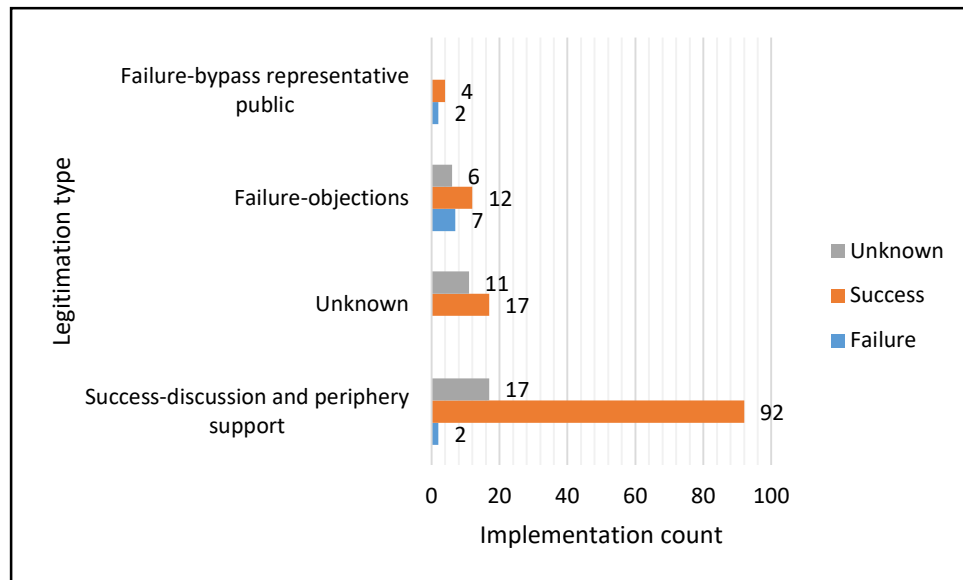




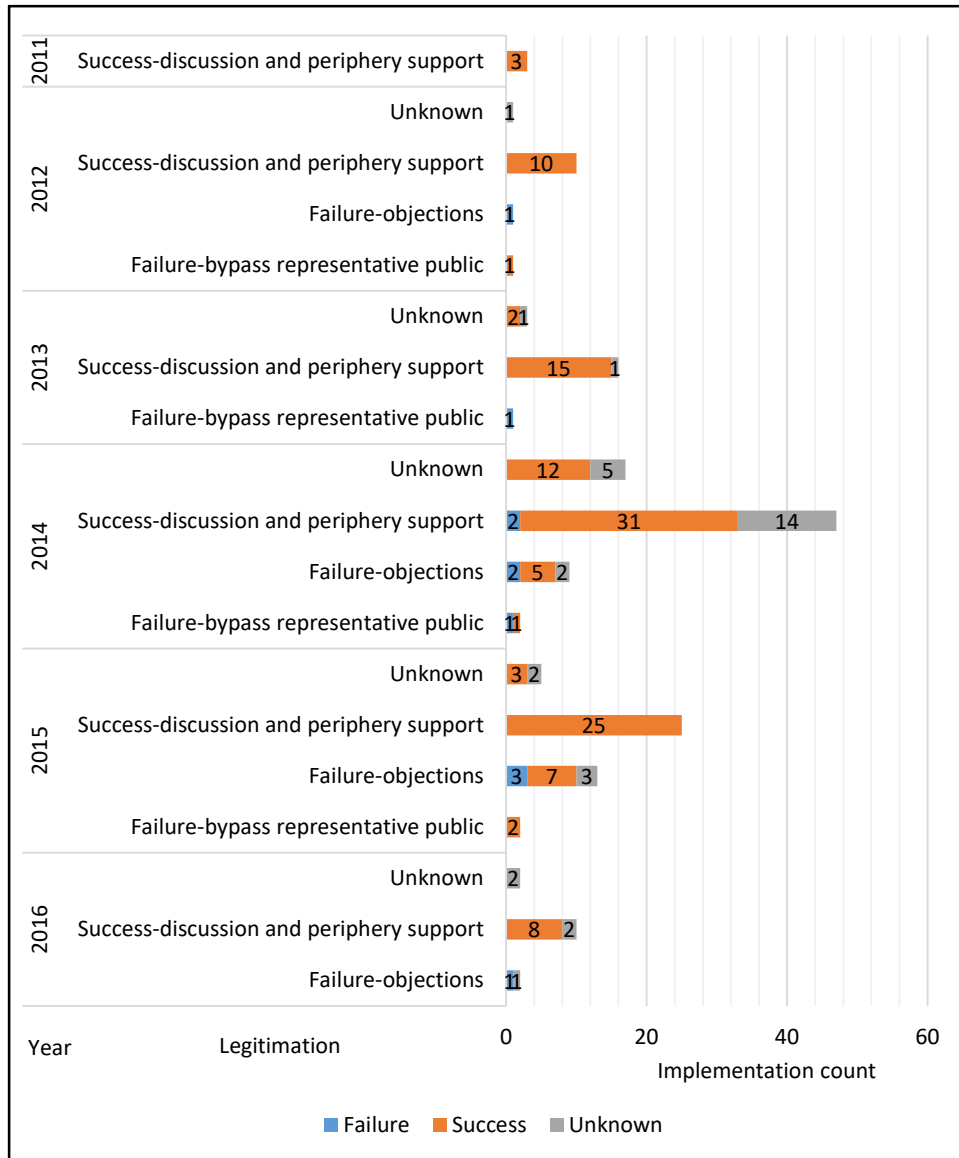
**Figure L.189. Legitimation in period 9.**



**Figure L.190. Implementation in period 9.**



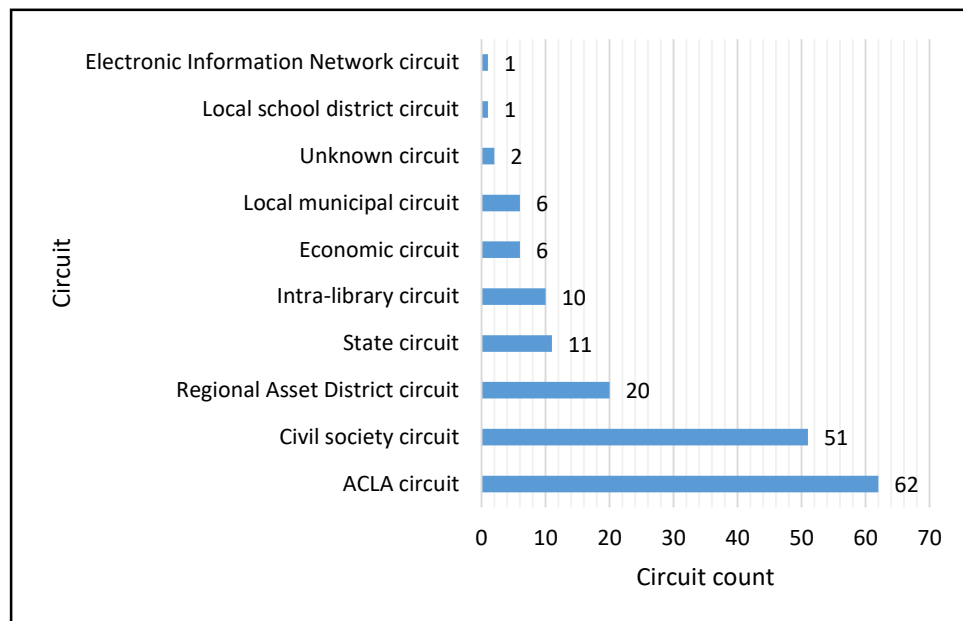
**Figure L.191. Legitimation and implementation combinations in period 9.**



