

Process Improvement

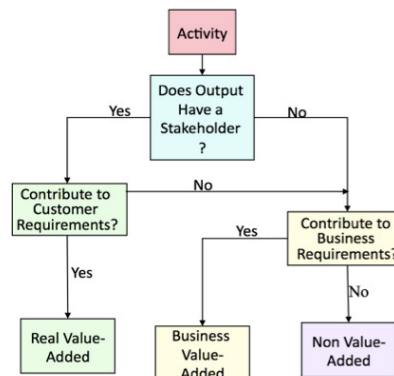
A process is a series of standard actions, tools or techniques that are applied to transform the inputs to the process into outputs. Some processes are flexible (eg, record identified risks in a risk register to facilitate risk monitoring); other require strict adherence (eg, record all identified risks using the current version of Form PRM-101). Important processes are frequently made into standard operating procedures¹.

However there is a balance needed between processes that contribute value and processes that obstruct the flow of work. Good processes help workers produce the processes outputs more efficiently and consistently with reduce errors; they are a major assistance in achieving quality. Bad processes reduce innovation consume effort and slow throughput. They are bureaucratically enforced either to ‘cover someone’s backside’ or in an attempt to reduce uncertainties with more process. Bureaucrats believe that they get a better grip on reality by having detailed process that dissect the work into more steps and requires everyone to check, verify and analyse every element of progress. This seems logical until you appreciate it is impossible to remove all uncertainty with process. It is easy to get into a vicious circle based on the premise “*since we failed in delivering last time we will create more process to ensure we deliver better next time*”, which is naturally counterproductive, consuming more resources and creating greater obstacles to success.

Process Analysis

The first step in process improvement is an analysis of the current ‘processes’ to understand what is occurring and identify options for improvement. Some of the analysis options that can be used include:

- **Gap analysis** are there missing processes or inconsistencies? Information about the processes including inputs, guides, outputs, and enablers is gathered and areas of duplication, feedback loops, inconsistencies and miss-aligned transfers/hand-offs identified.
- **Value-added analysis**, a detailed examination of every activity in a process to determine if it supports or contributes to customers’ or other stakeholders’ requirements or needs.



- Root cause analysis to identify the underlying causes of situations or problems and then to create preventive actions for similar problems².
- Observation, observing the process ‘in person’ to see what’s really happening.

The information gathered from the analysis is used to identify options for improvement.

¹ For more on **standard operating procedures** see: http://www.mosaicprojects.com.au/WhitePapers/WP1086_Standard_Operating_Procedures.pdf

² For more on **root cause analysis** see: http://www.mosaicprojects.com.au/WhitePapers/WP1085_Root_Cause_Analysis.pdf



Process Improvement

Creating a methodology³ containing the right processes requires careful analysis based on light and lean concepts:

- Create a value stream snapshot of your project delivery and analyse the processes built into it.
- Now build an alternate bottom-up snapshot of delivery that has only the necessary process elements.
- Compare the two to ensure the ‘light’ option is complete.
- Based on the two snapshots, define:
 - Processes that add value to the product;
 - Processes that are required but add no value; and
 - Processes (as well as tools, templates, procedures, work instructions, etc.) that aren’t required and don’t add value.
- Then work to remove the unnecessary processes.

Having eliminated some unnecessary processes, you can now consider improving those that are left. Regardless of type, processes are always capable of improvement. Observing the actual implementation of a process or an overall methodology will identify actions and outcomes within the following matrix. The actions are either authorised within the process or methodology or unauthorised (ie, either not defined or specifically excluded). The results of the action are either productive and enhance the objectives of the organisation or unproductive and either consume resources for no real benefit or actively work against the organisations objectives⁴. *Unauthorised unproductive* activities need to be stopped and *authorised productive* processes supported and enhanced.

