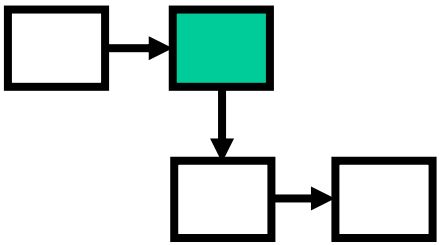
Continuous Improvement Toolkit

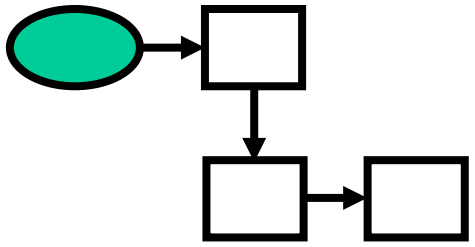
Process Mapping




Managing Risk
PDPC
FMEA
RAID Logs
Fault Tree Analysis
Risk Assessment*
Traffic Light Assessment
Deciding & Selecting
Pros and Cons
Importance-Urgency Mapping
Break-even Analysis
Cost -Benefit Analysis
Force Field Analysis
Voting
Pugh Matrix
Decision Tree
TPN Analysis
QFD
Matrix Diagram
Kano Analysis
Prioritization Matrix
Critical-to Tree
Paired Comparison
Planning & Project Management*
RACI Matrix
Stakeholders Analysis
PEST
PERT/CPM
Activity Diagram
SWOT
Roadmaps
Project Charter
Gantt Chart
PDCA
Control Planning
Gap Analysis
Hoshin Kanri
Kaizen
How-How Diagram
Tree Diagram**
Standard work
Lean Measures
KPIs
OEE
Capability Indices
MSA
RTY
Descriptive Statistics
Cost of Quality
Reliability Analysis
Graphical Analysis
Cause & Effect Matrix
Pareto Analysis
Confidence Intervals
Understanding Cause & Effect
Probability Distributions
ANOVA
Hypothesis Testing
Design of Experiments
Scatter Plot
Correlation
Regression
5 Whys
Chi-Square Test
Multi-Vari Charts
Relations Mapping*
Identifying & Implementing Solutions***
Simulation
TPM
Mistake Proofing
Pull Systems
JIT
Ergonomics
Work Balancing
Automation
Bottleneck Analysis
Visual Management
Flow
Value Analysis
5S
Understanding Performance
Run Charts
Control Charts
Benchmarking
Sampling
Fishbone Diagram
TRIZ***
Brainstorming
Analogy
SCAMPER***
Nominal Group Technique
Mind Mapping*
Affinity Diagram
Attribute Analysis
Lateral Thinking
Visioning
Creating Ideas**
Wastes Analysis
SMED
Time Value Map
Process Redesign
IDEF0
Value Stream Mapping
SIPOC
Flow Process Chart
Process Mapping
Flowcharting
Service Blueprints
Designing & Analyzing Processes
Focus groups
Interviews
Photography
Check Sheets
Measles Charts
Surveys
Data Collection
Critical Incident Technique
Observations

- Process Mapping

- A graphical representation of the process flow.
- Any organization is a collection of processes.
- **Processes are activities that help to:**
  - Produce value
  - Serve customers
  - Generate income
- Managing these processes is key to the success of any organization.



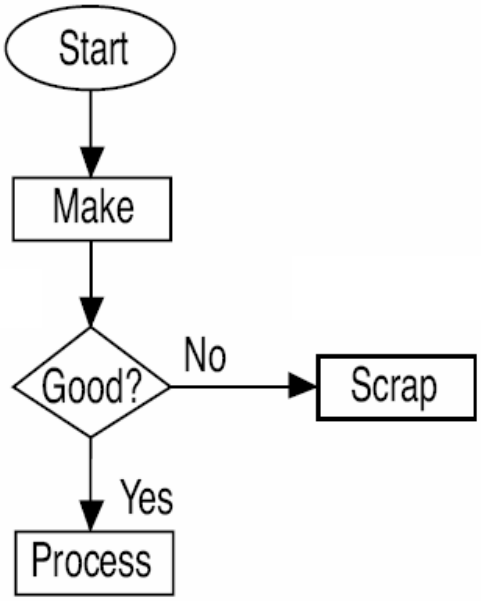
- Process Mapping

$$y = f(x_1, x_2, \ldots, x_k)$$

- Process Mapping

A Process Map:

