

# Process mapping approach to improve a library service

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## Purpose and goals

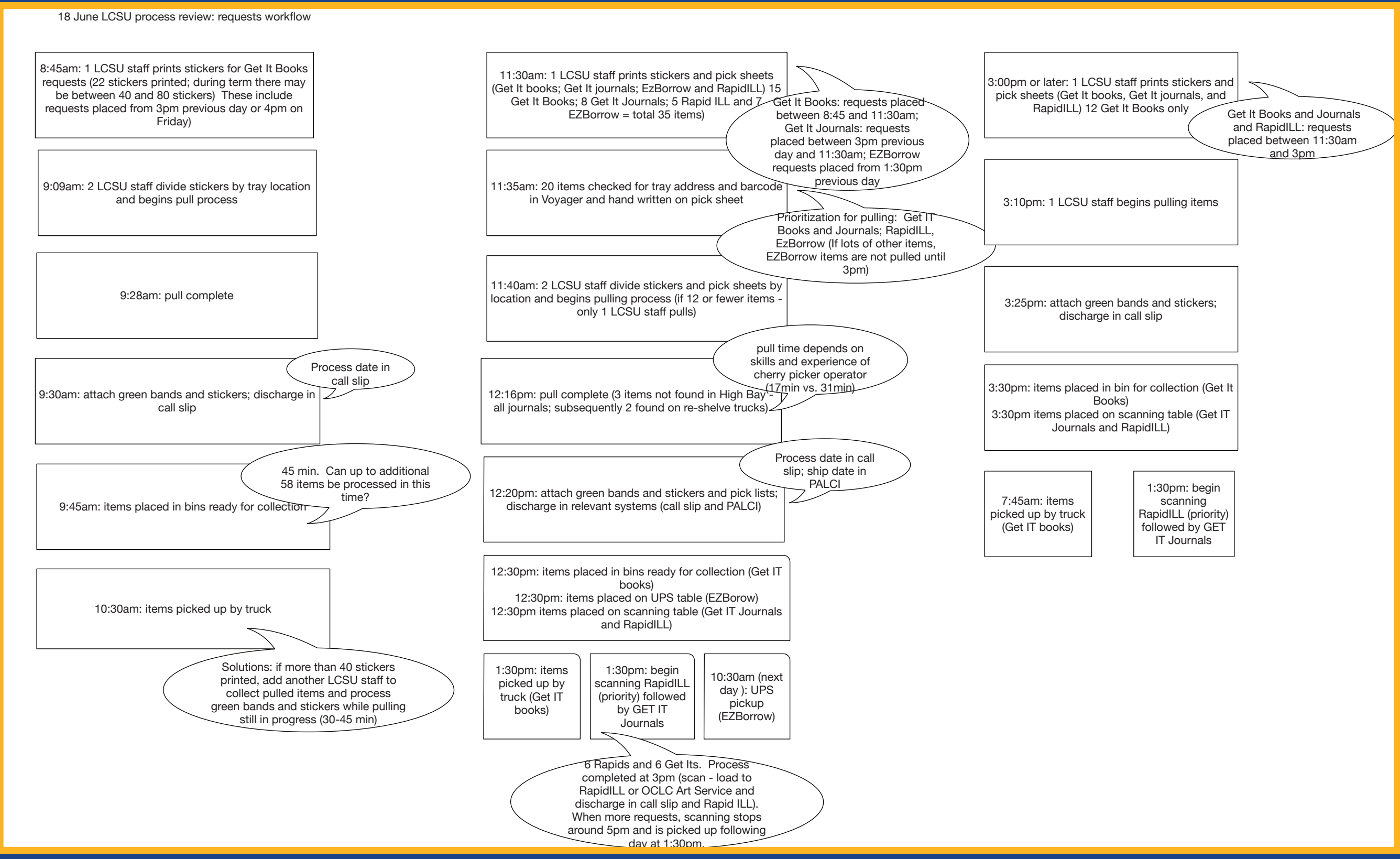
Like many academic libraries, the University of Pittsburgh's Hillman Library is moving the bulk of its print collections to an off-site facility to enhance space for patrons and new services. With this move we are committed to a rapid delivery time for retrieval of materials from remote storage. Our goal is to ensure a 24-hour turnaround time from the initial request to availability of the desired item back on campus. Coupled with this change, the disruption caused by the COVID-19 closures of our physical spaces added to the importance of ensuring that we can retrieve our print materials (regardless of their location) and deliver to our patrons in a timely and safe manner.

