Kilbride's Tools for Managers and Teams
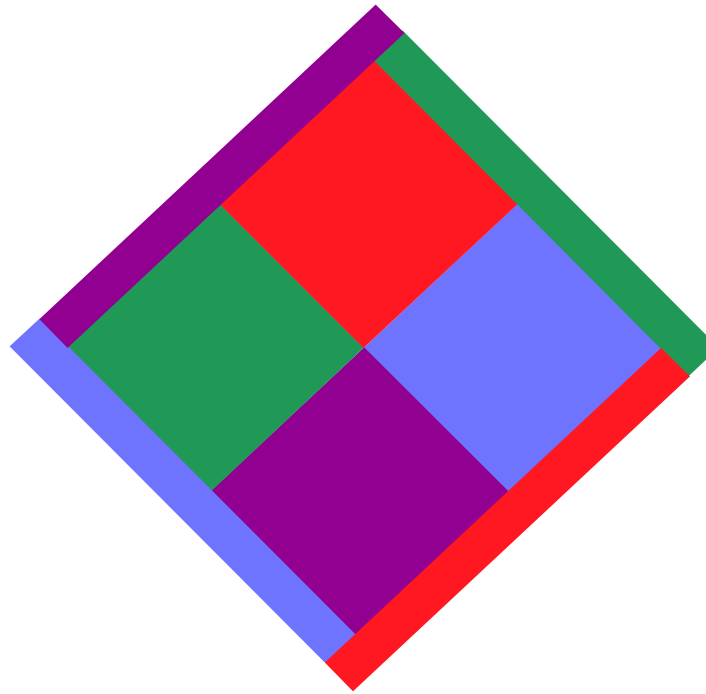
Process Definition (5x5)

What is it?

This tool outlines the major steps in a process, but limits the detail (to 25 steps) until an area is selected for detailed mapping. It can be used to:

◆ Design new processes, or

◆ Identify the boundaries and focus of an effort to improve an existing process.

It is often helpful to use this tool prior to mapping the Current State of a process.

How do I use It?

❶ Name the process to be defined.

❷ Clarify roles and allow 45-60 minutes.

◆ If someone is not designated as process Owner, identify who will assume that role.

◆ Also identify those who operate/perform the process.

If the Owner and some Operators are not involved, stop! You can't separate WHAT process you study from WHO does so.

Are the meeting participants responsible for the process?

Do they have authority to change it?

If not, change the team or pick a different process.

❸ Write the 5 Major Steps to establish the boundaries of the process.

Write major steps and sub-steps on sticky notes. This makes it is easy to move them if you change your mind about sequence.

Write process steps in <Verb + Object> format e.g., Write the order, Select vendors, Order materials, Submit the order, etc.

The major steps/boundaries are often established by the team leader, owner, or sponsor prior to the first team meeting.

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TOOL TIP: If a P4 tool for chartering an improvement team (page xx) was completed previously, then 5 Major Steps have already been identified.

It is best to use the 5x5 tool to study a process that:

◆ Is an integral "whole, with clear start/end points and provides a product or service of value to a customer.

◆ Is more versus less complex.

◆ Involves multiple individuals, groups or functions.

◆ The right team can be assembled, including those with sufficient understanding of how it works and authority to change it.

◆ The sponsor agrees it is a priority.

◆ Is likely to yield significant payoff as a result of improvement.

◆ You are enthusiastic about changing.

◆ You aren't certain how to improve it, i.e., the answer is "unknown".

❹ List up to 5 sub-steps for each of the Major Steps.

HINT: Process steps and sub-steps should be written on sticky notes in <Verb + Object> format e.g., Write the order, Select vendors, Order materials, Submit the order, etc.

❺ Write the product or service **Output** that results from this process.

HINT: Write the Output in <Object + Past Tense Verb > format e.g., Order written, Problem solved, Vendor selected, Material Ordered, Position filled, Pizza delivered, etc.

The Output describes the *purpose* of the process, i.e., the reason we do it. Consider the following:

◆ Is the Output absolutely necessary? Why?

◆ Is it essential that we continue to deliver this Output? To operate this process?

If the purpose of a process is to rework, revise, check or correct something, then the best improvement strategy is usually to eliminate the need for this process entirely.

❻ List the key **Customers** of the process.

  ◆ Who receives and uses the outputs of this process?

  ◆ Customers can be either internal or external to your organization.

❼ List the **Requirements** of those customers for the product/service output of this process.

  ◆ What do your customers need/want from the output provided by this process?

  ◆ What are their most important requirements?

❽ Review existing data to document Current performance levels for Cost, Quantity, Cycle Time, Quality, etc.

If existing data for Current performance are not available, gather data to establish the **baseline** performance of the process.

  • Do not spend a great deal of time and money to measure a process you are about to significantly change, or

  • Establish measures that will likely be useful for measurement of performance after the redesign is complete.

CAUTION!

• **COST** (HOW MUCH?) — cost to operate the process accounts for people, materials and equipment, plus the cost of poor quality due to scrap, rework, waste, etc. Target price accounts for cost plus desired margins.