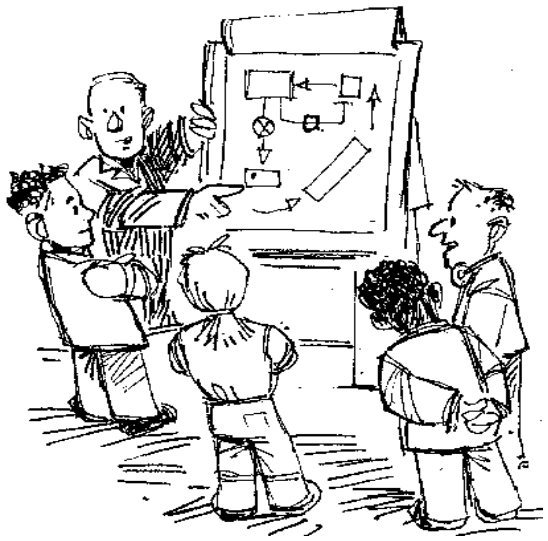
- Represents the entire process at a high or detailed level.
- Allows analysis and optimization of the workflow.
- Organized sequentially.
- Document how the process is actually performed.
- It is not the Future process map.
- Document all value added and non-value added.
- Continuous improvement would mean frequent review and optimization.



- Process Mapping

Who should be Involved:

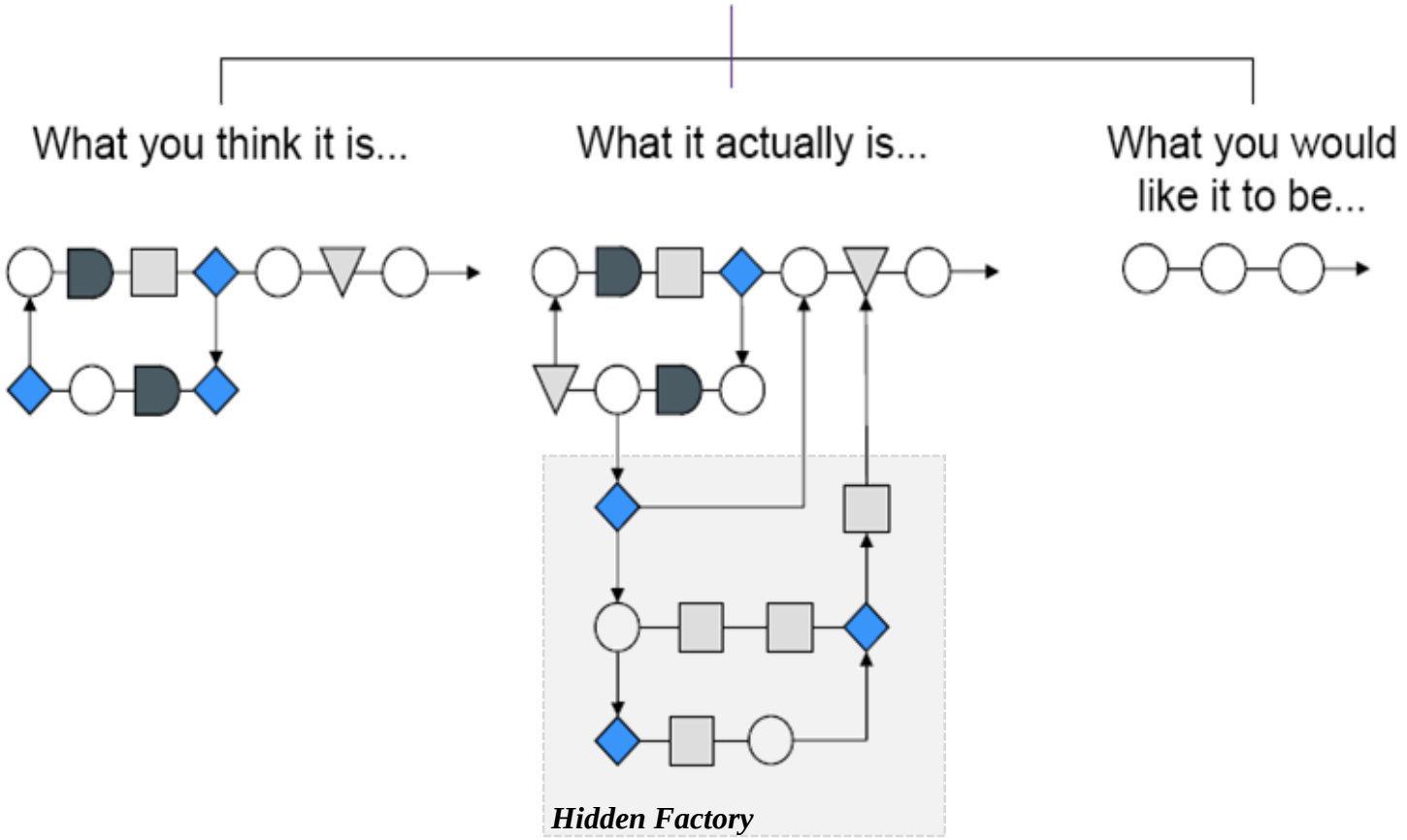
- Process owners.
- Officers, operators and supervisors.
- Field experts and engineers.
- Quality assurance and control personnel.