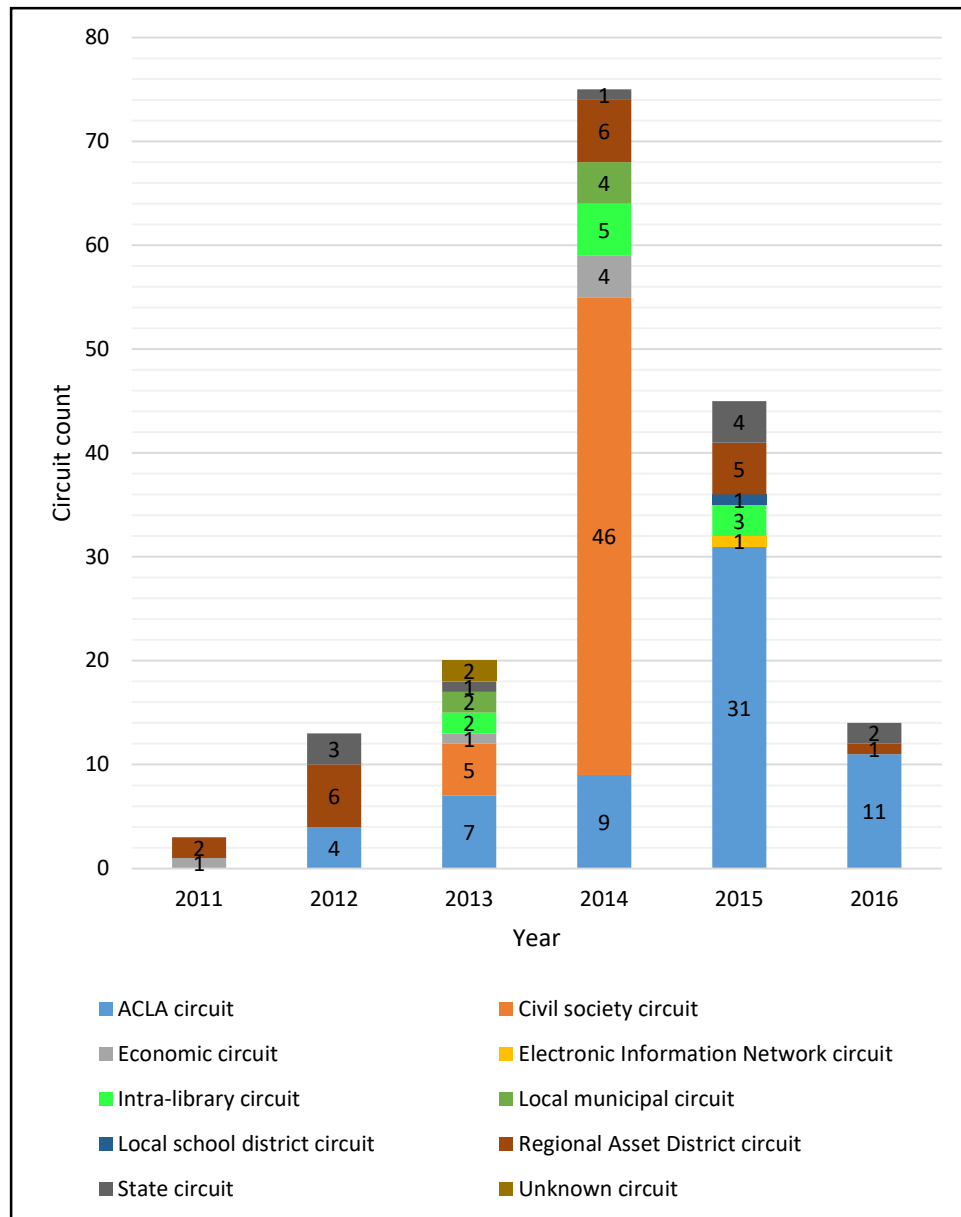
**Figure L.192. Legitimation and implementation combinations by year in period 9.**

**Circuits.** [Figure L.193](#) shows the circuits in period 9. The predominant circuit was ACLA (N=62), followed by civil society (N=51), Regional Asset District (N=20), state (N=11), and intra-library (N=10). Circuits are shown by year in [Figure L.194](#). The ACLA circuit was active from 2012 to 2016. It was a major actor in 2015. Civil society was a major actor in 2013

and 2014. Regional Asset District circuit was identified in all years except 2013. The state circuit was seen in all years except 2011.



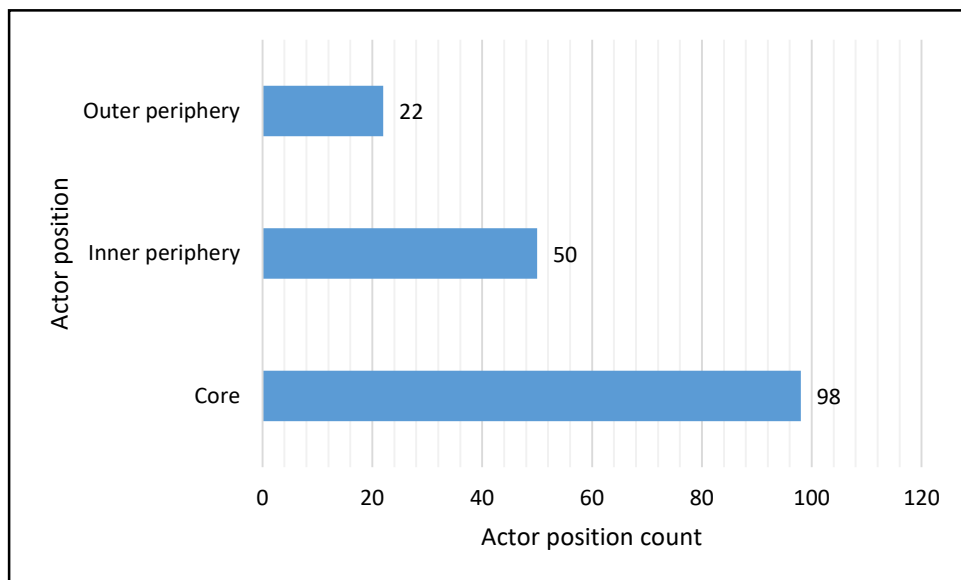
**Figure L.193. Circuits in period 9.**



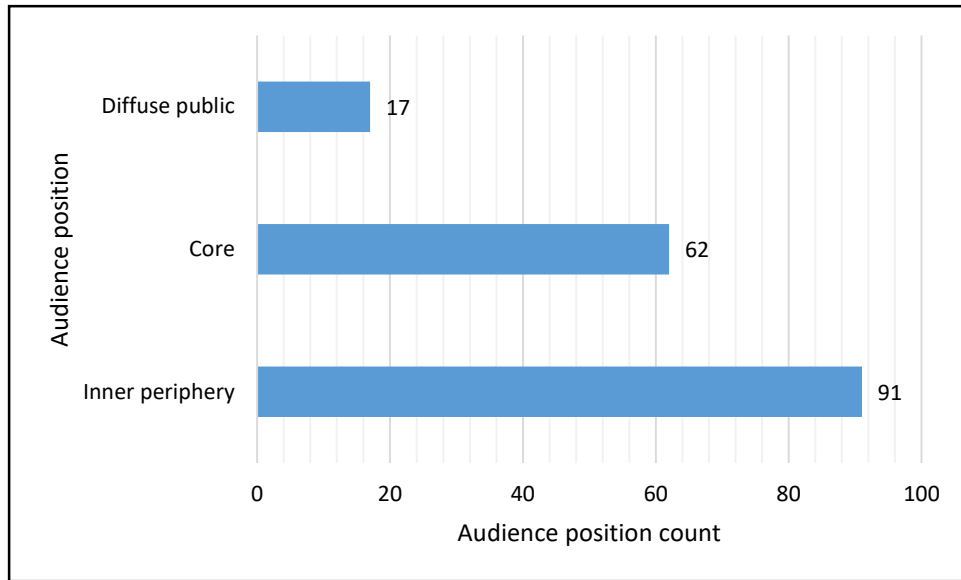
**Figure L.194. Circuits by year in period 9.**

[Figure L.195](#) shows actor positions in period 9. The most frequent actor positions were core (N=98), followed by inner periphery (N=50), and outer periphery (N=22). [Figure L.196](#) shows audience positions in period 9. The most frequent audience positions were inner periphery (N=91), followed by core (N=62) and diffuse public (N=17). [Figure L.197](#) shows

actor position, audience position, and circuit combinations by year. The ACLA circuit shows a variety of pathways throughout the period. The civil society circuit also shows a variety of pathways in 2013 and 2014. Regional Asset District circuit pathways were primarily between core and inner periphery. A general view of the tessellation in period 9 is shown in [Figure L.198](#).



