



Celebrating new ideas

2008 New Zealand Post Group
Local Government Excellence Awards

Project Submission Template

Name of Project

Auckland City Libraries Information Resources' Process Improvement Project

Name of entering council/s

Auckland City Council

Category

Building organisational capability

1. The Rationale for the Project and Expected Benefits

This **process improvement project** focussed on the need to reduce the number of days that it took to move new library materials from time of receipt onto the library shelves for customer access. After the implementation of a new library management system, Millennium, in 2005, the number of shelf-readiness days ballooned out to 95 days – the goal was to reduce this to 20 days and then an average of 7 days. This was achieved in 2008.

The problems were:

- Customers could see new books on order in the catalogue but had to wait nearly two months to borrow them
- Unclear processes and performance measurement and quality standards for processes
- Long backlogs for some categories of materials e.g. donations, transfers, world languages
- Difficulty with understanding and assessing visually how work was progressing and at what speed
- Lack of trust between teams and individuals with poor productivity
- Scepticism - although we knew there were no major improvements to be made in the library management system, we questioned whether there were any real gains to be made from process improvements.

Information Resources invited the process improvement analyst to see if there were any improvements to be made in the collections and cataloguing areas.

The objective of the process improvement analyst was to create an integrated supply chain with flexible process systems, where inventory preparation and distribution were treated separately from the selection and acquisition process.

Specifically, the objectives were to:

- Identify bottlenecks and queues in the throughput of different types of new library materials
- Decrease the range of variance around the average time it took to make each material type shelf-ready
- More accurately allocate resources and time for total work
- Review the range of performance measures collated in the collections business unit for recording work in progress (volume), time and value added activities
- Build on the collaborative culture of the teams and increase trust

The expected benefits were:

- Faster customer access to new library books, CDs and DVDs
- Improved workflow and productivity in the collections and cataloguing areas
- Reduction of backlogs and errors

There are strong comparisons between commercial organisations and the library. Both must operate to the highest efficiency in order to deliver value at lowest unit cost, and with the organisation's fixed income, it must operate at higher efficiencies in order to release funds to alternate opportunities.

Products are selected for the customer; suppliers are identified, and a purchase price for supply negotiated; administration is carried out to place an order and pay for the goods; some form of value-adding activity is carried out to change the form of the product and, finally, inventory is distributed to the customer, ideally in volumes and specifications to meet demand.

Information Resources operates in a complex environment. It deals with multiple communities, languages, ages, ethnicities, and cultures as well as providing content to the community on current issues and interests, in multiple formats. Underpinning this is the objective of building a permanent collection based on New Zealand's unique culture and history. The processing team deals with multiple item-type specifications, with three key suppliers based offshore, complex international and local cataloguing rules as well as extended life cycle management along with a fixed income. The library business cannot trade its way out of funding gaps.

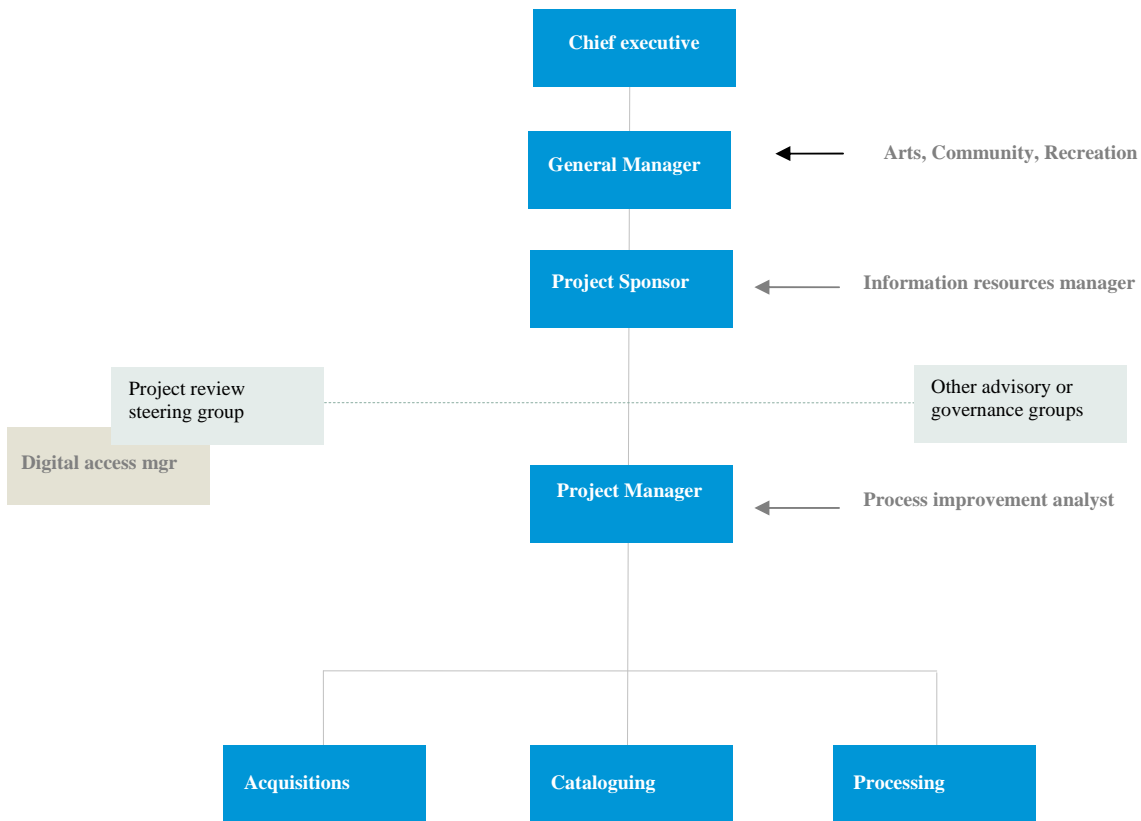
2. Linkage to Council's Strategic Direction