## Design, methodology, or approach

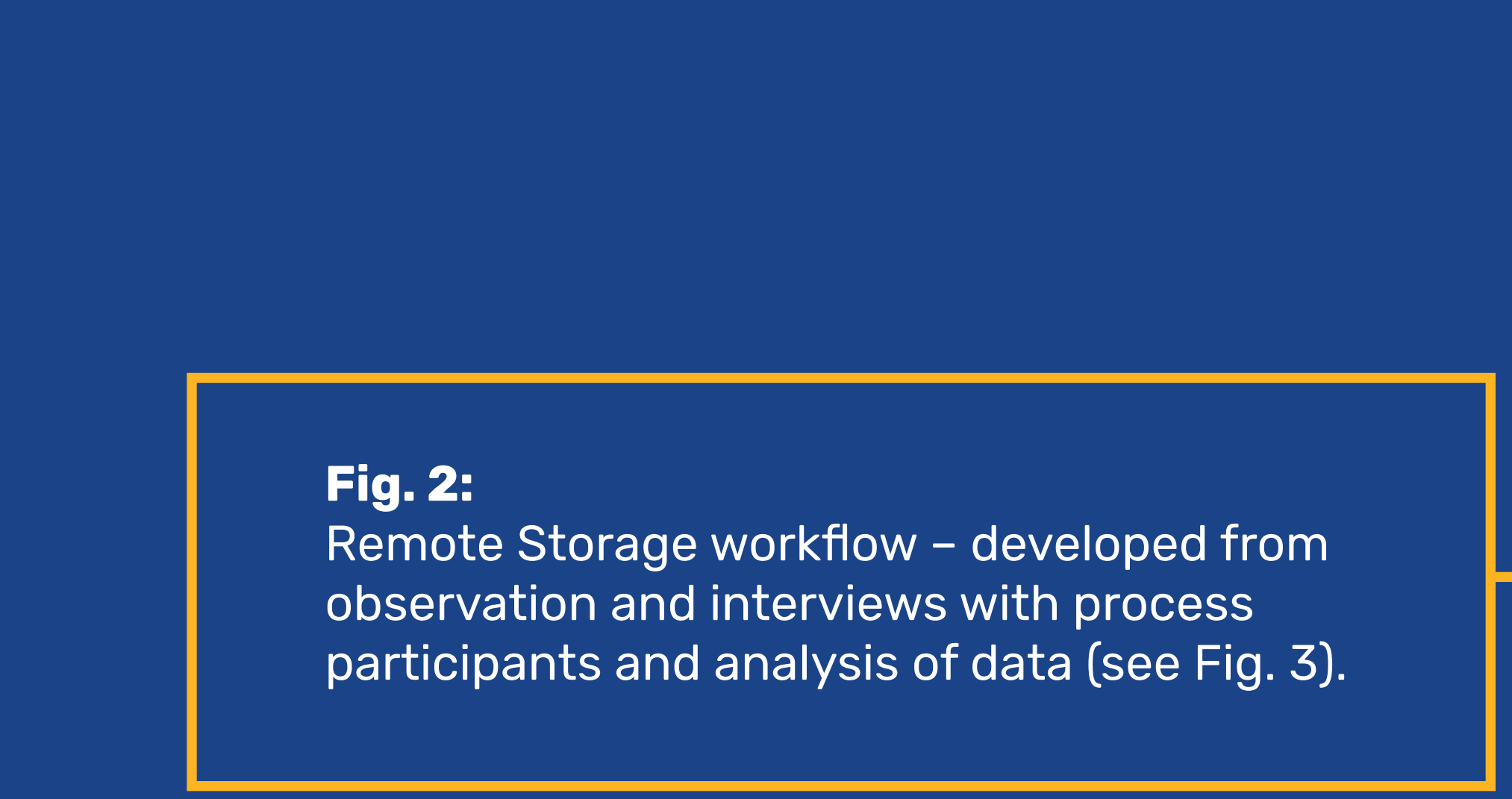
Process mapping is a tool that allows organizations improve their business processes. It consists of "constructing a model that shows the relationships between the activities, people, data and objects involved in the production of a specified output." (Biazzo, 2002) For instance, it helps identify bottlenecks that may cause delays or inefficiencies which may add to the overall costs. It also helps define process boundaries, ownership, and responsibilities. The model allows for all participants in the process to:

- gain a deeper insight into their part of the larger process, and how it affects the the final output;
- brainstorm ideas for improvements in their areas while appreciating the broader context and implications these may have "downstream";
- improve communication between all process participants;
- provide for the development of detailed process documentation.