**Figure L.195. Actor positions in period 9.**



**Figure L.196. Audience positions in period 9.**



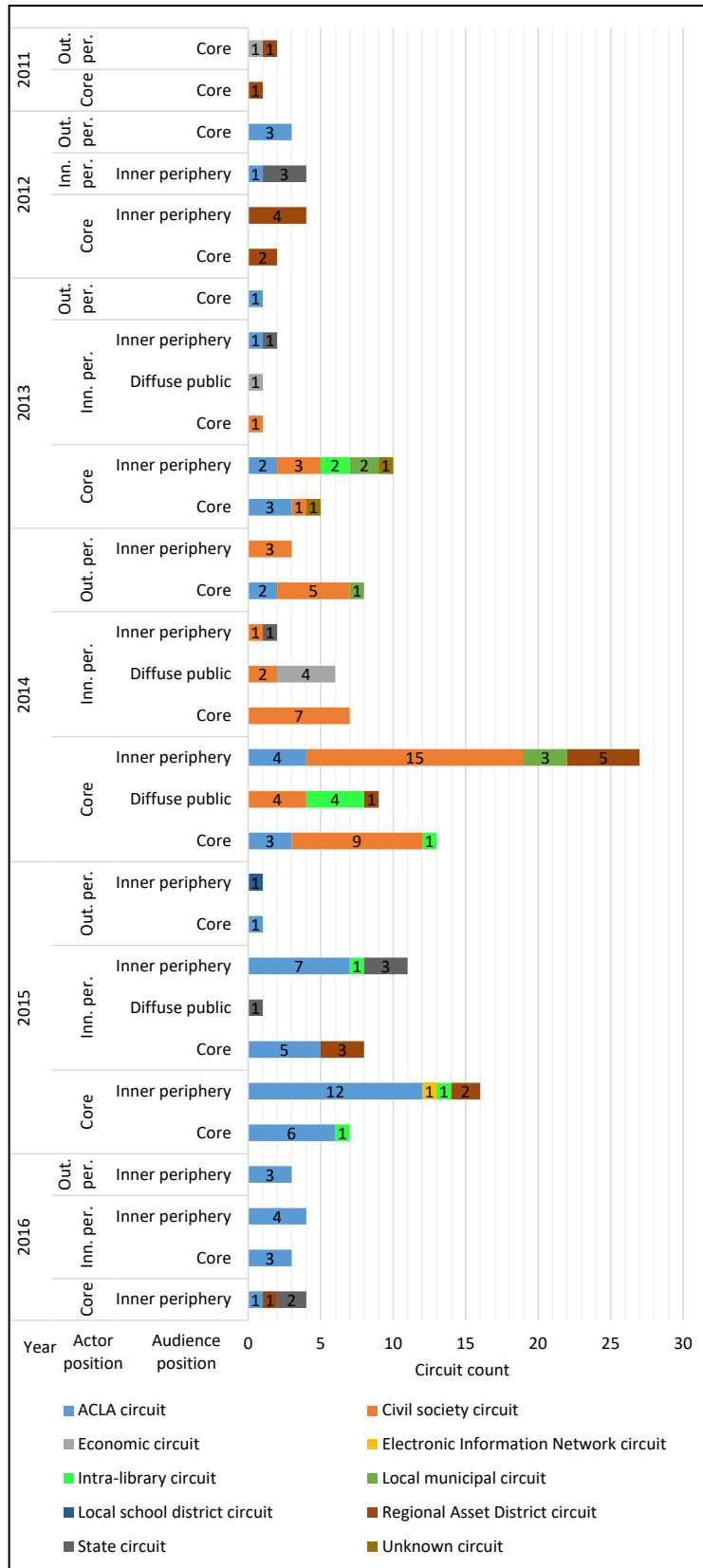


Figure L.197. Actor position, audience position, and circuit combinations by year in period 9.

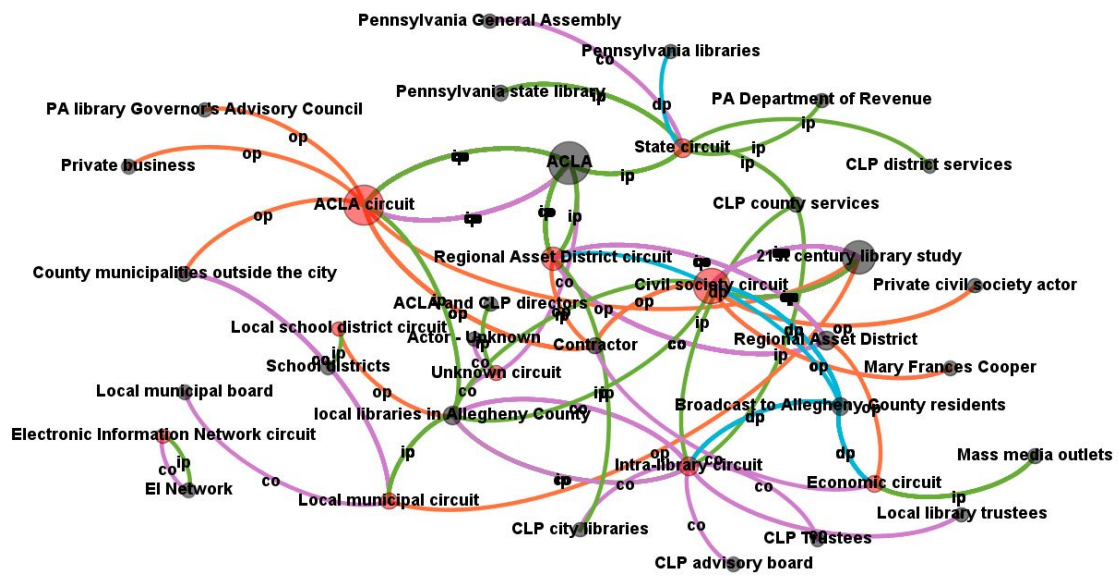


Figure L.198. Actor-circuit graph for period 9.

## APPENDIX M: MINIMAL FORMULAS

### [1] OUTCOME WITHOUT LOGICAL REMAINDERS

There are 4 terms that lead to positive outcomes:

RESPONSIVENESS * LEGITIMACY * resistance (period 2, period 5, period 6)	+	civil activity * RESPONSIVENESS * resistance (period 3, period 5, period 6)	+	civil activity * RESPONSIVENESS * LEGITIMACY (period 5, period 6, period 7)	+
---	---	---	---	---	---

CIVIL ACTIVITY \*  
RESPONSIVENESS  
\* legitimacy \*  
RESISTANCE  
(period 9) → SYSTEM CHANGE

The first term of the minimization corresponds to 3 periods, the second term corresponds to 3 periods, the third term corresponds to 3 periods, and the fourth term corresponds to 1 period.

The first three terms are concurrent explanations for periods 5 and 6.

Coverage is the way that the terms or paths of the minimal formulas cover the observed cases ([Rihoux & De Meur, 2009, p. 64](#)). There are three measures of coverage for each outcome.

For the [1] outcome value, for instance, there is: 1) raw coverage, or the proportion of [1] outcome cases that are covered by given term; 2) unique coverage, or the proportion of [1] cases

that are uniquely covered by given term; and 3) solution coverage, or the proportion of cases that are covered by all the terms. Coverage measures for the above formula are shown in [Table M.1](#).

**Table M.1. Coverage for the [1] outcome formula without logical remainders.**

Term	Raw coverage	Unique coverage	Solution coverage
1	3/6	1/6	6/6
2	3/6	1/6	
3	3/6	1/6	
4	1/6	1/6	

The descriptive formula can be read as follows:

“The [1] outcome (SYSTEM CHANGE) is observed:

- In periods that combine high responsiveness [RESPONSIVENESS] *AND* high legitimacy [LEGITIMACY] *AND* low resistance [resistance]

OR

- In periods that combine low civil activity [civil activity] *AND* high responsiveness [RESPONSIVENESS] *AND* low resistance [resistance]

OR

- In periods that combine low civil activity [civil activity] *AND* high responsiveness [RESPONSIVENESS] *AND* high legitimacy [LEGITIMACY]

OR

- In periods that combine high civil activity [CIVIL ACTIVITY] *AND* high responsiveness [RESPONSIVENESS] *AND* low legitimacy [legitimacy] *AND* high resistance [RESISTANCE].”

Since the four different paths to system change share the condition RESPONSIVENESS, the minimization formula can be rewritten as follows in order to highlight the shared and different conditions of the two paths that lead to the same outcome:

$$\text{RESPONSIVENESS} * \left\{ \begin{array}{l} \text{LEGITIMACY} * \text{resistance} \\ \text{civil activity} * \text{resistance} \\ \text{civil activity} * \text{LEGITIMACY} \\ \text{CIVIL ACTIVITY} * \text{legitimacy} \\ * \text{RESISTANCE} \end{array} \right. \rightarrow \text{SYSTEM CHANGE}$$

## [0] OUTCOME WITHOUT LOGICAL REMAINDERS

There are 3 terms that lead to negative outcomes:

CIVIL ACTIVITY * responsiveness * LEGITIMACY * resistance (period 1)	+	CIVIL ACTIVITY * responsiveness * legitimacy * RESISTANCE (period 4)	+	civil activity * RESPONSIVENESS * legitimacy * RESISTANCE (period 8)	→	system change
--	---	--	---	--	---	------------------

Each of the terms corresponds to 1 period. All terms use all 4 conditions to explain the outcome.