Auckland City Council's vision is First city of the Pacific, and the role that Auckland City Council plays in realising that vision is by working together to provide a great future by delivering valued service and leadership. Auckland City Council has seven strategies that define how we need to use our resources to achieve the vision. This project links to the strategy:

“Efficient and capable council – making our journey from good to great”.

3. Project Planning

- a. The Auckland City Council project management framework was followed where appropriate. As there were no extra funds required and in-house resources only were used, a business case was not required. The project brief and plan were created and executed.
- b. The scope included all business as usual (BAU) work processes in the collections area and excluded the library management system, Millennium.
- c. The timeframe has been over 3 years due to the BAU nature of the process improvement.
- d. Evaluation was to include daily sampling and monitoring, plus monthly and annual surveys.
- e. Governance is outlined in the diagram below.
 - i. There were two business owners involved as this was a cross functional project: the digital access manager and the collections manager.



2. Project Management

The Auckland City Project Management Framework was followed where appropriate.

1. Methodology

Various management techniques and processes were required to plan, monitor and control scope, time, cost, and quality on the project. A suite of tools was used in the Six Sigma methodology for solving problems e.g.

- a. The DMAIC (Define, Measure, Analyze, Improve, Control) problem solving model was used to establish a roadmap for process improvement.
 - i. Define the problem against the Voice of the Customer.
 - ii. Measure through 3 surveys: throughput time for cataloguing, queue survey between cataloguing and processing, throughput survey for processing
 - iii. Analyse what value is delivered through interviews, gemba (the actual place where value is created on the shopfloor), process flow diagrams, queue surveys to assess queue time before cataloguing & processing, value stream maps. Survey data was assessed using Minitab by:
 - Pareto graphs
 - Interval plots
 - Histograms
 - Normalcy tests
 - T-tests

The value delivered was linked to customer criteria:

CUSTOMER CRITERIA	BUSINESS RESPONSE
Solve my problem	OPAC, Job Management System (JMS), Gap spreadsheet, Holds report, Profile orders
Don't waste my time	Days Ready throughput, Demand management, Site inventory management, Cataloguing Standards, Classification rules
Get me what I want	CDs, JMS, Floating collections, Format, Collection depth, Funding, Budget allocation
Where I want	Floating collections, Holds, (Held Item Delivery), Daily distribution, Locations
When I want	Order quantity, Speed of throughput, Standing and Profile orders

- iv. Improve the processes
 - v. Control charts to assess if processes were under statistical control
- b. The SIPOC (Suppliers, Inputs, Process, Outputs, Customers) tool of process mapping and analysis was used. Key processes mapped included:
 - i. Selection
 - ii. Acquisition
 - iii. Receiving
 - iv. Processing
 - v. Cataloguing
 - c. Eleven processes were mapped using Microsoft Visio: these represented the 20% of processes that produced 80% of output that made up the complete end-to-end process.
 - i. Collection management (high level)
 - ii. Gap driven selection
 - iii. Job management system selection
 - iv. Acquisitions – ordering from key suppliers
 - v. Acquisitions - ordering from specialist or small suppliers
 - vi. Standing orders
 - vii. Receiving
 - viii. Receiving standard orders

- ix. End processing
- x. Serials
- xi. Donations

The purpose of the process maps was to realise value through meetings where operations were discussed. The goal was to identify areas of:

- Waste
 - Overproduction
 - Waiting time
 - Incorrect processing
 - Excess inventory
 - Unnecessary movement
 - Unused staff creativity
- d. The Process improvement analyst met with individual team members to observe “the place, the part” (gemba) rather than holding group meetings where the tendency is to get the process as it operates on its best day.

