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*Source:* Jennifer Webster, Business Strategies, Inc. - Salem, Oregon
Mapping Essentials

Successful as-is process mapping requires knowing and understanding the boundaries of the project. Along with project boundaries, the essential elements below help in the creation of a successful process map.

1. Understanding the goal of the project is first and foremost important. The goal determines what level or depth of the process the team reflects on the map.

2. Having the right subject matter experts or stakeholders at the table is imperative. If a departmental representative or key customer is missing, talk with the project Team Leader or Facilitator. Missing an opportunity engage key people in the mapping process may result in problems later.

3. The map must be organized in a way that makes it possible for everyone to clearly understand the current process.

4. The information/data and steps mapped must be valid and reflect the current as-is process, not the ideal state.

5. Maintain a consistent level of detail; avoid mapping processes at a context level (too little) and or a detail level (too much).

6. Split complex maps into multiple pages. Do not consolidate process steps just so it will to fit on one page.

7. Do not jump to automating a process to improve cycle time without first mapping and analyzing the reason/cause for the delay.

8. Departments and processes within an organization are a part of an interrelated ecosystem. Changes to a process or within one department will impact others. For example, OSU is a group of interrelated departments, and not an organization of independent silos.
# Basic Mapping Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Starting and ending points</td>
</tr>
<tr>
<td></td>
<td>Process Step</td>
</tr>
<tr>
<td></td>
<td>Decision Point</td>
</tr>
<tr>
<td></td>
<td>Shows direction of flow from one activity to the next</td>
</tr>
<tr>
<td></td>
<td>Wait time</td>
</tr>
<tr>
<td></td>
<td>Connector points (letters or numbers)</td>
</tr>
</tbody>
</table>
Mapping Questions to Consider

As you begin mapping the current process, consider the following questions.

- What type of work does the department perform?
- What starts a particular service?
- Who is responsible for obtaining the approved work from the customer or supplier?
- Who performs the step?
- Why is the step performed?
- When does the step occur?
- What value does the step add?
- What steps take the most time and why?
- Which, if any steps, are redundant?
- How complex is the step? What makes the step complex?
- Which step is a delay or bottleneck?
- What are the customer’s requirements?
- What are the inputs and the outputs of the process?
- Does the data from this step interface to another system? If so with what frequency?
- Are there any manual steps performed outside the system?
- Where is the data stored? Are there requirements for how long the data is stored?
- What happens next?
- Is the information in the step shared with other internal groups? If so, who.
- How frequently is the step performed, and what determines the frequency of the step.
<table>
<thead>
<tr>
<th>Value Category</th>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Value Activity</td>
<td>CV</td>
<td>The minimum resources absolutely necessary to satisfy <strong>external</strong> customer demands for which the customer is willing to pay. In other words, this is an activity that an <strong>external</strong> customer is willing to pay for (we will discuss what this looks like for higher education). But in the performance of this activity we should be willing to commit only minimum resources necessary to perform the activity.</td>
</tr>
<tr>
<td>Business Value Activity</td>
<td>BV</td>
<td>Activities not necessarily satisfying external customer demands, but which the company is willing to invest in to satisfy perceived business operating needs. Again, only the absolute minimum resources should be committed to these activities.</td>
</tr>
<tr>
<td>Non Value Activity</td>
<td>NV</td>
<td>Activities resulting in wasted resources (labor, equipment) as they do not satisfy external customer demands or perceived business operating needs. Activities requiring inspection or reconciliation (often begin with words like “validate,” “verify,” or “review,” activities that are not covered under Rework, Duplication, or Bureaucracy. No resources should be committed to these activities.</td>
</tr>
<tr>
<td>Rework</td>
<td>R</td>
<td>Activities that have already been performed or that are performed because of mistakes, incorrect information, etc.</td>
</tr>
<tr>
<td>Bureaucracy</td>
<td>B</td>
<td>Activities that provide needless complexity; authorizations; administration.</td>
</tr>
<tr>
<td>Duplication</td>
<td>D</td>
<td>Activities that are redundant; they are performed in multiple places in the process or organization.</td>
</tr>
</tbody>
</table>
# Efficiency Measurements

<table>
<thead>
<tr>
<th>Efficiency Measurements</th>
<th>Definition</th>
</tr>
</thead>
</table>
| **Cycle Time**          | The time it takes to produce a product or service from receipt of the input to delivery of the final output (unit); takes into account both processing time and wait time.  
  
  *Processing Time*  
  + *Wait Time*  
  = *Cycle Time*  
  
  - The time to perform a particular activity within the process  
  - The time involved in hand-offs or interfaces between activities. |
| **Rework Time**         | The time to perform activities that have been performed previously or are performed because of mistakes, incorrect information, etc. |
| **Process Costs**       | Costs associated with the following:  
  - Number of people who perform the process  
  - Equipment used  
  - Materials consumed  
  - Unused inputs  
  - Surplus of outputs |
| **Unit Cost**           | Costs associated with producing the output (unit). |
| **Rework Cost**         | Costs associated with performing rework steps. |
The Five Why's & Root Cause Discovery

The 5 Whys is a question-asking technique used to explore the cause-and-effect relationships underlying a particular problem. The primary goal of the technique is to determine the root cause of a defect or problem.

**Five Why’s Example**

**Problem:** The vehicle will not start.

1. **Why?** - The battery is dead. (first why)
2. **Why?** - The alternator is not functioning. (second why)
3. **Why?** - The alternator belt has broken. (third why)
4. **Why?** - The alternator belt was well beyond its useful service life and not replaced. (fourth why)
5. **Why?** - The vehicle was not maintained according to the recommended service schedule. (fifth why, a root cause)

The questioning for this example could be taken further to a sixth, seventh, or higher level, but generally asking “why” five times is usually enough to get to a root cause. The key is to avoid assumptions and logic traps, and instead follow the steps from the effect through to identification of a root cause, while retaining the connection to the original problem. **Note** in this example, the fifth why suggests a broken process, *vehicle was not maintained according to the recommended service schedule*, revealing the root-cause of the problem.

![Diagram of the Five Why's process](image)