A process is a series of standard actions, tools or techniques that are applied to transform the inputs to the process into outputs. Processes may be flexible or require strict adherence for a similar activity, you need to determine how much rigour is appropriate. For example compare:

- Record identified risks in a risk register to facilitate risk monitoring
- Record all identified risks using the current version of Form PRM-101.

A balance is needed in the amount of rigour required in a process to develop processes that contribute value rather than obstruct the flow of work. Important processes are frequently made into standard operating procedures. 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.

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- Root cause analysis to identify the underlying causes of situations or problems and then to create preventive actions for similar problems\(^2\).
- 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.

**Process Improvement**

Creating a methodology\(^3\) 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.

![Process Improvement Matrix](image)

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 organisation’s objectives\(^4\). *Unauthorised unproductive* activities need to be stopped and *authorised productive* processes supported and enhanced.

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\(^3\) 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: [https://www.mosaicprojects.com.au/WhitePapers/WP1033_Governance.pdf](https://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.

Value judgements 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

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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.

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.
White Paper

- **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.

### 5S Methodology

5S (or 6S) is a workplace organization method that uses a list of five Japanese words: seiri (整理), seiton (整頓), seisō (清掃), seiketsu (清潔), and shitsuke (錨). These have been translated as *Sort, Set In order, Shine, Standardize, and Sustain*⁶. A sixth S is sometimes added *Safety*.

The list describes how to organize a work space for efficiency and effectiveness. 5S is frequently viewed as an element of a broader construct known as *visual control, visual workplace, or visual factory*. Visual Control is a business management technique where information is communicated by using visual signals such as colour coded parts instead of texts or other written instructions.

### 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 initiative⁷.

### 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

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⁷ For more on Six Sigma see: [https://en.wikipedia.org/wiki/Six_Sigma](https://en.wikipedia.org/wiki/Six_Sigma)
whilst maximising its effectiveness. One way to approach this is the plan-do-check-adjust cycle⁸ (as defined by Shewhart and modified by Deming); mature PMOs are a useful vehicle for undertaking this work⁹.

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

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

⁸ For more on PDCA see: [https://en.wikipedia.org/wiki/PDCA](https://en.wikipedia.org/wiki/PDCA)

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

- Define
  - Launch Team
  - Establish Charter
  - Plan Project
  - Gather VOC / VOQ
  - Plan for Change
- Measure
  - Document the Process
  - Collect Baseline Data
  - Narrow Project Focus
- Analyze
  - Analyze Data
  - Identify Root Causes
  - Identify and Remove Waste
- Improve
  - Generate Solutions
  - Evaluate Solutions
  - Optimize Solutions
  - Pilot
  - Plan and Implement
- Control
  - Control the Process
  - Validate Project Benefits

The basic framework can be seen in a range of methodologies that have evolved from in parallel with DMAIC such as:

- **Define**
  - JDI / A3
    - "Just Do It" Team of 1-5
    - 4-6 Hours
  - Kaizen
    - Simple Issue
    - Team of 3-6
    - 3-7 Days
  - Lean
    - Six Sigma
    - Complex Issue
    - Team of 3-6
    - 2-4 Months

- **Measure**
  - Background / Current Situation
  - Outcome / Goal Identification
  - Root Cause & Recommendations
  - Countermeasures Implemented
  - Action Plan & Follow-ups

- **Analyze**
  - Waste Identification & Improvement Plan
  - Risk Analysis & Implementation
  - Sustainability & Measurement

- **Improve**
  - Baseline Measurement
  - Statistical Analysis & Solution Mapping
  - Pilot & Implementation
  - Control Plan & Measurement

- **Control**
  - Countermeasures Implemented
  - Action Plan & Follow-ups

- **A3** is the Toyota ‘systematic problem solving’ (SPS) methodology\(^\text{10}\) (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.

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 yourself.

Summary

OPM3 has demonstrated standardised processes that incorporate best practices can provide significant benefits to an organisation. 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.