5. Relationship Management and Communication with Stakeholders

The Auckland City Libraries Change Management Framework (2005) and the Programme Office’s Communication and Stakeholder Engagement plan were used as a basis for communication and stakeholder management. Because this was a smaller internal project, communication and engagement were simplified.

The aims were to:

- Increase stakeholder awareness
- Improve team efficiency and productivity
- Improve team culture and behaviour

The Stakeholder Plan identified

- Who are the stakeholders and their views
- What is their ability to influence the project
- Their actions and information required during the project

The Communication Plan identified:

- Who needs what project information
- Communication channels
- Timings of communication
- Communication responsibilities

Stakeholders included those people affected by the project and associated change, those with influence over it, or those that have an interest in its successful or unsuccessful conclusion. Regular conversations were held with the collections and cataloguing staff to gain insights into their work processes and problems. Results were discussed at the fortnightly collection delivery team meetings.

Information resources managers were updated regularly. The General Manager of the Arts, Community, and Recreation (ACR) Division visited the collections area for a briefing on the dashboard and its results.

A questionnaire was circulated to involved staff to gain their feedback on the purpose, communication, what was done well and not so well by the project manager, what they saw as benefits from the process and their frustration – people were honest :

- talk more quietly, we lose concentration on our work
- not expect staff to be free whenever he turns up
- his casual manner ruffled a few feathers
- John is very efficient and knows what he is looking for
- he was fantastic in picking up the workflow, though he is not from a library background
- good workflow diagrams enabled good understanding of the steps we take
- a positive outcome was the shift in responsibility to the acquisitions’ team in distributing customers suggestions for purchase from JMS

6. Innovation and Originality

The innovation was to introduce the principles and aims of 'lean production' of the Toyota Production System into a library operation. The main aim of adopting a lean operation is to reduce waiting time so that inventory moves from one workstation to another at 'velocity'. We aimed to apply the following Toyota "4 P" model and principles to library processes involving receipt, cataloguing, applying spine labels and security tagging:

Philosophy (Long-term thinking):

1. Base management decisions on a long-term philosophy

Process (Eliminate waste)

2. Create continuous process flow to bring problems to the surface.
3. Use "pull" systems to avoid overproduction
4. Level out the workload
5. Build a culture of stopping to fix problems to get quality right the first time
6. Standardized tasks are the foundation for Continuous Improvement and Staff Empowerment
7. Use visual controls so no problems are hidden
8. Use only thoroughly tested technology that serves your people and processes

People & Partners (Respect, challenge and grow them)

9. Grow leaders who thoroughly understand the work and teach it to others
10. Develop exceptional teams who follow your organisation
11. Respect your extended network of partners and suppliers by challenging them and helping them improve

Problem solving (continuous improvement and learning)

12. Go see for yourself to thoroughly understand the situation
13. Make decisions slowly by consensus, thoroughly considering all options; implement rapidly
14. Become a learning organisation through relentless reflection and continuous improvement

Create continuous process flow to bring problems to the surface; standardize tasks; level out the workload

- The Information Resources business unit handles approximately 167,000 items per annum, with 2.3 million process events each year
- Process review includes eliminating waste and variation from the system. This reduced the cost per unit and increased the ratio of value to average completion rate.
- Work standards that prescribed quotas for the workforce and numerical goals for managers were eliminated. Instead, we substituted system design and helpful leadership in order to achieve continual improvement in quality and productivity.

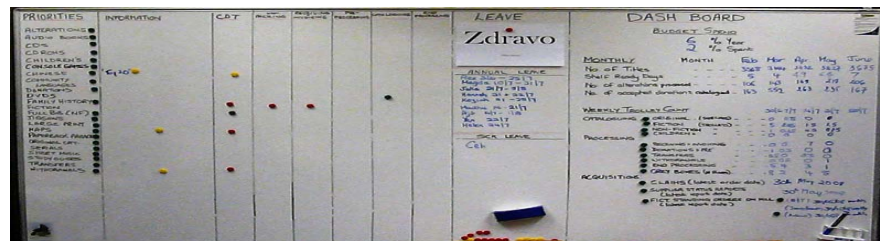
The Dashboard - Use visual controls so no problems are hidden