Coverage of the formula is shown in [Table M.2](#).

**Table M.2. Coverage for [0] outcome formula without logical remainders.**

Term	Raw coverage	Unique coverage	Solution coverage
1	1/3	1/3	3/3
2	1/3	1/3	
3	1/3	1/3	

This descriptive formula can be read as follows:

“The [0] outcome (system change) is observed:

- In periods that combine high civil activity [CIVIL ACTIVITY] *AND* low responsiveness [responsiveness] *AND* high legitimacy [LEGITIMACY] *AND* low resistance [resistance]

OR

- In periods that combine high civil activity [CIVIL ACTIVITY] *AND* low responsiveness [responsiveness] *AND* low legitimacy [legitimacy] *AND* high resistance [RESISTANCE]

OR

- In periods that combine low civil activity [civil activity] *AND* high responsiveness [RESPONSIVENESS] and low legitimacy [legitimacy] *AND* high resistance [RESISTANCE].”

## [1] OUTCOME WITH LOGICAL REMAINDERS

Carrying out the minimization procedure with logical remainders included produces eight solutions for [1] outcomes. The first formula is as follows:

$$\begin{array}{ccccccc}
 \text{civil activity *} & + & \text{civil activity *} & + & \text{CIVIL ACTIVITY *} & \rightarrow & \text{SYSTEM} \\
 \text{LEGITIMACY} & & \text{resistance} & & \text{RESPONSIVENESS} & & \text{CHANGE} \\
 (\text{period 5, period} & & (\text{period 3, period} & & (\text{period 2, period 9) & & \\
 6, \text{period 7}) & & 5, \text{period 6}) & & & & 
 \end{array}$$

This formula makes 5 simplifying assumptions:

$$\begin{aligned}
 & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{0\} + \\
 & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} + \\
 & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\}
 \end{aligned}$$

This formula provides concurrent explanations for periods 5 and 6.

The minimal formula above can be visualized in a Venn diagram as seen in [Figure M.1](#). The minimal formula is represented by horizontal stripes. There are  $2^4$ , or 16, possible configurations in the diagram. The area with horizontal stripes that represents the minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 5 logical remainder configurations. The remaining 6 configurations that are logical remainders or observed [0] outcomes are not covered by the formula.

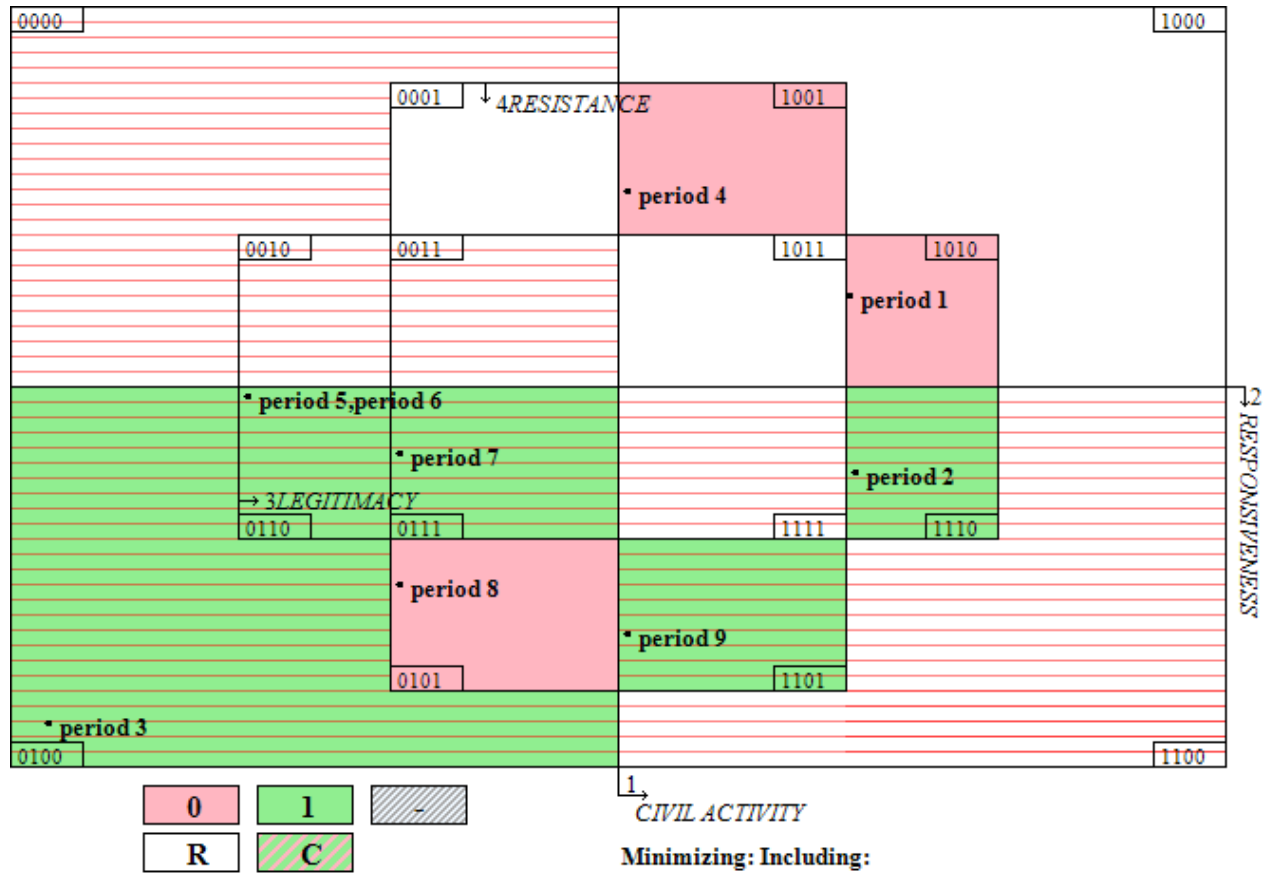


Figure M.1. First set of simplifying assumptions for [1] outcome.

The second minimization solution for the [1] outcome is as follows:

$$\begin{array}{lclclcl}
 \text{civil activity *} & + & \text{CIVIL ACTIVITY *} & + & \text{RESPONSIVENESS} & \rightarrow & \text{SYSTEM} \\
 \text{LEGITIMACY} & & \text{RESPONSIVENESS} & & \text{* resistance} & & \text{CHANGE} \\
 (\text{period 5,} & & (\text{period 2, period 9}) & & (\text{period 2, period 3,} & & \\
 \text{period 6, period} & & & & \text{period 5, period 6}) & & \\
 \text{7}) & & & & & & 
 \end{array}$$

This formula makes 4 simplifying assumptions:

$$\text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{0\} +$$



$$\begin{aligned} & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} + \\ & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\ & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} \end{aligned}$$

The second formula provides concurrent explanations for periods 2, 5, and 6.

The second minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.2](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 4 logical remainder configurations.