Authorised	Modify the Processes	Support the Processes
Unauthorised	Stop the Action Immediately	Opportunities for Improvements
	Unproductive	Productive

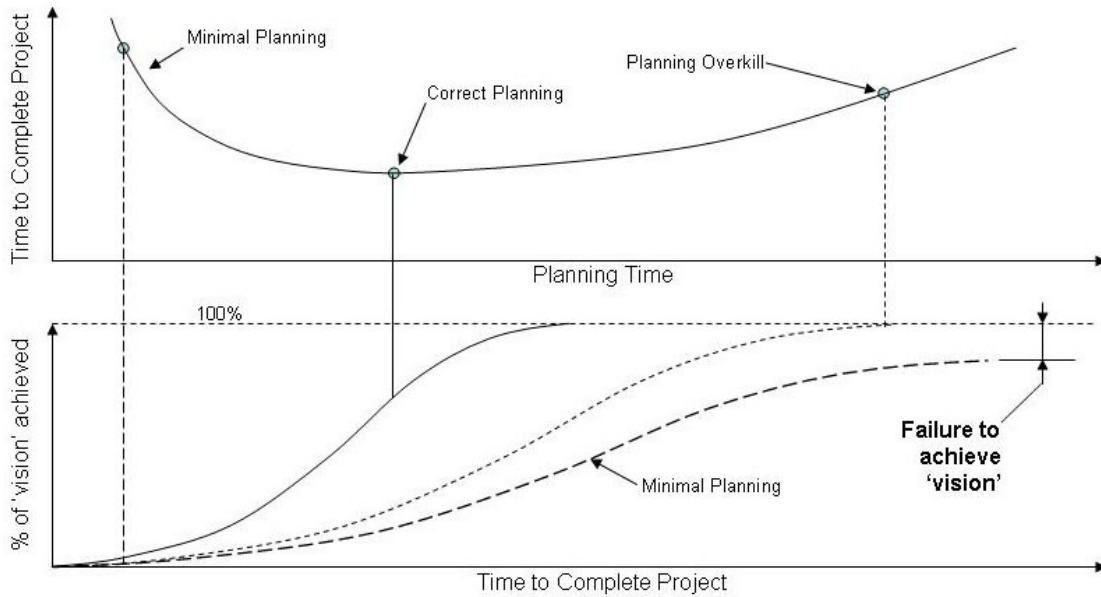
³ For more on **selecting and implementing a methodology** see WP1045: http://www.mosaicprojects.com.au/WhitePapers/WP1045_Methodologies.pdf

⁴ Processes that do not contribute to the strategic objectives of the organisation are bad for business and are therefore also ‘bad governance’. For more on **governance** see: http://www.mosaicprojects.com.au/WhitePapers/WP1033_Governance.pdf



The two zones offering opportunities for significant process improvement are refining or removing elements of the methodology that do not add value to the overall management of the project and incorporating unauthorised processes that are not in the methodology but that are being used add value.

The easiest and most important area for action is rectifying the unproductive processes already in the methodology. Care need to be taken to ensure the definition of ‘unproductive’ is understood. Most planning processes don’t produce anything directly and consume effort; superficially they can be classified as ‘unproductive’. In reality, effective planning contributes significantly to the efficient delivery of the overall ‘vision’ for the project and the value derived from planning is in assisting the efficient execution of the work based on an effective plan. However, excessively detailed planning can quickly become counterproductive.



Adapted from Firdman, H. E. (1991). Strategic information systems: Forging the business and technology alliance. McGraw-Hill, New York.

Value judgements⁵ are needed to assess the point at which adding more detail or rigour to the planning process becomes ‘planning overkill’ reducing the overall value of the process and conversely, how much detail can be safely removed from a planning processes to improve overall productivity before insufficient planning starts to cause problems.

Once the existing methodology is optimised and firmly in the ‘authorised and productive’ segment, the next area to examine is the unauthorised actions and processes that aid productivity and progressively incorporate these into your methodology. The ‘unauthorised and productive’ quadrant is where you find genuine innovation and opportunities for organisational gain.

Light & Lean

Lean = Remove all unnecessary steps from a process.