- The IR systems successfully used visual aids to signal information between process steps, including a dashboard system. Its purpose is to cluster information relating to the business unit as close as possible to real time. It should be used to display meaningful information, which staff, team leaders and management can use to determine performance.
- The Dashboard has been set up in the collections area. Its objective is to record information about the cataloguing and processing operations so the team leaders can 'tell at a glance' the condition of the business unit. It is designed to monitor the volume of 'work in progress' (WIP) and the length of the queue at each function, as it affects each downstream process.
- The 'tell at a glance' system allows the managers to monitor when work volumes reach certain conditions, based on a traffic light system. Each morning the team leaders meet to discuss the current situation and make the necessary decisions to coordinate the flow of work across their functional groups.
- A final purpose of the Dashboard is to celebrate success. While the volume of WIP and the mix of item types is not under staff control, as the unit operates under a batch supply system, the management of the queue and therefore the velocity (as measured by the time an item takes to travel through the end-to-end process) is, and we celebrate when we achieve a good score.
- The efficiency gained is measured by the number of days taken to process a book from date of delivery from suppliers to availability to customers. The Dashboard approach has improved processing time from approximately 15 processing days this time last year to our current standard of approximately 5 to 7 processing days.

For example, it was very to tell the status of work or if problems are occurring with this system; can you tell the status of the following work?



Whereas the Dashboard is a simple but effective tool:



Go see for yourself

Site visits to three operations were arranged to demonstrate how other organisations deal with logistics particularly around managing and reporting real time, and high volume activity.

1. **NZ Post**, who have a new highly sophisticated processing facility at Highbrook that processes one million letters and parcels per night.
2. **Contract Logistics**, which picks, packs and distributes 100 tonnes of APN published items (NZ Woman's Weekly, Listener etc.) twice weekly.
3. **NZ Transport**, who control a road network for NZ Post of 100 trucks and a number of aircraft. They operate with GPS tracking systems linked to on ground technology centres using similar principles reflected in our Dashboard system, which reports and manages real time activity.

Information Resources staff enthusiastically supported these initiatives, where logistics is part of their function.

7. Evaluation Framework

The evaluation framework included

- Performance measurement - regular measurement of throughput of library materials from receipt to shelf-readiness for customers
- Interviews with staff about how they felt about the project
- Annual customer satisfaction surveys on the collections

The Managing for Outcomes (MFO) template was used to record and monitor key outputs & measures.

Performance Measure	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June
2005-06 Average number of days to make collections shelf ready	64.8	72.0	62.7	95.8	50.0	74.0	69.9	70.0	54.0	41.5	39.6	18.6
2006-07 Average number of days to make collections shelf ready	4.8	7.8	8.9	8.3	9.7	8.8	13.7	8.9	14.4	11.0	8.2	12.0
2007-08 Average number of days to make collections shelf ready	7.0	5.0	7.0	7.0	9.0	6.0	7.0	5.0	4.0	4.9	6.4	7.0

Customer Satisfaction with Collections

Summary Table 1: MFO Measures
(Share satisfied or very satisfied)

MFO Measure	2005-06	2006-07	2007-08	Change (2006-07 to 2007-08)
Collections organisation	88.3%	85.9%	87.9%	2.0%
Collections	79.0%	77.8%	80.2%	2.4%
Library space and facilities	88.4%	87.9%	86.6%	-1.3%
Information skills programmes	92.0%	90.1%	94.6%	4.5%
Events and exhibitions	97.7%	95.7%	94.0%	-1.7%
Library staff	95.4%	94.4%	92.9%	-1.5%

Source: Gravitas Research & Strategy Ltd. Annual Customer Satisfaction research 2007-08, prepared for Auckland City Libraries.

8. Category Specific Criteria

Achievements were:

1. Reduction in the average number of days it took to make library materials shelf ready from 95 to 6 days.
2. Donations – for the first time a strategy and process for recording donations as revenue was created. In the 2007-08 year, recorded donations amounted to 3,011 items with a recorded value of \$250,000.
3. For the first time the annual customer satisfaction research in 2008 showed an improvement with collections by 2% to 80%.
4. The most effective process improvements were made with:

- a. The hand-offs between the functions
- b. Clearing up misunderstandings
- c. Identifying special cause variation
- d. What information others need for their planning

The expected benefits were realised:

1. Faster customer access to new library books, CDs and DVDs
2. Improved workflow and productivity in the collections and cataloguing areas
3. Reduction of backlogs and errors,