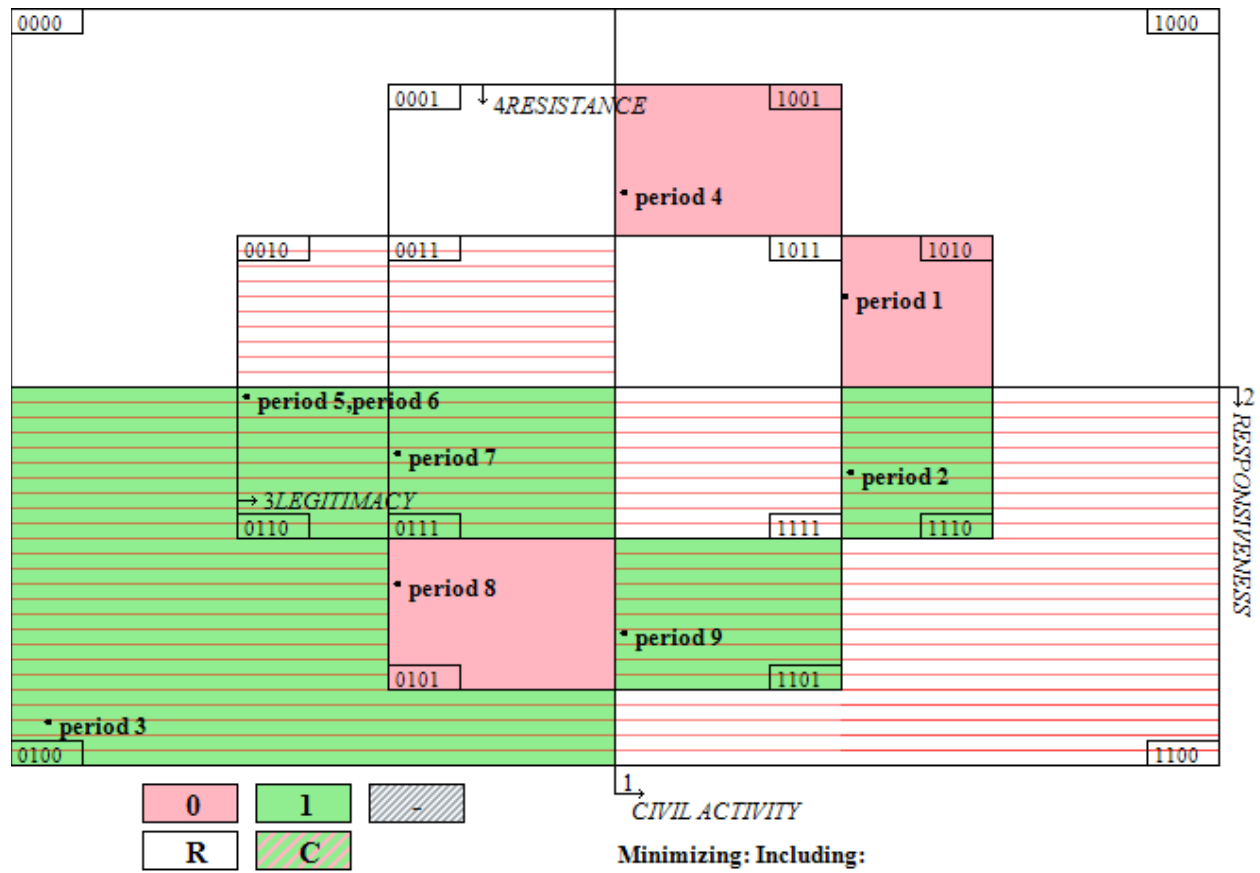


Figure M.2. Second set of simplifying assumptions for [1] outcome.

The third minimization solution for the [1] outcome is as follows:

$$\begin{array}{lclcl}
 \text{civil activity *} & + & \text{CIVIL ACTIVITY *} & + & \text{legitimacy *} & \rightarrow & \text{SYSTEM} \\
 \text{LEGITIMACY} & & \text{RESPONSIVENESS} & & \text{resistance} & & \text{CHANGE} \\
 (\text{period 5,} & & (\text{period 2, period 9}) & & (\text{period 3}) & & \\
 \text{period 6, period} & & & & & & \\
 \text{7}) & & & & & & 
 \end{array}$$

This formula makes 6 simplifying assumptions:

$$\begin{array}{l}
 \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{0\} +
 \end{array}$$

CIVIL ACTIVITY{0}RESPONSIVENESS{0}LEGITIMACY{1}RESISTANCE{1} +  
 CIVIL ACTIVITY{1}RESPONSIVENESS{0}LEGITIMACY{0}RESISTANCE{0} +  
 CIVIL ACTIVITY{1}RESPONSIVENESS{1}LEGITIMACY{0}RESISTANCE{0} +  
 CIVIL ACTIVITY{1}RESPONSIVENESS{1}LEGITIMACY{1}RESISTANCE{1}

The third minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.3](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 6 logical remainder configurations.

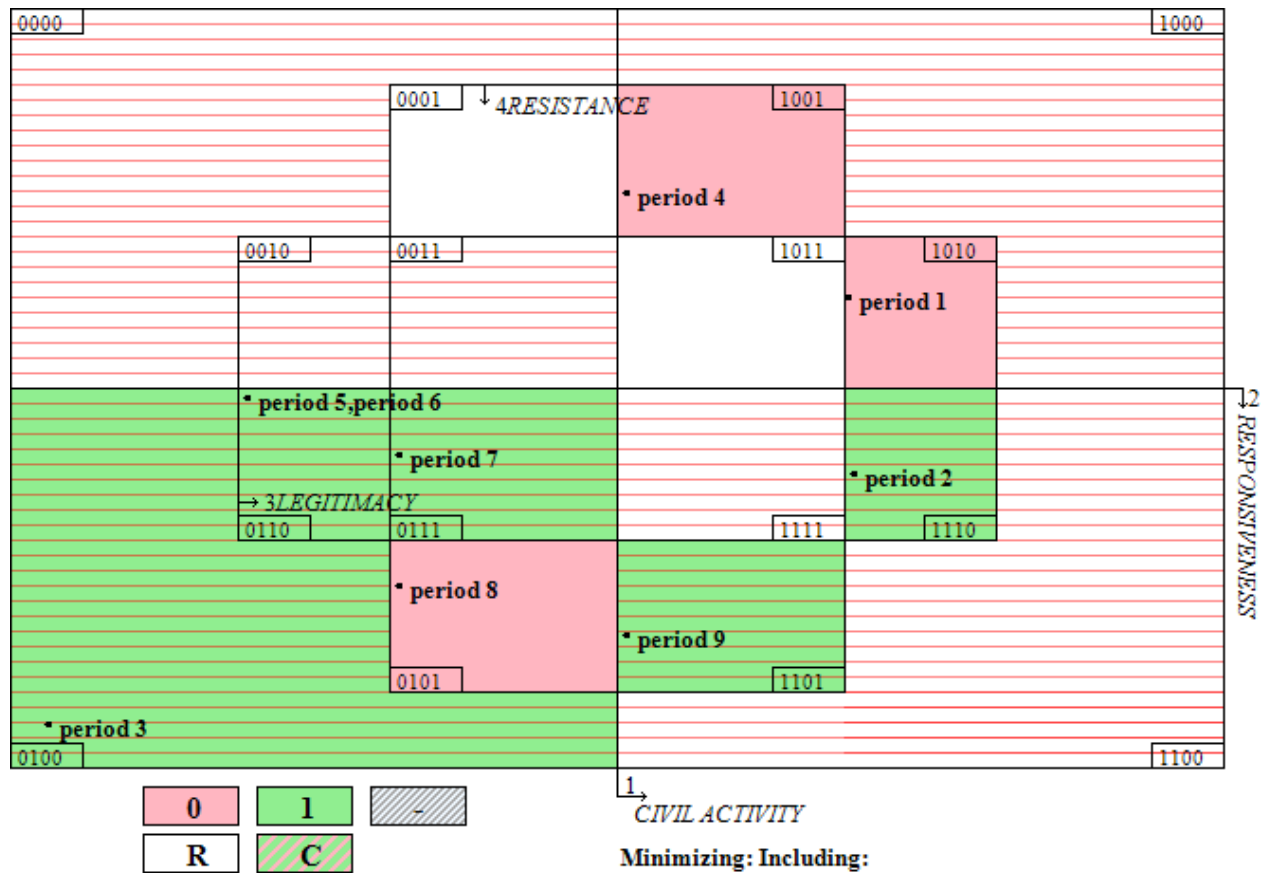


Figure M.3. Third set of simplifying assumptions for [1] outcome.

The fourth minimization solution for the [1] outcome is as follows:

$$\begin{array}{lclcl}
 \text{civil activity *} & + & \text{CIVIL ACTIVITY *} & + & \text{RESPONSIVENESS} & \rightarrow & \text{SYSTEM} \\
 \text{resistance} & & \text{RESPONSIVENESS} & & \text{* LEGITIMACY} & & \text{CHANGE} \\
 (\text{period 3,} & & (\text{period 2, period 9}) & & (\text{period 2, period 5,} & & \\
 \text{period 5, period} & & & & \text{period 6, period 7}) & & \\
 \text{6}) & & & & & & 
 \end{array}$$

This formula makes 4 simplifying assumptions:

$$\begin{array}{l}
 \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{0\} +
 \end{array}$$

CIVIL ACTIVITY{1}RESPONSIVENESS{1}LEGITIMACY{0}RESISTANCE{0} +  
 CIVIL ACTIVITY{1}RESPONSIVENESS{1}LEGITIMACY{1}RESISTANCE{1}

The fourth formula provides concurrent explanations for periods 2, 5, and 6.

The fourth minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.4](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 4 logical remainder configurations.