And sometimes:

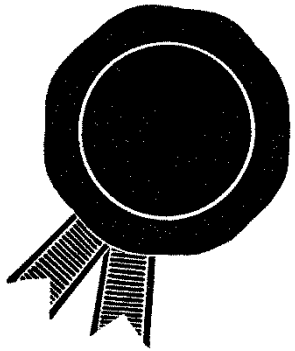
- Internal and external customers.
- Suppliers (internal and external).

- Process Mapping



- Process Mapping

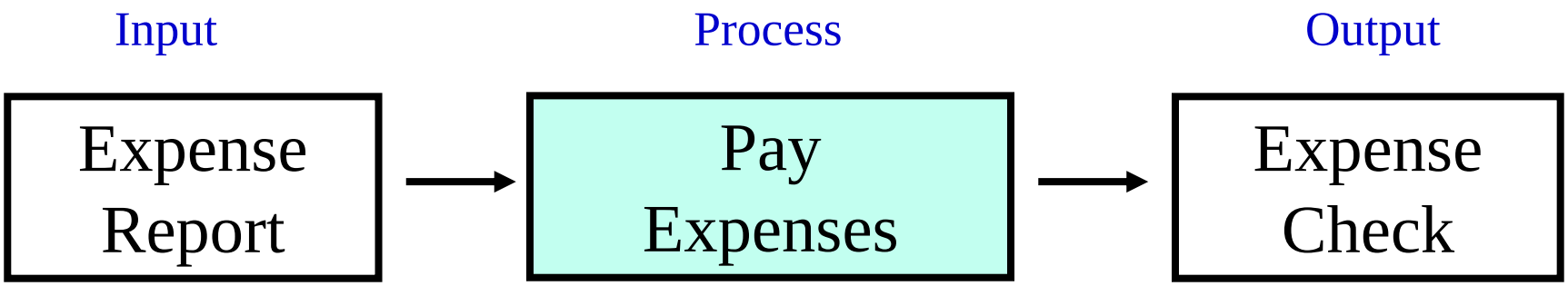
Benefits:



- Enhances understanding of the process.
- Helps investigating the performance of a process.
- Identifies potential problem points in a process
- Facilitates detailed analysis.
- Record supplementary info. (failure rates, lead times, …).
- Helps to streamline and redesign the process.
- Highlight non-value added processes (rework, redundant, …).
- A tool to document the process.
- Serves as an instruction manual.
- Serves as a communication or training aid.

