Continuous Improvement Toolkit

Check Sheets
The Continuous Improvement Map

Managing Risk
   - FMEA
   - RAID Log*
   - Risk Assessment*
   - Fault Tree Analysis

Traffic Light Assessment
   - Lean Measures
   - Bottleneck Analysis**
   - Process Yield
   - Capability Indices
   - Gap Analysis*
   - Reliability Analysis

Understanding Performance
   - Benchmarking**
   - Data collection planner*

Check Sheets
   - Questionnaires
   - Data Collection

Deciding & Selecting
   - Decision Balance Sheet
   - Force Field Analysis
   - Break-even Analysis
   - Decision Tree
   - Critical-to Tree
   - Kano Analysis
   - Cost of Quality*
   - OEE
   - Descriptive Statistics
   - Probability Distributions
   - Histograms & Boxplots
   - Graphical Analysis
   - MSA
   - Run Charts
   - Control Charts
   - Sampling

Importance-Urgency Mapping
   - Pugh Matrix
   - Pareto Analysis
   - Multi vari Studies
   - ANOVA
   - Chi-Square
   - Hypothesis Testing
   - Scatter Plots
   - 5 Whys
   - Root Cause Analysis
   - Fishbone Diagram
   - Tree Diagram*
   - SIPOC*
   - How-How Diagram**
   - SCAMPER**
   - Morphological Analysis
   - Attribute Analysis
   - Relationship Mapping*
   - Lateral Thinking
   - Suggestion systems

Creating Ideas
   - Brainstorming
   - Affinity Diagram
   - Mind Mapping*

Planning & Project Management*
   - Daily Planning
   - MOST
   - RACI Matrix
   - Activity Networks
   - SWOT Analysis
   - Stakeholder Analysis
   - PDCA
   - Policy Deployment
   - Gantt Charts
   - DMAIC
   - Kaizen Events
   - Control Planning
   - Standard work
   - Document control

Implementing Solutions**
   - Cross Training
   - Value Analysis
   - Mistake Proofing
   - Ergonomics
   - Simulation
   - TPM
   - Automation
   - Pull
   - Flow
   - Just in Time
   - Visual Management
   - 5S
   - Waste Analysis
   - Quick Changeover
   - Time Value Map

Designing & Analyzing Processes
   - Break-even Analysis
   - Design of Experiment
   - Confidence Intervals
   - Confidence Intervals
   - Correlation
   - Regression
   - Data Snooping
   - Data Snooping
   - Fault Tree Analysis
   - Sampling
   - Affinity Diagram
   - Mind Mapping*
   - Suggestion systems
   - Creating Ideas
   - Flowcharting
   - IDEFO
   - Process Mapping
   - Service Blueprints
   - Flow Process Charts
   - Value Stream Mapping

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- Check Sheets

- Manual data collection forms.
- Used to collect data in real time at the location where the data is generated.
- It could be used on a temporary basis (projects) or be established for routine activities.

Benefits:

- Enable faster capturing and compiling of data.
- Allow the data to be recorded in a consistent manner.
- Enable capturing essential contextual and descriptive information that otherwise may be overlooked or forgotten.
- Check Sheets

Types:

- **Failure Check Sheets**: used for collecting failure information at specific process steps.
- **Visual Check Sheets (Measles Charts)**: use pictures of the process or product to record where an event occurred.
- **Traveler Check Sheets**:
  - A traveler check sheet stays with the product or service throughout the entire process
  - Used when collecting process lead times.
- **Tally Charts**.
- **Checklists**.
Tally Charts:

- Tables that record the frequency with which different events are observed.
- The collected data is quickly understood as it is displayed in an easy-to-count groups of five.

**Common applications:**

- Capturing data related to customer complaints
- Counting the defects produced by any single machine.

**Check Sheets**

<table>
<thead>
<tr>
<th>Defect</th>
<th>Tallies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defect 1</td>
<td>### ###</td>
<td>8</td>
</tr>
<tr>
<td>Defect 2</td>
<td>###</td>
<td>3</td>
</tr>
<tr>
<td>Defect 3</td>
<td>###</td>
<td>5</td>
</tr>
<tr>
<td>Defect 4</td>
<td>### ### ###</td>
<td>13</td>
</tr>
</tbody>
</table>
Check Sheets

Checklists:

- A checklist is simply a list of tasks to be performed.
- It includes small check boxes next to each task.
- Listed items are ticked off as they are executed or when they are available.
- It compensates for the limitation of human memory and attention.

- Common examples:
  - To-do lists.
  - Safety checklists.
  - 5S checklists.
- Check Sheets

Measles Charts:

- Practical visual tools for collecting data.
- They simply show the failures or events on a drawing or a picture.
- They help analyzing the location and the density of failures or events in a product or a process.
- They answer the question: “where the failures are located” or “where the events took place?”.
- Common examples:
  - Defect locations in a product.
  - Most confusing sections in a returned application.
- Check Sheets

How to Construct a Check Sheet:

- Specify the data to be collected and the factors to be included.
- Determine the appropriate time period to collect the data.
- Simply list the issues you are tracking and leave space to allow writing whenever someone finds an issue or failure.
- Add columns as needed for other data, such as delay times, defects, etc.
- Try it first.
- Encourage recording contextual data for tractability (dates, names, etc.).
## Check Sheets

### Example - Incoming Material Inspection Form:

<table>
<thead>
<tr>
<th>Coil #</th>
<th>Supplier</th>
<th>Scratch</th>
<th>Dent</th>
<th>Pin hole</th>
<th>Other</th>
<th>Date Inspected</th>
</tr>
</thead>
<tbody>
<tr>
<td>110424</td>
<td>Hydro</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>310424</td>
<td>Alcan</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<tr>
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<tr>
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<tr>
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<td>Wise</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Example – Traveler Check Sheet:

### Online Ordering Process

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Time</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Taking</td>
<td>2.25 minutes</td>
<td></td>
</tr>
<tr>
<td>Order Preparation</td>
<td>6.50 minutes</td>
<td></td>
</tr>
<tr>
<td>Order Packing</td>
<td>1.75 minutes</td>
<td></td>
</tr>
<tr>
<td>Delivery</td>
<td>14.3 minutes</td>
<td></td>
</tr>
</tbody>
</table>

Order #: ___________  
Customer location: ___________

Order: ________________________________________________________

Payment amount: _____________  
Date: _____________