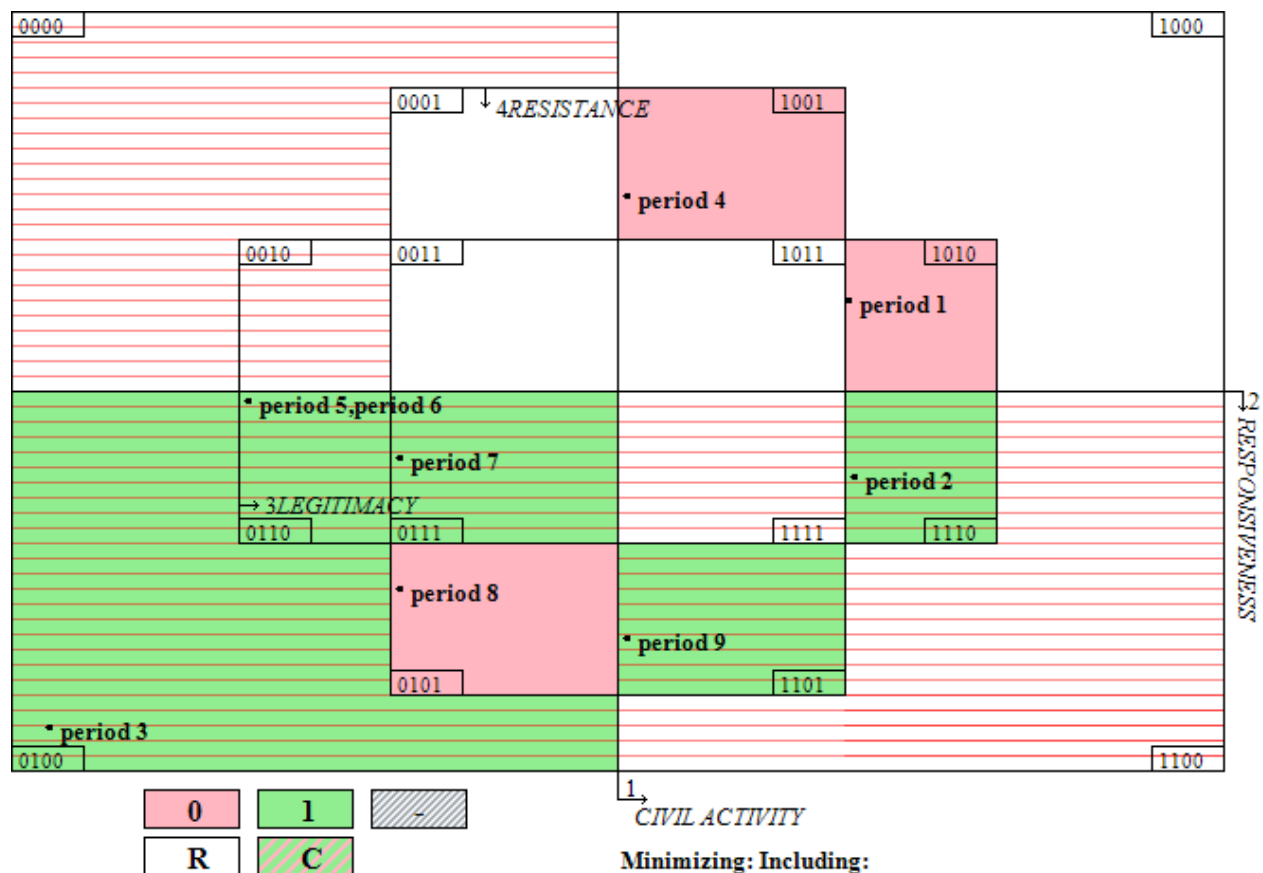


Figure M.4. Fourth set of simplifying assumptions for [1] outcome.

The fifth minimization solution for the [1] outcome is as follows:

$$\begin{array}{ccccccc}
 \text{civil activity *} & + & \text{CIVIL ACTIVITY *} & + & \text{LEGITIMACY *} & \rightarrow & \text{SYSTEM} \\
 \text{resistance} & & \text{RESPONSIVENESS} & & \text{RESISTANCE} & & \text{CHANGE} \\
 (\text{period 3,} & & (\text{period 2, period 9}) & & (\text{period 7}) & & \\
 \text{period 5, period} & & & & & & \\
 \text{6}) & & & & & & 
 \end{array}$$

This formula makes 6 simplifying assumptions:

$$\begin{aligned}
 & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{0\} + \\
 & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} + \\
 & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} + \\
 & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\}
 \end{aligned}$$

The fifth minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.5](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 6 logical remainder configurations.

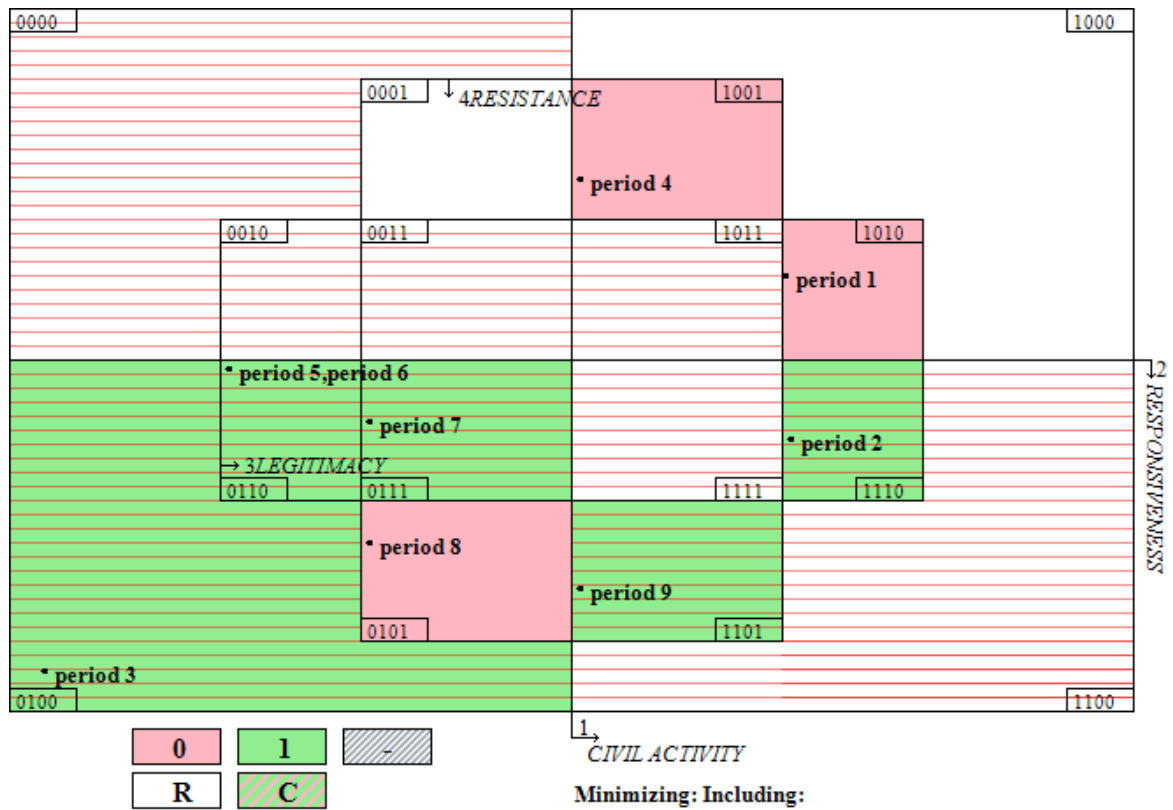


Figure M.5. Fifth set of simplifying assumptions for [1] outcome.

The sixth minimization solution for the [1] outcome is as follows:

$$\begin{array}{llll}
 \text{CIVIL ACTIVITY} * & + & \text{RESPONSIVENESS} & + & \text{RESPONSIVENESS} & \rightarrow & \text{SYSTEM} \\
 \text{RESPONSIVENESS} & & * \text{ LEGITIMACY} & & * \text{ resistance} & & \text{CHANGE} \\
 (\text{period 2, period 9}) & & (\text{period 2, period 5,} & & (\text{period 2, period 3,} & & \\
 & & \text{period 6, period 7}) & & \text{period 5, period 6}) & & 
 \end{array}$$

This formula makes 2 simplifying assumptions:

$$\begin{array}{l}
 \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
 \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\}
 \end{array}$$

The sixth formula provides concurrent explanations for periods 2, 5, and 6.

The sixth minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.6](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 2 logical remainder configurations.