- Process Mapping

Example:

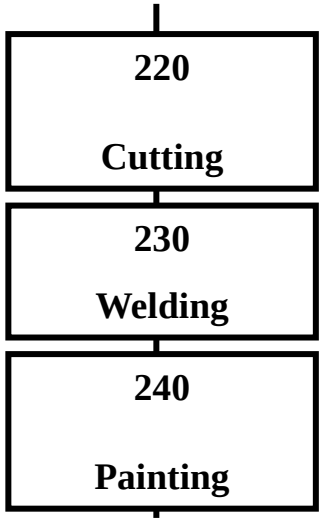


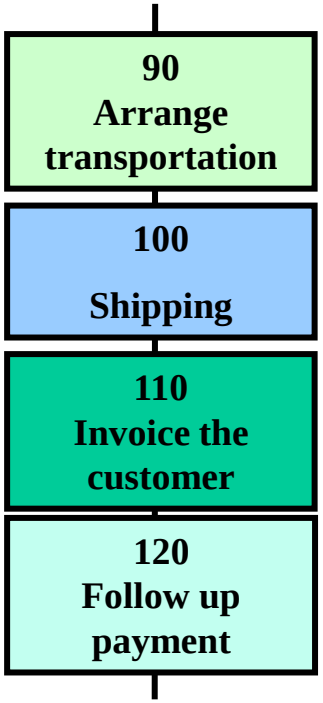
- Travel Approval Form
- Receipts

- Employee Name
- Date
- Quantity

- Process Mapping

Examples:

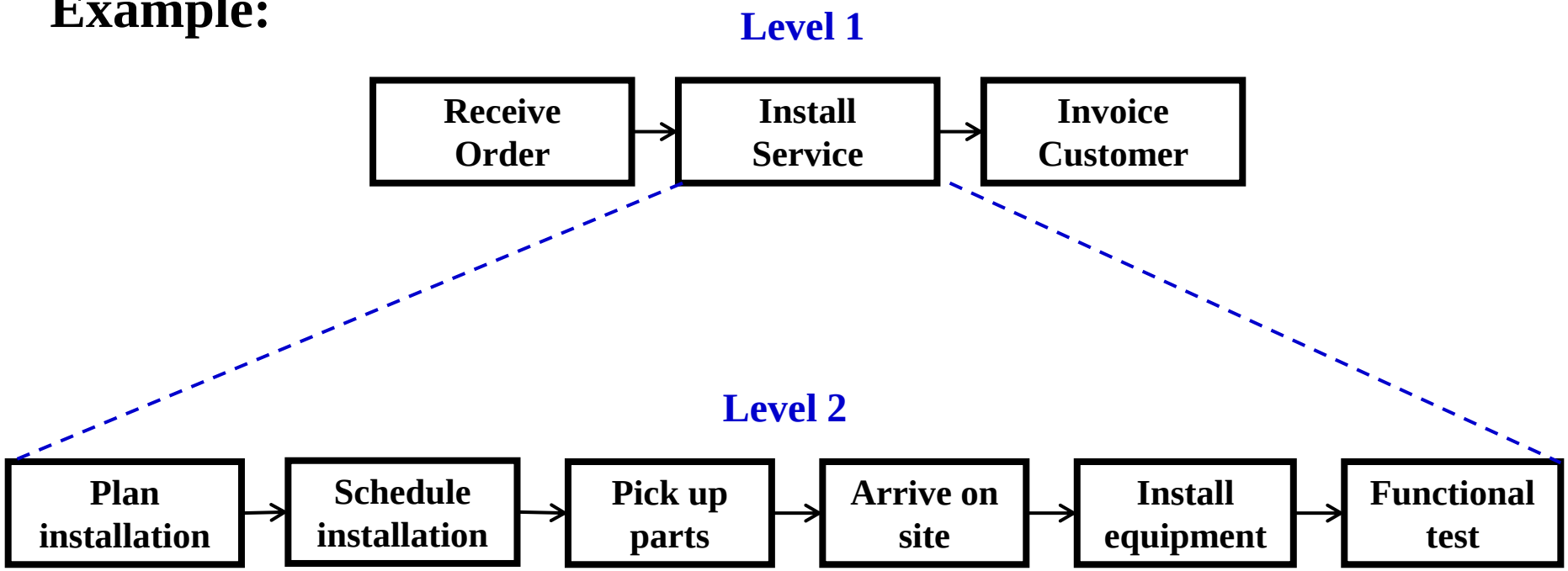




Manufacturing **Administration & Services**

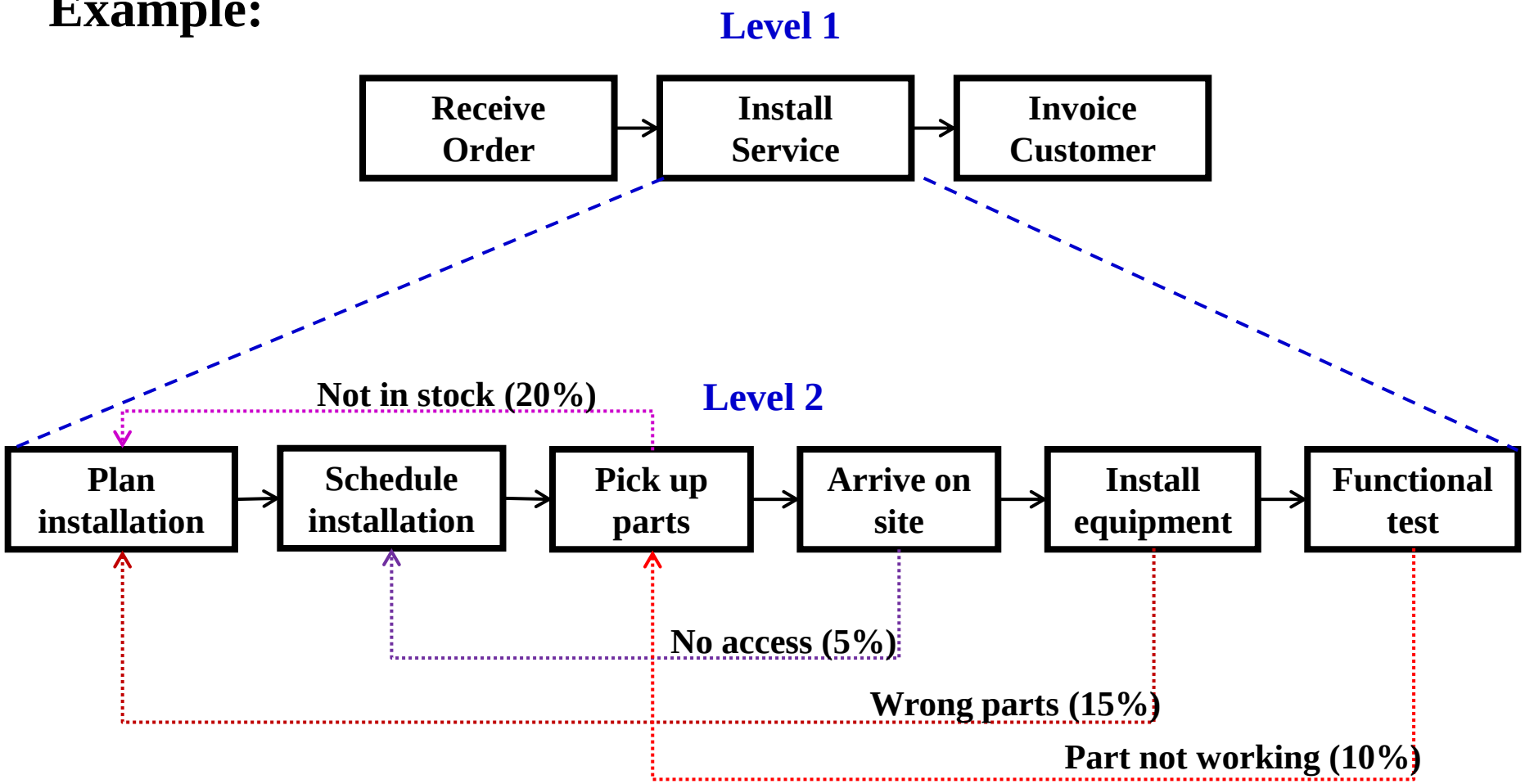
- Process Mapping

Example:



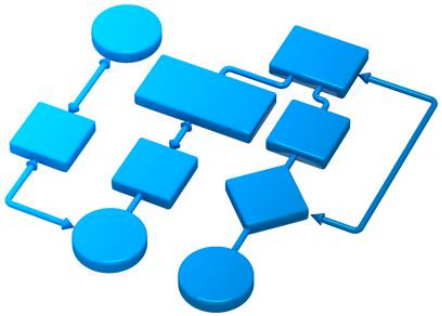
- Process Mapping

Example:



- Process Mapping

Approach:



- Identify the process owners.
- Identify the process boundaries.
- Document the inputs and outputs of the process.
- Document the **current** operations (brainstorming).
- Identify all factors that are present per step.
- Classify all the factors.
- Identify potential sources of variation.
- Plan and implement actions to reduce variation and waste.