In addition -

4. The culture was changed from a need-to-know communication model to a proactively sharing information and understanding how my role impacted on others' work.
5. Increased reputation of the collections and cataloguing teams within the library
6. Better staff morale

The key learnings were:

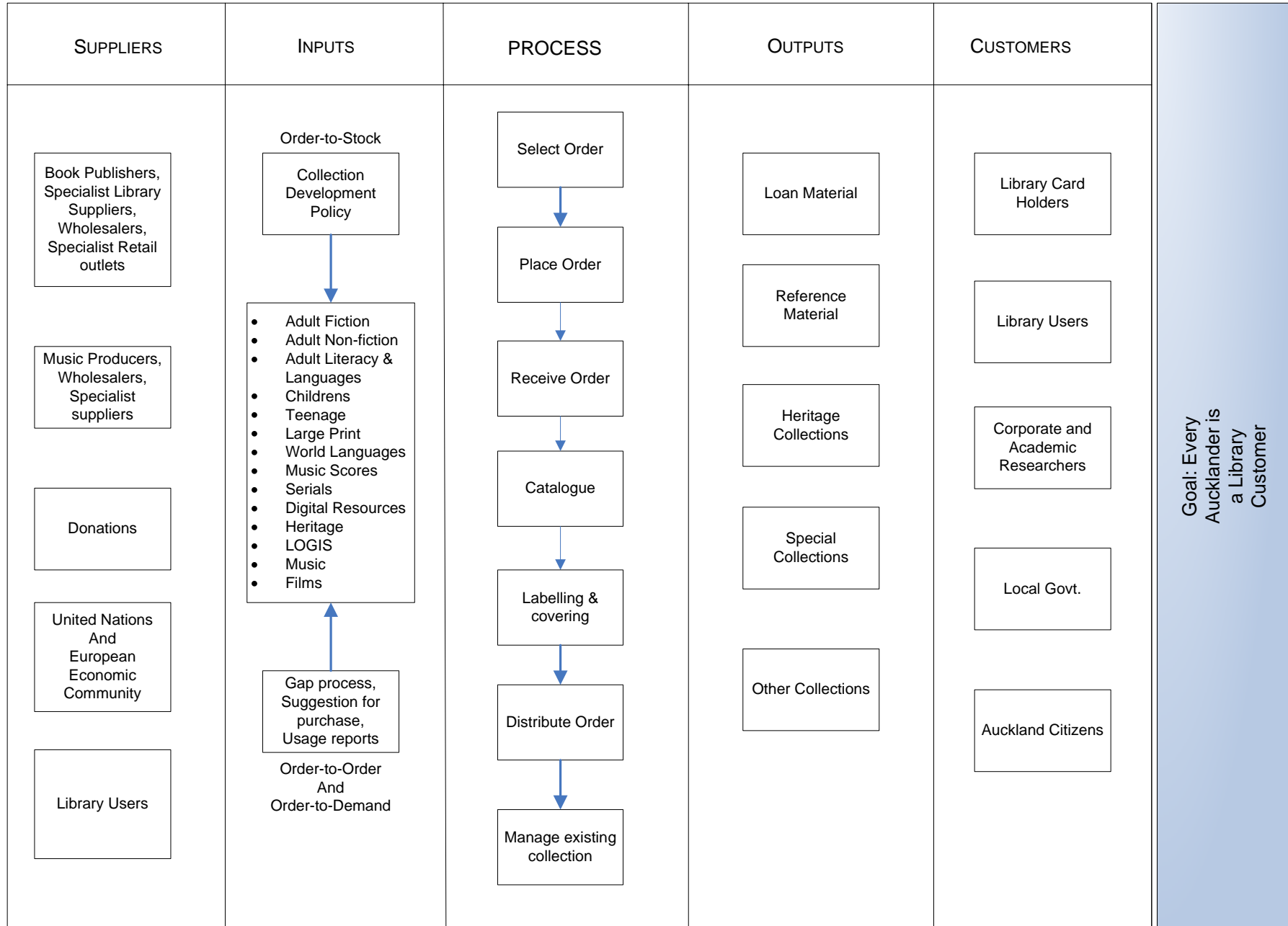
1. The importance of "knowing the numbers" – by quantifying the size of the process and the problem, we know what we are actually dealing with.
2. The beauty of the Toyota Production System is its reliance on people and system design, rather than expensive IT systems – collaboration leads to redesign
3. Change came from process improvement and change management. We needed to move away from telling staff to "work harder or faster" or "be more careful" to looking at improvements in process.
4. There had been a tendency to focus on the person rather than the task. This isolates the person and forces them to protect themselves from what they may see as unfair criticism. Process improvement experience has proved that at least 85% of problems belong to system design.
5. It was important to have a visual awareness of the total work in the system in order to understand and establish control of processes. The dashboard has played a great part in making the workflows change by making workflows and throughputs visible to all, so that people can see what they have achieved (& be proud of it) and what is coming next. It has helped to minimise waste, bottlenecks, queues and unpleasant surprises and to allocate work appropriately.
6. While there were no major efficiency gains or improvements to be made in use of the library management system, there were many minor improvements around workflows, which have made a significant difference to overall productivity.