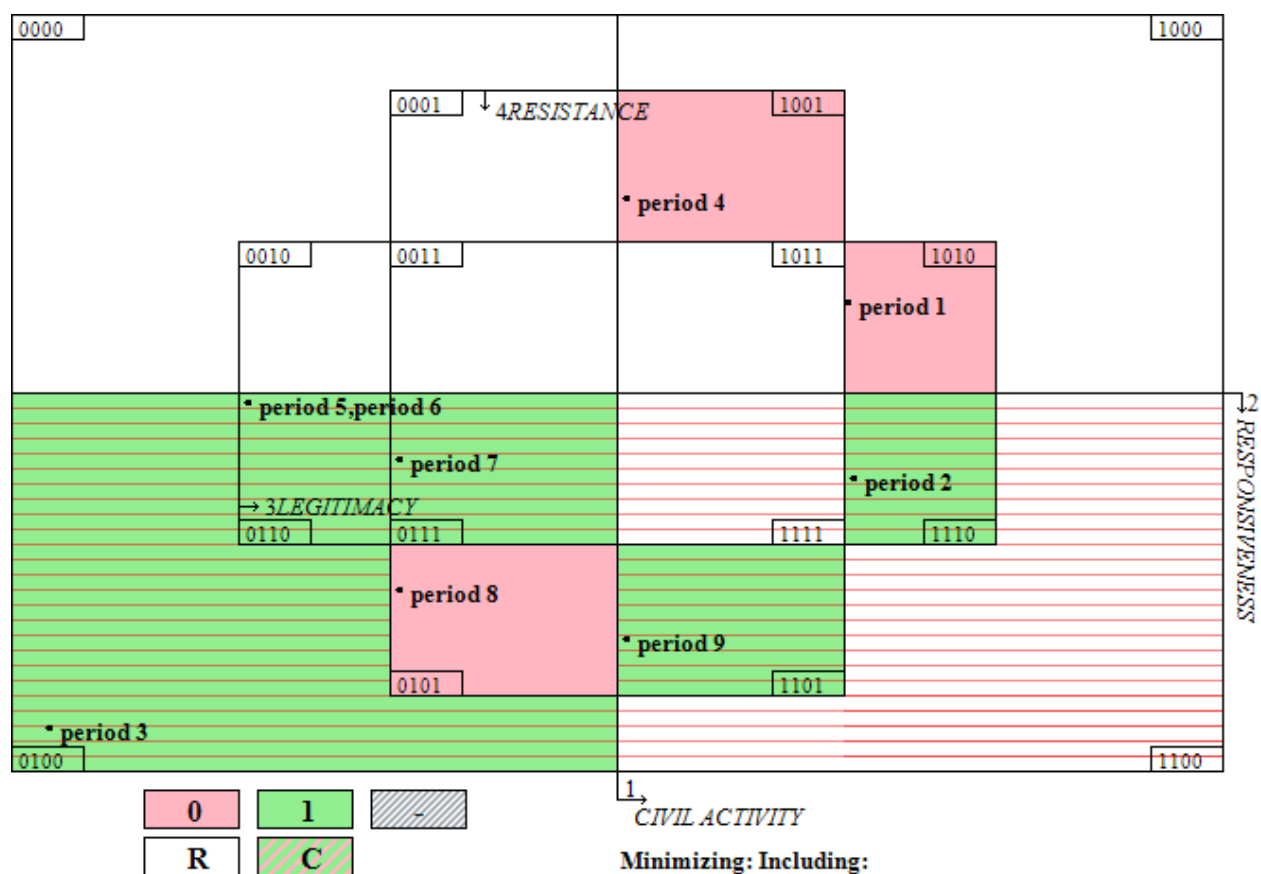


Figure M.6. Sixth set of simplifying assumptions for [1] outcome.

The seventh minimization solution for the [1] outcome is as follows:



CIVIL ACTIVITY * RESPONSIVENESS	+ RESPONSIVENESS * LEGITIMACY	+ legitimacy * resistance	→ SYSTEM CHANGE
(period 2, period 9)	(period 2, period 5, period 6, period 7)	(period 3)	

This formula makes 4 simplifying assumptions:

$$\begin{aligned}
& \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
& \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
& \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\
& \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{1\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\}
\end{aligned}$$

The seventh formula provides concurrent explanations for period 2.

The seventh minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.7](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 4 logical remainder configurations.

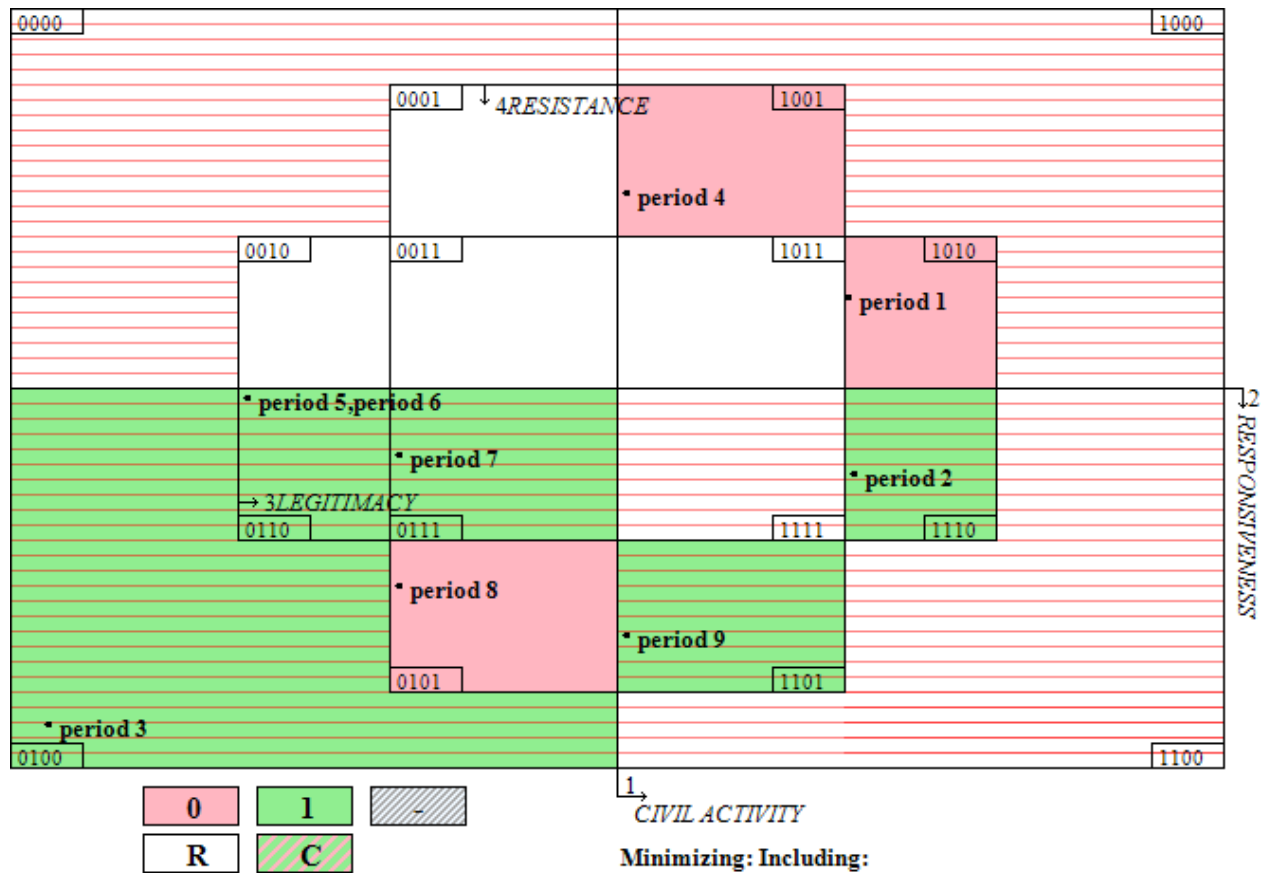


Figure M.7. Seventh set of simplifying assumptions for [1] outcome.

The eighth and final minimization solution for the [1] outcome is as follows:

$$\begin{array}{llll}
 \text{CIVIL ACTIVITY} * & + & \text{RESPONSIVENESS} & + & \text{LEGITIMACY} * & \rightarrow & \text{SYSTEM} \\
 \text{RESPONSIVENESS} & & * \text{resistance} & & \text{RESISTANCE} & & \text{CHANGE} \\
 (\text{period 2, period 9}) & & (\text{period 2, period 3,} & & (\text{period 7}) & & \\
 & & \text{period 5, period 6}) & & & & 
 \end{array}$$

This formula makes 4 simplifying assumptions:

$$\begin{array}{l}
 \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} + \\
 \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} +
 \end{array}$$

CIVIL ACTIVITY{1}RESPONSIVENESS{1}LEGITIMACY{0}RESISTANCE{0} +  
 CIVIL ACTIVITY{1}RESPONSIVENESS{1}LEGITIMACY{1}RESISTANCE{1}

The eighth formula provides concurrent explanations for period 2.

The eighth minimal formula for [1] outcome is visualized as a Venn diagram in [Figure M.8](#). The minimal formula is represented by horizontal stripes. The minimal formula corresponds to the 5 configurations with observed cases displaying [1] outcomes, plus 4 logical remainder configurations.