For Improvement Purposes

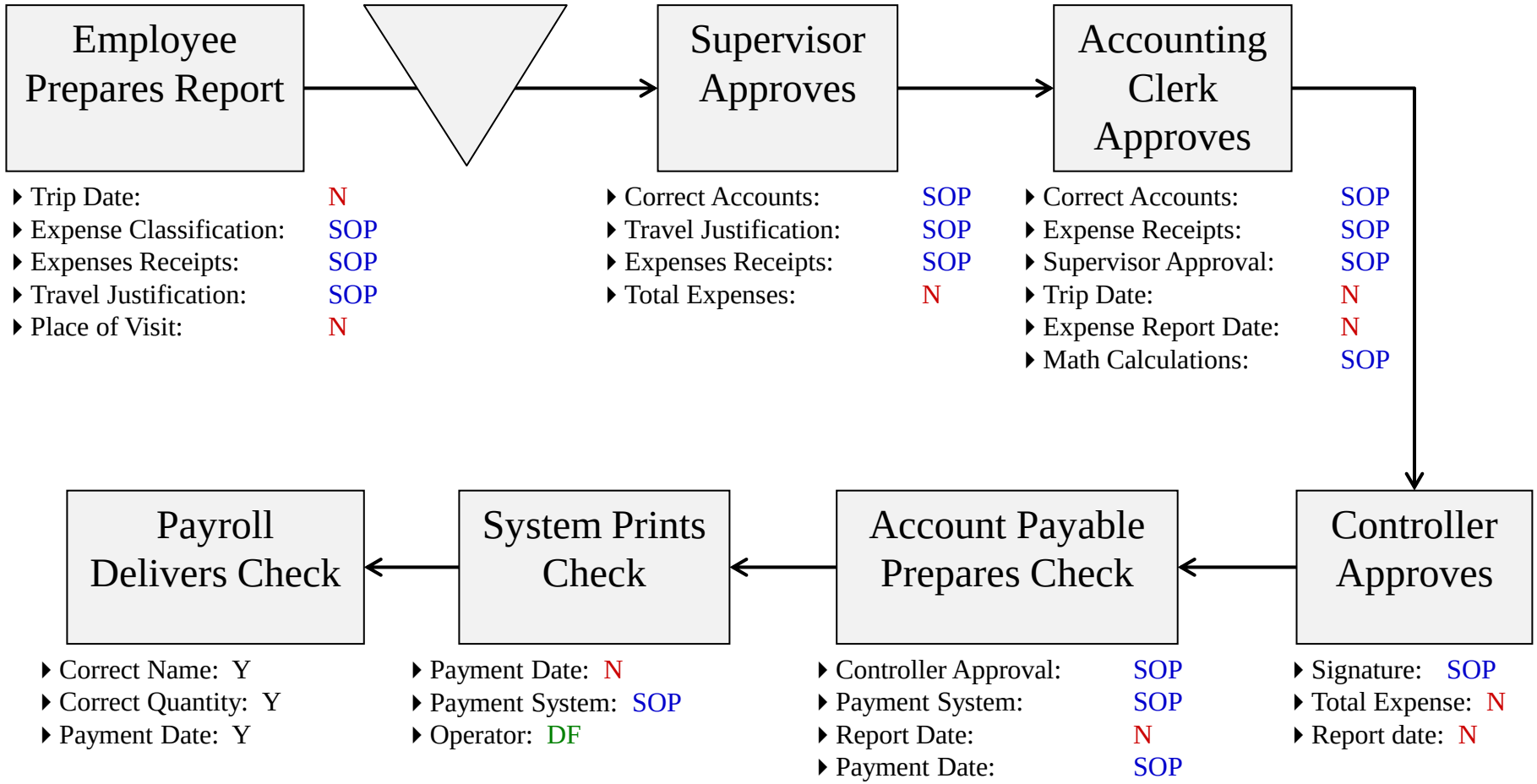
- Process Mapping

Classify All Factors:

- **Noise** are uncontrollable, too costly or preferably. not controlled *(e.g. temperature)*.
- **SOP** are factors that have been fully defined and documented. *(e.g. safety factors)*.
- **Design Factors** can be adjusted or controlled. *(e.g. filling an application)*.

The goal is to find as many sources of variation

- Process Mapping

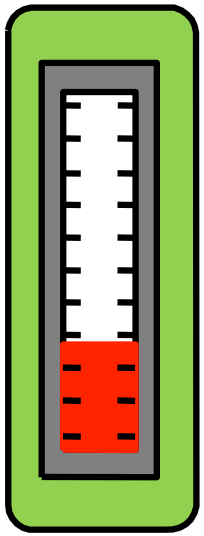


Standard Factors (SOP):

- Do we record them?
- How often?
- Do we know the optimum specifications?
- Do we know the allowed tolerance?
- How often this factor is out of control?