Our project began with a mapping of the entire workflow for ordering, retrieval, and delivery of the off-site materials to patrons. Detailed workflow maps were created as a result of interviews with all process participants and in-person observations. The maps were then analyzed to identify any bottlenecks and inefficiencies. This analysis stage included new rounds of discussions with all process participants (both within their areas of responsibility and across the entire process). Recommendations for improvements were made, tested, and implemented based on the analysis of gains and associated costs.



**Fig. 1:** Remote Storage workflow - based on observation

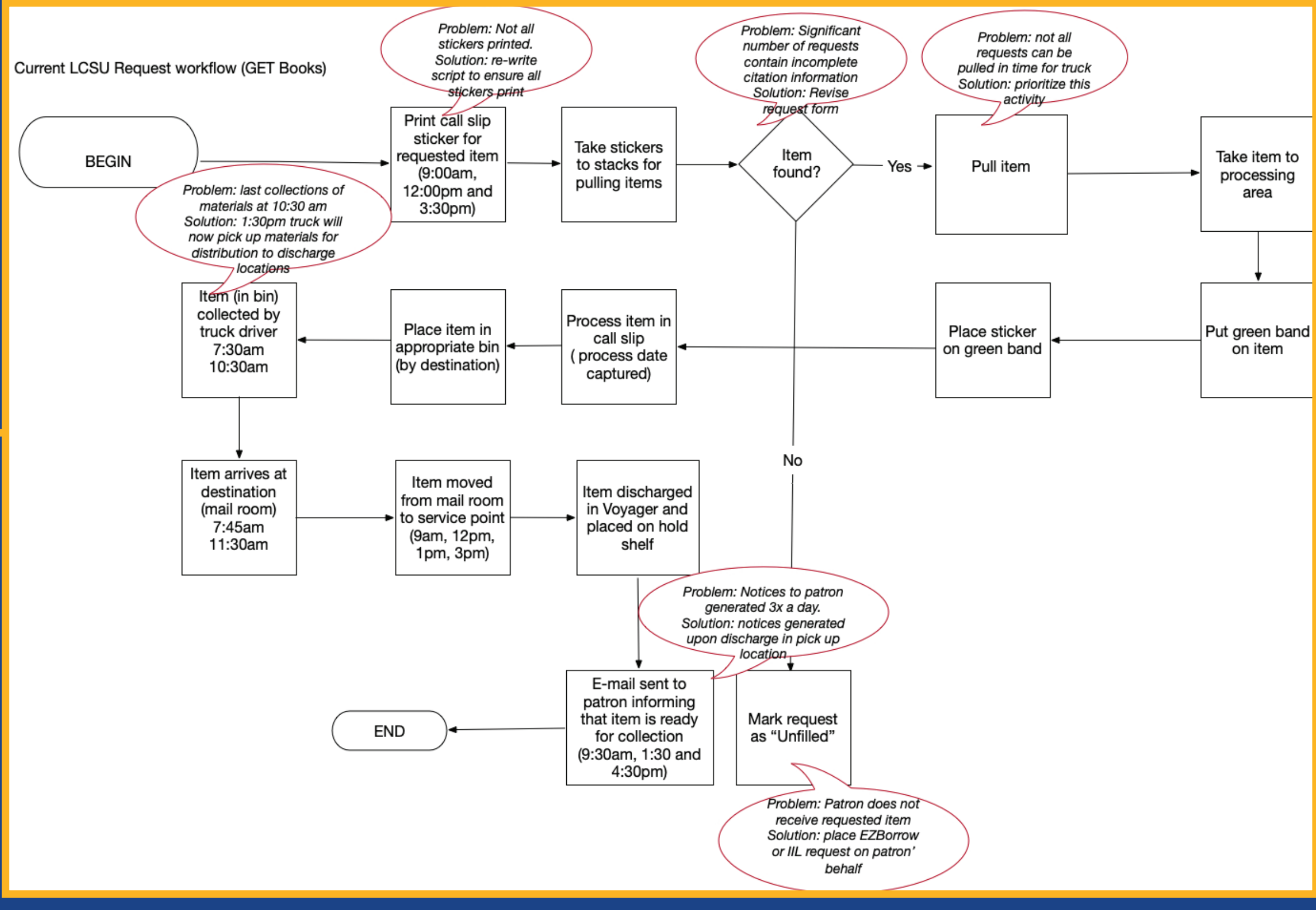


**Fig. 2:** Remote Storage workflow - developed from observation and interviews with process participants and analysis of data (see Fig. 3).