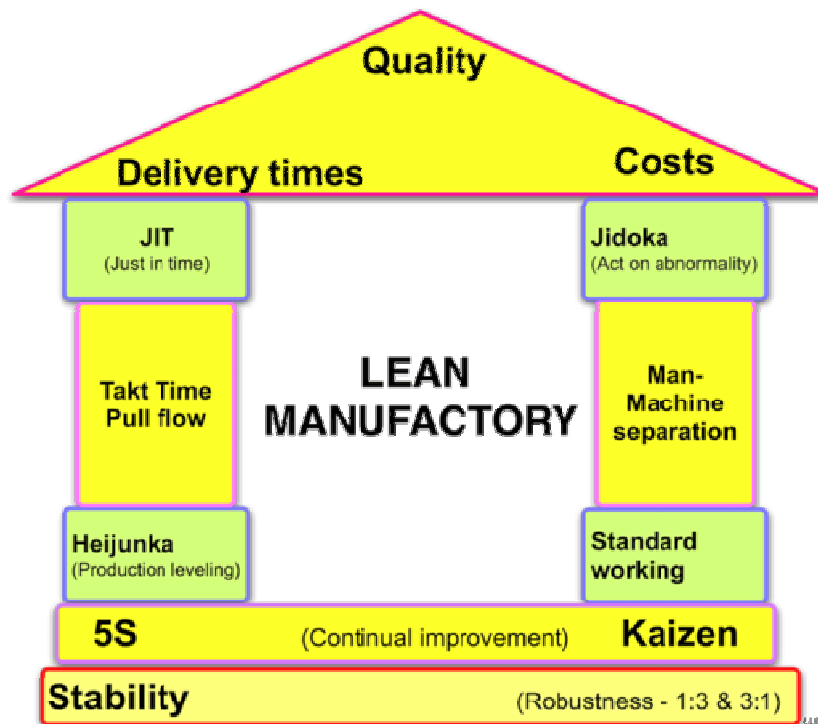
Light = Simplify complex processes

⁵ A method for valuing the **ROI from process improvements** is discussed in: http://www.mosaicprojects.com.au/WhitePapers/WP1083_Valuing_Stakeholder_Management.pdf

Lean and Light were developed by Toyota as a manufacturing philosophy and have been adapted to many other areas. Some of its key principles, such as minimising unnecessary movement, simplifying process and continuous improvement, have huge potential in project management.

The principles of ‘Lean’ are:

- specify value from the perspective of the end user or customer;
- review all of the steps in the value stream for each product – eliminate those steps that do not create value (‘Just In Time’ is a lean concept, materials are delivered when needed rather than moved in and out of storage);
- make the value creating steps occur in a tight sequence so the product flows smoothly towards the customer as flow is introduced let customers pull value from the preceding step (upstream activity);
- once the full system has been introduced, continually improve the process to eliminate all waste.



"Lean manufacturing house" by Laurens van Lieshout from nl.

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https://commons.wikimedia.org/wiki/File:Lean_manufactory_house.png#/media/File:Lean_manufactory_house.png

The principles of ‘Light’ are:

- A focus on minimising unnecessary overhead. Complex plans and processes should be simplified, but only to remove excess complication, not to remove core requirements;
- Eliminate the ‘seven wastes’:
 - **Transportation:** Each time a product is moved it stands the risk of being damaged, lost, delayed, etc. as well as being a cost for no added value.
 - **Inventory:** Inventory, be it in the form of raw materials, work-in-progress (WIP), or finished goods, represents a capital outlay that has not yet produced an income either by the producer or for the consumer. Any of these three items not being actively processed to add value is waste.

- **Motion:** The damage that the production process inflicts on the entity that creates the product, either over time (wear and tear for equipment and repetitive strain injuries for workers) or during discrete events (accidents that damage equipment and/or injure workers).
 - **Waiting:** Whenever goods are not in transport or being processed, they are waiting.
 - **Over-processing:** When more work is done on a piece other than what is required by the customer. This also includes using components that are more precise, complex, higher quality or expensive than absolutely required.\
 - **Over-production:** When more product is produced than is required at that time.
 - **Defects:** Whenever defects occur, extra costs are incurred reworking the part.
- Continuous improvement.