9. Appendix 1

Sample work

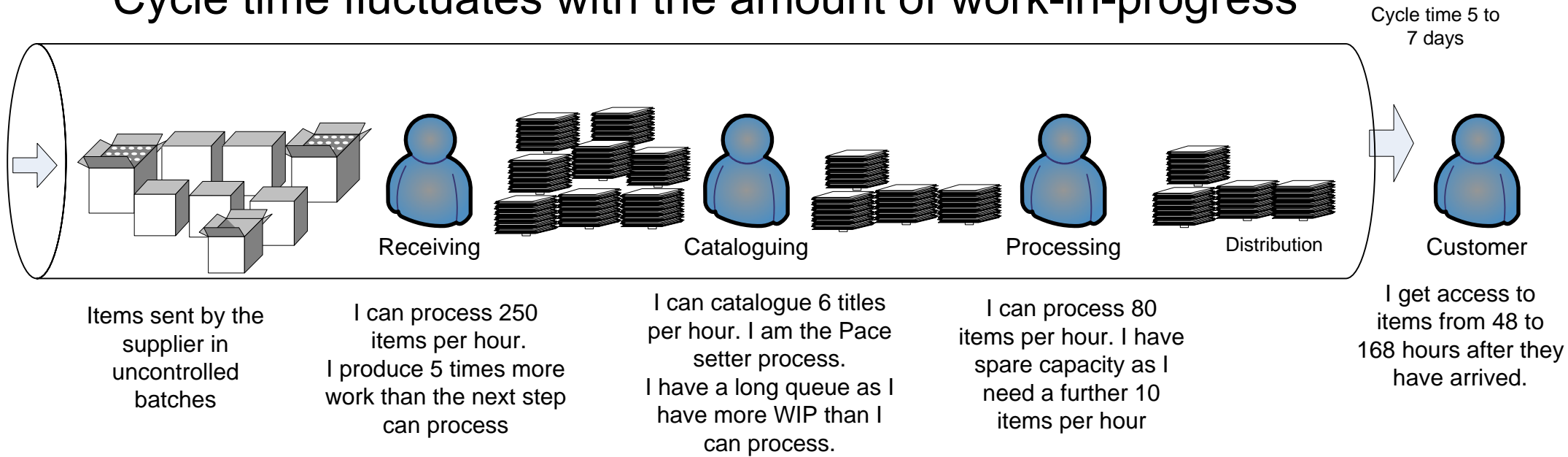
- 1. SIPOC**
- 2. PACE Setter**
- 3. Receiving Process Diagram**
- 4. Collection Gap Process Diagram**
- 5. Donations Acceptance Process**