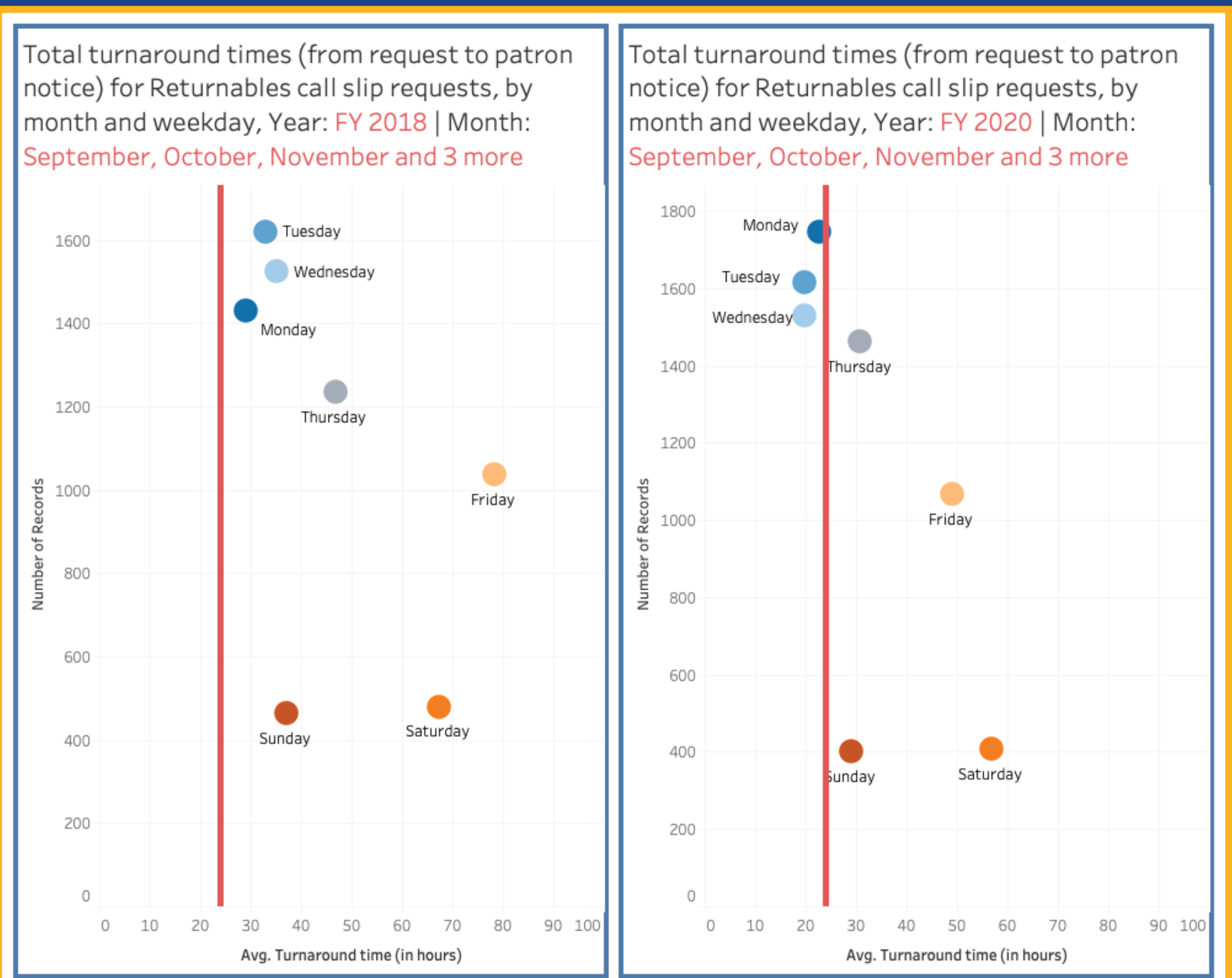
Distribution of LCSU requests by time of day and weekday, Year FY 2019 | Month: All | patron Group: All

