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Creating a One Piece Flow System in a Services Environment

"Pod[i] them. Whoever needs to process the work should be put together as a group. Use the most skilled person (potential bottleneck) as the senior person who controls the work flow of the team, including when they break or take lunch. That person is to coach the team if they are doing something wrong (and note it in a rework register and learning log). If they do work one at a time it makes the skilled person speed up their workflow as they feel the need to keep up with the up-stream team member."

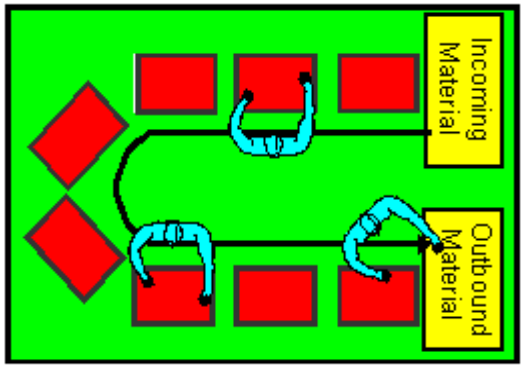
This quote from a supervisor in a large financial services organisation sums up the attractiveness of a one piece flow system in a services environment. Could this work for you?

This paper sets out a roadmap for creating such a system, based on the Toyota Production System[ii] platform and draws on the experience of Business Development Partners project work with Australasian clients.

What is a one piece flow system?

In its purest form continuous or one piece flow means that items are processed and moved directly to the next process one piece at a time. Each processing step completes its work just before the next process needs the item, and the transfer batch is one. No work item waits in the queue for the downstream work station to become available.

For example, for a lending transaction, in a one piece flow system, the loan details are entered, verified, assessed, and the loan finalised in one work cell – one loan at a time.



Contrasting this with a queue and batch approach, where each loan waits in its separate data capture, verification, assessment or finalisation queue until an operator in each functional area gets the opportunity to process it. Bundles of applications are passed between each function.

What are the benefits of one piece flow over queue and batch?

Impacts	One Piece Flow	Queue and Batch
Operations staff	Work as a team in a system. Respond immediately to errors picked up by downstream colleagues. High morale.	Work to own team's service level. Tend not to proactively collaborate with other teams. Do not see impact of their errors.
Staff productivity	Superior - each part of the system pulls work to them and avoids backlogs being created. High visibility to staff too busy or idle.	Hostage to build up of backlog when demand or supply factors change. Large amounts of non value added work.
Leadership time and effort	Team takes ownership of work and sticks to agreed rules of working. Any issues affecting system performance are immediately obvious.	Constant supervision of 100% of staff. Distracted by dealing with escalations, hidden in the backlog.
Customers	Cycle time is very quick and predictable. Errors picked up early and adjustments made.	Cycle time is too long or too variable. Errors are slow to fix.
Business Partners, e.g. sales, IT	Respond immediately to rework caused up by sales and feedback provided. No need to escalate as cycle time short.	Major cause of rework. Constantly seeking to escalate deals-in-progress.

Does my process suit one piece flow?

There are two pre conditions to one piece flow being successful—if these do not exist, one piece flow will not work:

1. Highly capable processes—if there are many quality issues, the work cells will become bogged down in fixing them.

2. Highly repeatable processes—each process step must have low variation in processing times, otherwise you will not be able to get all parts moving as one.

Everyday examples of the above include car and whitegoods production lines.

What about the disadvantages of such an approach?

Assuming your operation meets the above criteria, you may also be wondering if there are any disadvantages, such as:

1. What if the team runs out of work, will their productivity suffer?
2. How can the system cope in periods of high demand?
3. What if my people fear becoming de-skilled "production robots"?
4. How can this work in a business requiring phone operators to hand off to administration staff?

In practice, these can be easily mitigated via:

1. During low volume days, the team can address root causes of errors, undertake cross training or complete supporting administration work.
2. One piece flow systems in a Pod environment allow you to increase capacity cheaply by increasing utilisation of existing teams or adding more Pods.
3. The most skilled operators effectively run their teams, dictating work flow speed and keeping track of errors, thus enhancing their status in the team.
4. Phone operators can sit within a Pod and refer work to their administration or decision making colleagues, providing an exceptional customer experience.[iii]

How does it work?

How you implement a one piece flow system depends on your starting point but typically involves steps like the following:

1. Find your best people, put them in the same Pod, and set them stretching cycle time, productivity, and quality goals.
2. Separate the "clean" items from those with incomplete information.
3. Measure the process time for each sub-step to "calibrate" the system to optimise the skill and resource mix in each cell.
4. Post production statistics on leader boards to measure achievements against stretch targets.
5. Set up in-trays so supervisors can see when any backlog forms.
6. When the team starts taking more ownership, you now have a one piece flow system.
7. Celebrate your results with those who delivered them.

What can you expect in moving to full implementation?

The reliability of the workforce is critical and therefore we suggest one piece flow systems need some team rules to function smoothly:

1. No phone calls or emails.
2. Take breaks together.
3. Record on a white board the reasons for each stop in the flow.
4. Use coloured signal points as visual communications:
   - Red (5 or more work items at one desk) – supervisor needs to investigate reason for bottleneck.
   - Green (work completed for the day) – supervisor needs to allocate Pod alternative work.

Service Example – Pod of three with zero work in progress and whiteboard recording stoppages

In this example taken from the Australasian financial services industry, it took just four weeks to prove one piece flow in full implementation[iv].

Improving funds transfer capability between banks	Queue & Batch	One Piece Flow
Cycle Time	5 days	<1 day
Productivity	99 per day	155 per day
Value Added Steps	48%	72%

How do you engage sceptical stakeholders?

There are many references on the one piece flow concept[v]. Encourage your key stakeholders to read these in advance of the project "kick off". Follow this up with a visit to a car or whitegoods manufacturer and a financial services organisation who practises the concept in their world. Take those members of your team who "speak for change" and they will help you convince their more sceptical peers. After this mix of theory and practice, try running a simulation[vi] to demonstrate the benefits of one piece flow versus queue and batch processing.

How can BDP help?

BDP believes strongly in the power of one piece flow systems to dramatically improve sales and operations effectiveness in a services environment. In the right environments, there is no better system.

BDP has deep experience in operational efficiency. We provide advice, implementation support and skill development. Please contact us at info@b-d-p.com to learn more.

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[i] A group of people working together on like functions, seated contiguously.
[ii] The Toyota Way: 14 Management Principles From The World's Greatest Manufacturer by Jeffrey Liker, McGraw-Hill (2002)
[iii] Australian bank
iv Major Australasian bank
v The Goal by Eli Goldratt, North River Press (2004)
vi Op cit