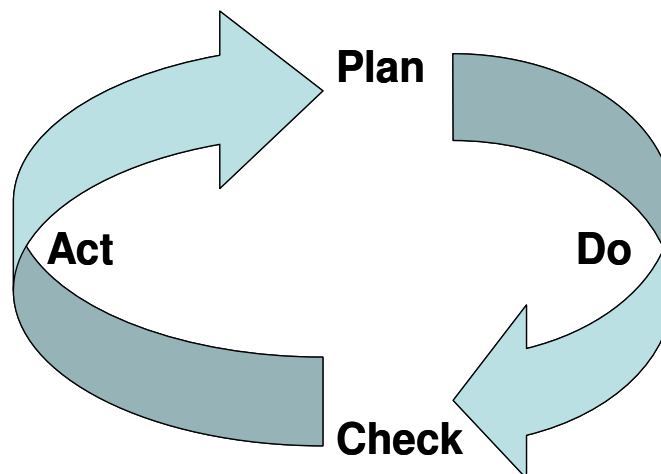
Six Sigma

Six Sigma is a set of techniques and tools for process improvement. It seeks to improve the quality of the output of a process by identifying and removing the causes of defects (errors) and minimizing variability in manufacturing and project processes. It uses a set of quality management methods, mainly empirical, statistical methods, and creates a special infrastructure of people within the organization, who are experts in these methods.

There is a clear focus on achieving measurable and quantifiable financial returns from any Six Sigma process improvement initiative⁶.

Continuous Improvement

The first rounds of improvement are based on developing the maturity of the methodology or individual process based on the action matrix above. The second phase of improvement is to continually question the value of each step and process to minimise the amount of effort directed to running the methodology or whilst maximising its effectiveness. One way to approach this is the *plan-do-check-adjust* cycle⁷ (as defined by Shewhart and modified by Deming); mature PMOs are a useful vehicle for undertaking this work⁸.



⁶ For more on **Six Sigma** see: https://en.wikipedia.org/wiki/Six_Sigma

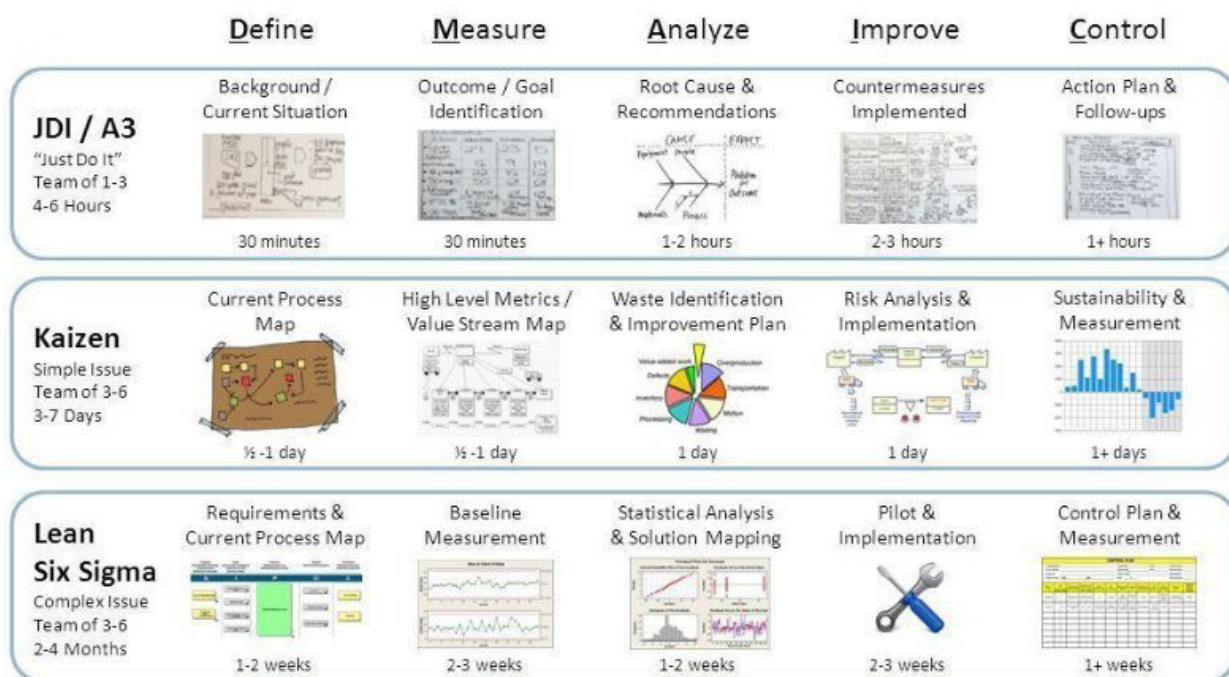
⁷ For more on **PDCA** see: <http://en.wikipedia.org/wiki/PDCA>