SIPOC

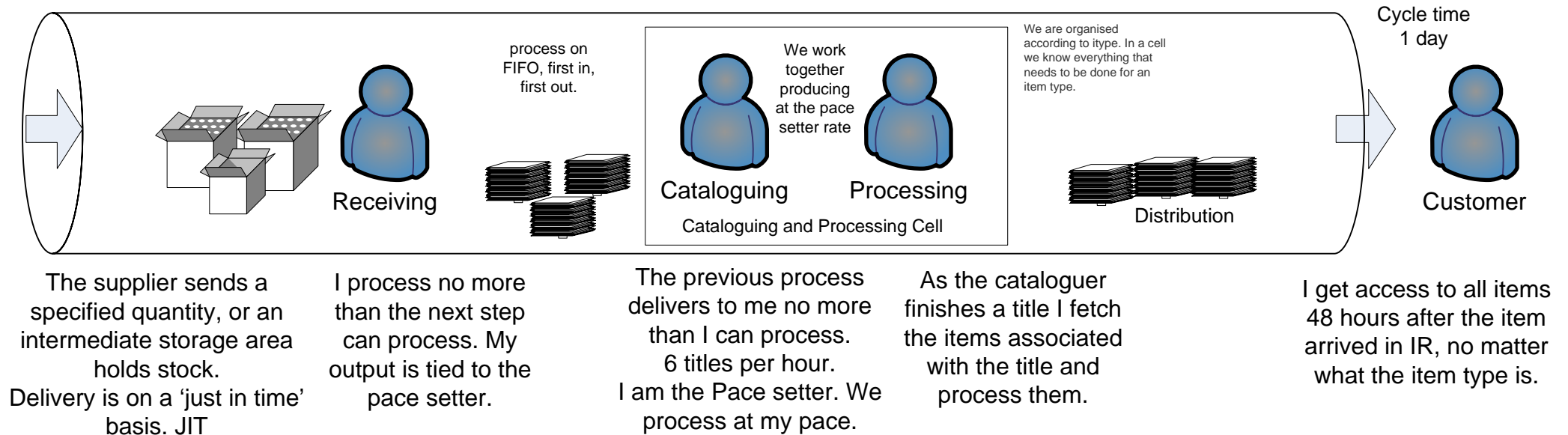


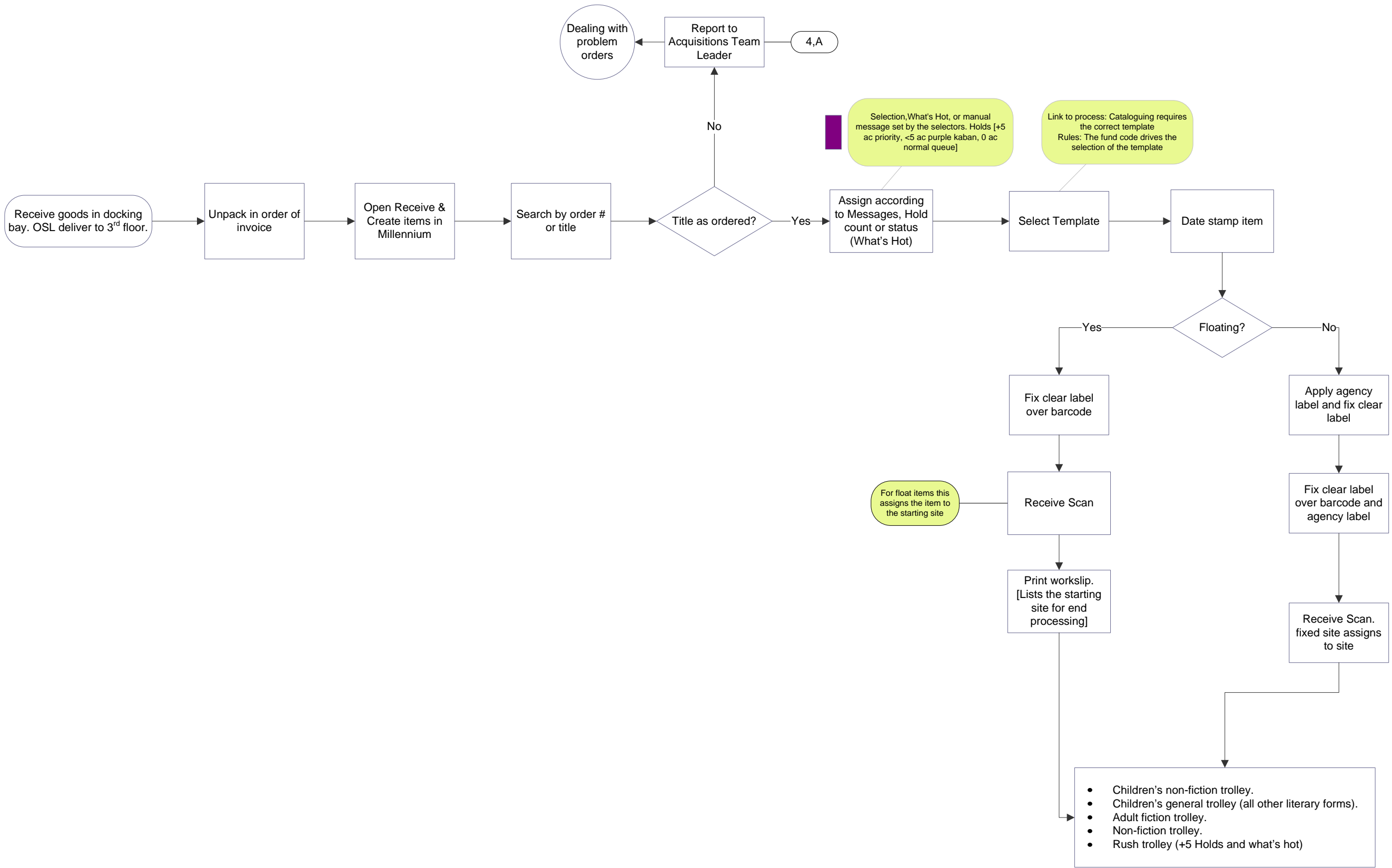
Simplified 3 person operation

Cycle time fluctuates with the amount of work-in-progress

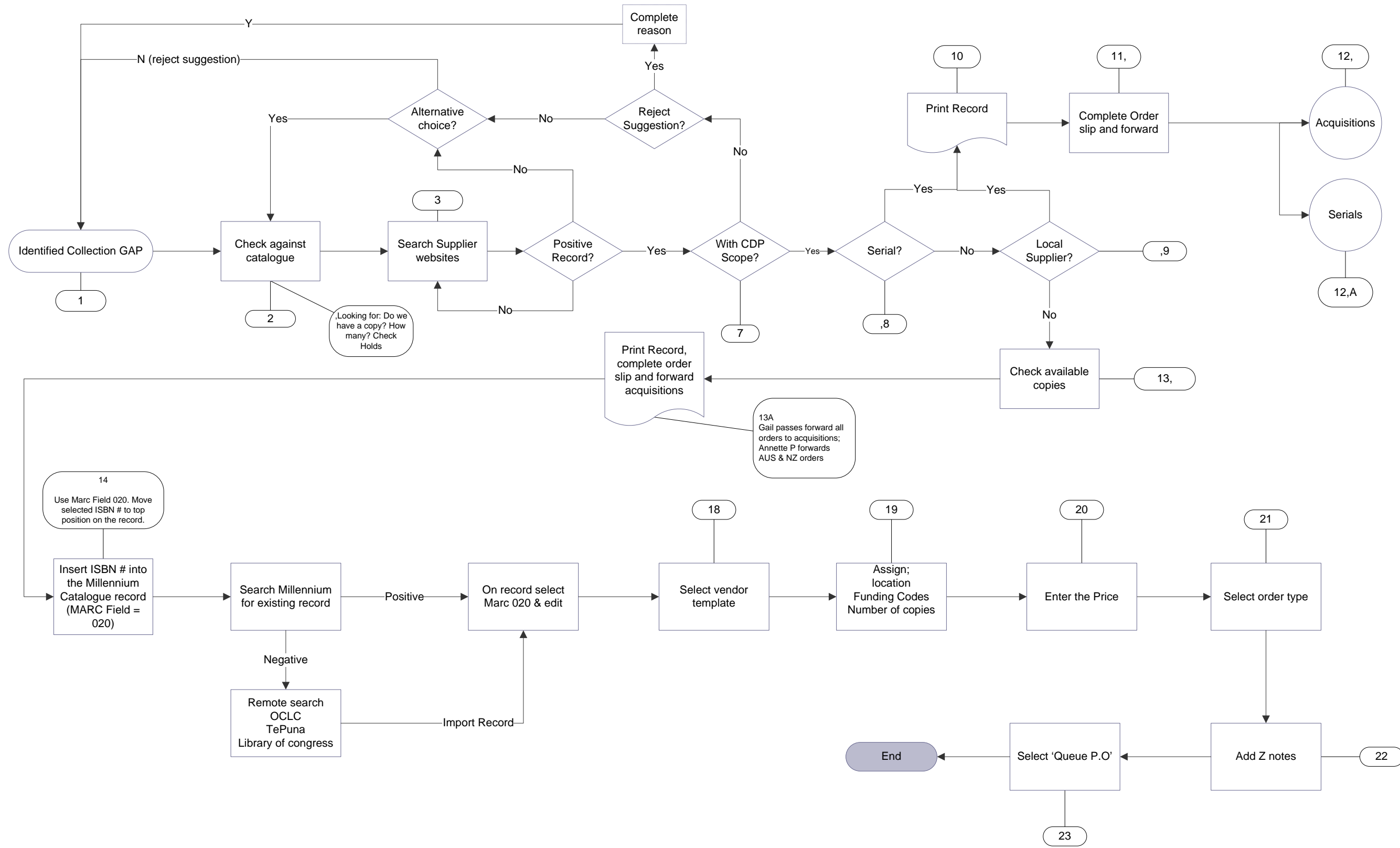


Cycle time is reduced and controlled with a fixed amount of WIP





Client	Page 9 of 32	Prepared by	Date
Information Resources		Wilson, J	2/8/2007
Process		Approved by	Date
Receiving			7/21/2008



Objective: GAP process is used to communicate collection needs from the community libraries

Client	Page 2 of 32	Prepared by	Date
Information Resources		Wilson, J	2/8/2007
Process		Approved by	Date
GAP driven selection		name	7/21/2008