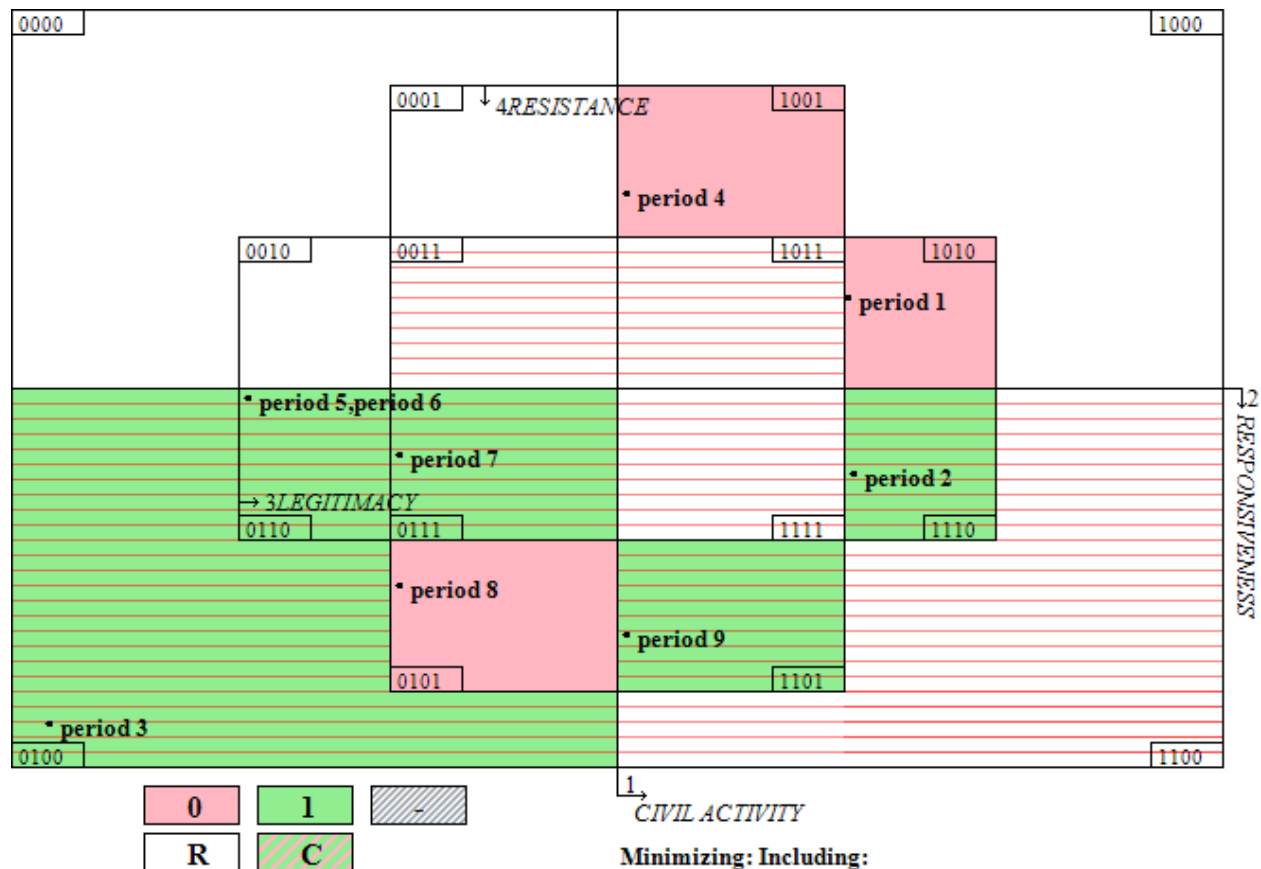


Figure M.8.Eighth set of simplifying assumptions for [1] outcome.

## [0] OUTCOME WITH LOGICAL REMAINDERS

The minimization for [0] outcomes, with logical remainders included, produces one formula.

This formula is as follows:

$$\begin{array}{lcl} \text{responsiveness} & + & \text{civil activity} * \text{legitimacy} * \\ & & \text{RESISTANCE} \\ \text{(period 1, period 4)} & + & \text{(period 8)} \end{array} \rightarrow \text{system change}$$

This formula makes 6 simplifying assumptions:

$$\begin{aligned} & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\ & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{1\} + \\ & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{0\} + \\ & \text{CIVIL ACTIVITY}\{0\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} + \\ & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{0\}\text{RESISTANCE}\{0\} + \\ & \text{CIVIL ACTIVITY}\{1\}\text{RESPONSIVENESS}\{0\}\text{LEGITIMACY}\{1\}\text{RESISTANCE}\{1\} \end{aligned}$$

The minimal formula for [0] outcomes is visualized as a Venn diagram in [Figure M.9](#).

The minimal formula corresponds to the 3 configurations with observed cases displaying [0] outcomes, plus 6 logical remainder configurations.

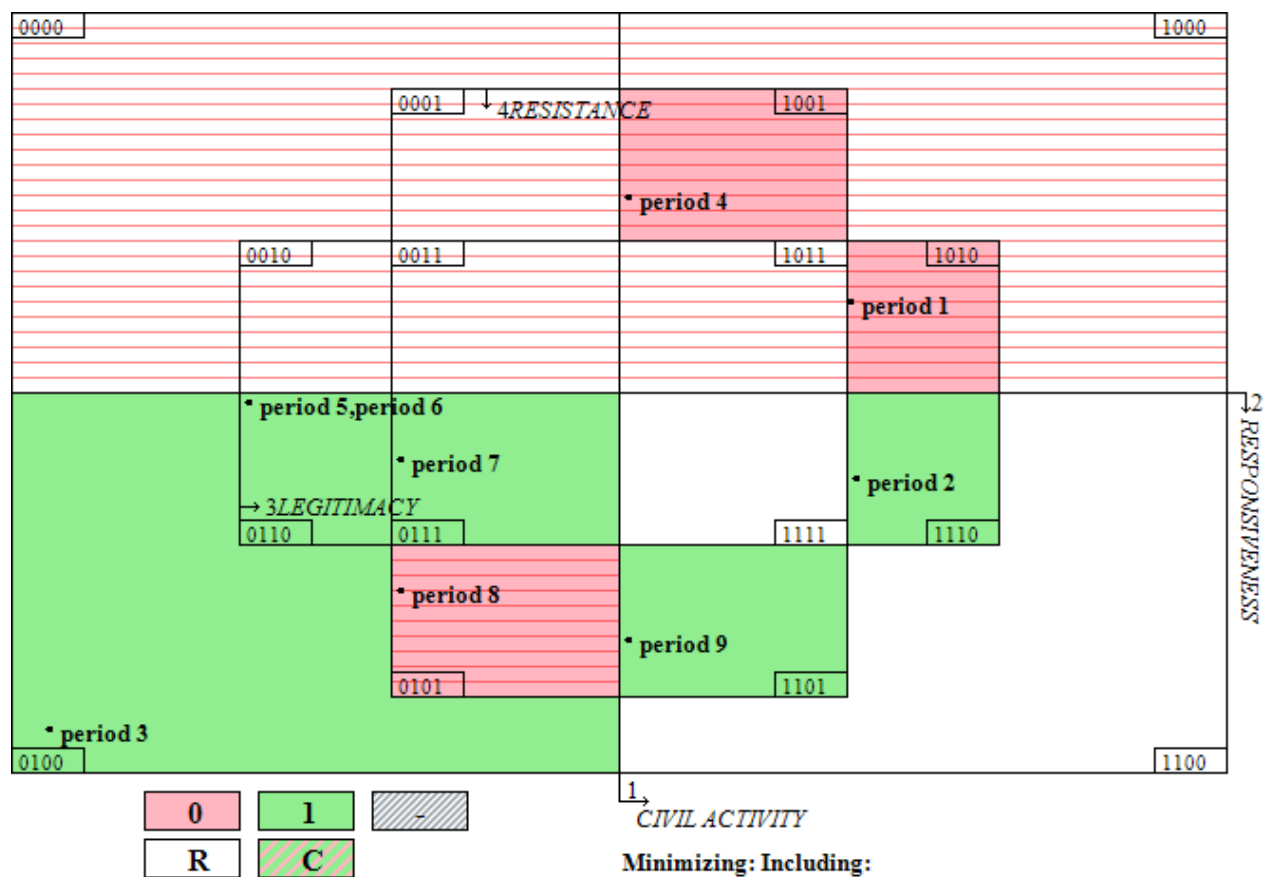


Figure M.9. Set of simplifying assumptions for [0] outcome.

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