Hour of Call.	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Grand Total
0	19	8	28	21	28	44	17	165
1	6	6	3	10	10	13	12	60
2	2	8	11	6	10	3	4	44
3	1	2	8	7	4	1	3	26
4		1	4	4		1	4	14
5	2	2	6	7	2	5	8	32
6	3	9	13	8	12	16	3	64
7	1	19	18	13	19	9	10	89
8	17	102	156	120	116	119	22	652
9	26	401	501	381	340	322	34	2,005
10	44	369	502	473	384	327	52	2,151
11	51	408	353	283	329	264	78	1,766
12	54	323	357	277	307	213	75	1,606
13	110	278	222	273	240	243	57	1,423
14	101	312	234	272	259	233	66	1,477
15	65	255	249	271	261	206	77	1,384
16	73	269	244	316	269	238	55	1,464
17	110	110	143	120	130	64	49	726
18	107	79	65	69	68	59	45	492
19	55	62	63	55	50	37	40	362
20	36	71	55	66	69	43	27	397
21	59	64	57	82	78	32	30	402
22	43	51	48	58	63	39	32	334
23	20	35	45	36	36	21	12	205
Grand Total	1,005	3,244	3,385	3,228	3,114	2,552	812	17,340

**Fig. 4:** Comparison of turnaround times under old workflow FY18 and workflow after process mapping-identified changes (weekday average time decreased from 36 hours to 22 hours). Weekend hours decreased between 10 and 20 hours)



**Fig. 3:** An example of data (evidence) supporting the process mapping exercise (nearly 40% of all requests are placed between noon and 4pm and under the original workflow these material would not reach main campus until 8 or 11:30am the following day, and patrons would not be notified until after 1:30pm)



## Findings

We found process mapping methods to be very effective in analyzing workflows within a service. It allowed for a holistic view of the service and allowed us to quickly identify problem areas which we could correct with the least resources and most impact.

Whilst at the outset of the project we had assumed that delays and inefficiencies were predominantly associated with the workflows within the storage unit, process mapping revealed that changes in other parts of the workflow (outside of in-storage processes) would result in the biggest gains. The analysis of time lapsed between different parts of the process revealed that most delays took place outside the storage facility itself. We learnt that the biggest delays were associated with the dispatch of e-mails to patrons informing them of availability of their requested items. These were scheduled for thrice-daily release, adding up to four hours to the wait times for patrons. A simple change in the system code allowed for generation and dispatch of notices every 15 minutes. We also moved the final "pull" to begin around 4pm and extended the schedule of the delivery van to include an extra run from storage. This allowed for requests made in the afternoon to reach main campus on the same day (an analysis of the volume of requests had shown a concentration of them between 11am and 4pm). Other changes that contributed to improved turnaround times were in the design of the patron request form. This reduced the number of "bad" requests thus removing the need for storage staff to conduct additional queries before items could be located and retrieved. In addition, we introduced a "triage" into the workflow, so all requests for materials were first reviewed by customer service staff in our Main Library and any issues relating to the patron request were resolved before it was forwarded to the storage staff. This approach added an additional step to the process (up to 1 hour of processing time), but released storage staff from spending time resolving bad requests.

The process mapping approach proved very useful in rapid process development of fulfillment services during COVID-19. The visual representations of possible workflows were used by the team to quickly identify the most efficient approaches, inform all staff involved in service delivery about the new processes, and ensure that performance data was captured.

## Practical implications or value

The process mapping approach is an effective way of engaging all process participants in reflecting on their current practice. It:

- provides a view of the entire process, allowing participants to understand interdependencies and appreciate how "their part" of the workflow affects other parts and the final output;
- allowed these participants to be active partners in devising changes and taking "ownership" of the new workflow;
- engaged process participants - the visual nature of process mapping method led to many "aha!" moments;
- allowed process participants to see, in near real-time, how the revised service performs and react quickly to any arising issues.

## Sources

Biazzo, S. (2002) "Process mapping techniques and organizational analysis." BPMJ, 8(1), pp. 42-52.