⁸ For more on **PMOs** see: http://www.mosaicprojects.com.au/WhitePapers/WP1034_PMOs.pdf

There are several different version of this basic PDCA approach to improvement:

PDCA	DMAIC	A3	8D/PSP
Plan	Define	Clarify the Problem	1. Create Team & collect Information 2. Describe the Problem
	Measure	Break down the Problem	3. Define Containment Actions
		Set a Target	4. Analyze the Root Cause
Do	Improve	Analyze the Root Cause	5. Define possible corrective Actions
		Develop Countermeasures	6. Implement corrective Actions
Check	Control	Evaluate Results & Processes	7. Define Actions to avoid Recurrence
Act		Standardize Success	8. Congratulate your Team

- DMAIC (acronym) refers to a data-driven improvement cycle used for improving, optimising and stabilising business processes and designs.



- A3 is the Toyota 'systematic problem solving' (SPS) methodology⁹ (A3 refers to the size of the paper form used).
- 8D or PSP is a more detailed PDCA focused on 'containing' the problem quickly then resolving it.

⁹ For more on **problem solving** see: http://www.mosaicprojects.com.au/WhitePapers/WP1013_Problem_Solving.pdf



Process Improvement Under Pressure

Frequently the catalyst for process improvement is process failure. This presents a compounded problem, you don't have the resources or systems to make the current processes work satisfactorily and need to divert resources to developing and implementing the improved processes.

The first thing to recognise is there is no quick fix! Most successful solutions to long-term issues are achieved through incremental changes and successes, not through one big fix. Look for some small improvements that you can make now and then establish a trend by applying some of the following ideas:

Pick one small thing as a demonstration, and make it successful. For example, if we're having trouble planning and estimating, then identify one very small project for careful planning and estimation. Focus on completing just. This becomes our proof for improvement: having done a better job once on something small, we can do it again.

Ruthlessly prioritize. Make sure that the next set of small improvements are truly the most important. For everything else, *nice to have* translates to *not this year*.

Do your planning. If you have two years of backlogs to work through, and you double your development speed, then it may take a year to catch up. Avoid magical thinking.

Be transparent. Explain your *do one small thing right* strategy to all internal stakeholders. You can even call it 'Agile'.

Don't confuse small with big. As soon as a few small things start to work, internal stakeholders will be lobbying for massive overhauls. It won't happen!

Share all improvements with customers. They are likely to be hungry for any good news, and eager for you to succeed. Gather some applause for your team. Customers don't really expect you to fix everything at once, but need some sense of progress.

Celebrate the positive. Regardless of the starting point, your teams need a sense of progress and optimism. Be an effective leader: highlight small triumphs, applaud people who are doing the right things, divert attention from yourself¹⁰.

Summary

OPM3 has demonstrated standardised processes that incorporate best practices can provide significant benefits to an organisation¹¹. The challenge is balancing systemised processes with the need for adequate flexibility to deal with the circumstances of each unique project, to best meet the needs of your organisation.

This White Paper is part of Mosaic's **Project Knowledge Index** to view and download a wide range of published papers and articles see: http://www.mosaicprojects.com.au/PM-Knowledge_Index.html

¹⁰ For more on **Leadership** see: http://www.mosaicprojects.com.au/WhitePapers/WP1014_Leadership.pdf

¹¹ See more on **OPM3** at: <http://www.mosaicprojects.com.au/OPM3.html>