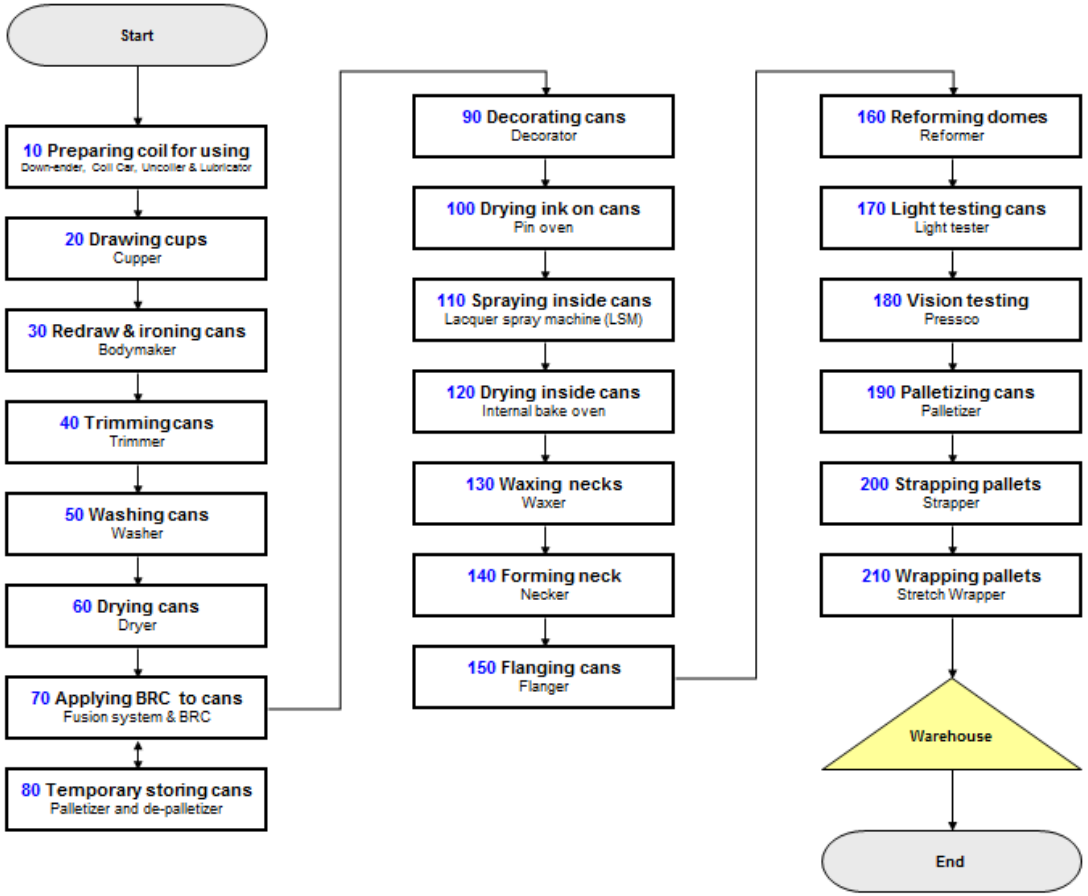
Noise Factors:

- Do we know them?
- Why do we have these factors?
- Are they impossible to control?
- Do we know how to compensate changes in these factors?

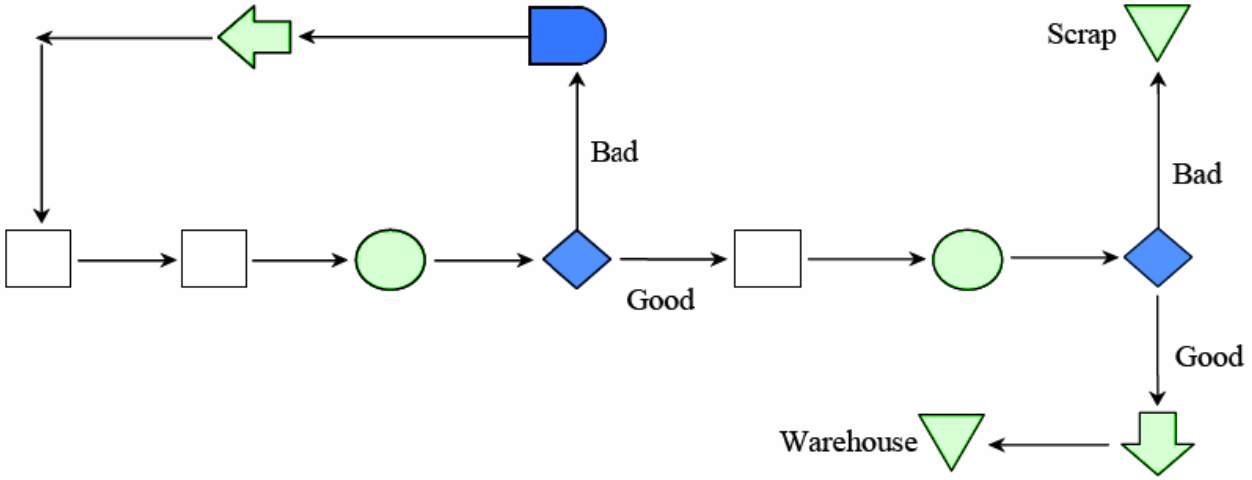


- Process Mapping

Example – Can Making Process Map



- Process Mapping



An outsider?
Walk the process and understand it