• **QUANTITY** (HOW MANY?) — the number of units produced or services delivered during a given time period, i.e., the capacity or throughput of a process. Process capacity, or throughput, is determined by a single constraint, which may be *internal* (production limited) or *external* (market, or demand limited).

• **TIME** (BY WHEN?) — *Cycle time* is the total time from start to completion of a process. This is a key driver of *In-time* performance, which refers to the ability to deliver a product or service rapidly, i.e., when the customer needs it. When the constraint is internal, capacity is a key driver of *On-time* performance, which refers to the ability to deliver a product or service reliably, i.e., when you said you would. *Value-added Index (VAI)* refers to the percentage of total cycle time spent in value-added operations (time in value-added steps ÷ total cycle time). For many organizations, VAI is less than 10%.

• **QUALITY** (WHAT is GOOD ENOUGH?) — measurable criteria for determining whether an output meets or exceeds requirements. This could include *Predictability* (i.e., the amount and type of variation in the process), *Capability* (i.e., the level at which the process is able to operate), and/or *Satisfaction*, (i.e., the customer's perception of the product or service experience).

HINT: You may also decide to measure other process dimensions such as:

- SAFETY and/or SATISFACTION of those who operate the process.

- RELIABILITY of outputs, e.g., the mean time between failures, or level of repairs, returns, warranty claims, etc.

- FLEXIBILITY, i.e., able to customize products/services or simplify acquisition of the product, etc.

➒ Determine or estimate the **Benchmark** level of performance.

- What is the best performance known?

- What is possible?

This step may require you to do some "quick and dirty" Benchmark analysis to determine what is a "good" performance level.

Benchmark data can be based upon any appropriate comparison for a given measure. At this point, it is only important to know what the performance level is for the known "best practice" or benchmark, not how it was achieved (which is learned during Benchmarking).

➓ Clarify the **Target** for each performance dimension. This is generally not as simple as the difference between baseline and benchmark performance levels.

Instead, to establish Targets for Cost, Quantity, Time and Quality, etc. you should consider what level of performance is necessary to:

- Meet key customer requirements or expectations?

- Meet key operating requirements?

- Successfully compete in the marketplace? What is the size of our "gap" versus competitors?

- What is the team's level of enthusiasm for improving in each key dimension?

- What is the feasibility of improvement?

For most measures, targets can simply be to get better.

However, it may be necessary to establish a target that will drive you to achieve breakthrough in a key process performance dimension.

Select the VITAL few areas for stretch targets using the following:

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To select the <u>VITAL</u> few goals or processes to improve, consider:

Versus—How great is the need for improvement when comparing our performance versus competitors? Versus customers' perceptions?

Influence—How much will improvement in this area leverage other areas?

Timing—How urgent is it that we improve in that area now? Is there a natural sequence? Does it make sense to improve this area first? Or are there other things we need to do first?

Appetite—Is there energy and enthusiasm for improvement in this area? Achieving this goal?

Likelihood of success—How feasible is it? Do we currently have the capabilities required to make significant improvements in this area? Can we develop them?

In developing a rationale for "Stretch" targets, consider the following:

HINT: To build commitment among stakeholders for achievement of stretch performance targets:

- Develop a clear and compelling business case for the need to achieve the stretch target.

- Get benchmarks. People will think: *"If company X can, why can't we?"*

- Deconstruct the stretch target into achievable sub-objectives.

- Let targets evolve during the improvement process. As stakeholders learn more about the current state and benchmark what is possible, targets can be adjusted to reflect their increasing aspirations.

A word about "stretch" goals…

"Stretch goals" can drive imaginative and aggressive improvements… or paralyze your team. No one can say which will happen to your organization, so beware.

Given this, it may be best limit your stretch goals to one dimension, while maintaining performance in other areas.

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Targets should be written in the form

"To + action + MEASURE + amount + deadline".

As a final check, review your improvement targets to ensure they are **SMART**.

Examples of targets follow, with the MEASURE for each Target in all capitals:

TARGET: To …

…increase SALES VOLUME by 15% next year.

…reduce the number of XYZ PRODUCT DEFECTS by 50% by end of third quarter

…reduce product development CYCLE TIME to < 9 months within three years.

…improve EMPLOYEE SATISFACTION as measured on quarterly surveys by 10% this year.

- **S**trategic-- Is this important to our strategy? Our customers? Does our goal approach best-in-class performance?

- **M**easurable--Do we have specific, quantifiable criteria for improvement? How will we determine the success/failure of our improvement efforts?

- **A**greed upon--Are we committed to it? Is our sponsor or process owner?

- **R**ealistic--Can we succeed? Do we have the resources we need? The right team?

- **T**ime-bound--By when must the improvements be implemented?

HINT: Since design may require trade-offs between dimensions, and to focus efforts, prioritize targets by numbering them (#1 is top priority, #2 is second, etc.)

Targets may involve improvement in one dimension without loss in other areas, e.g., Reduce cost without loss of quantity, time, or quality performance.

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⓫ Review the "5x5" and analyze each step in terms of its' **Impact** on the process overall in terms of achieving your desired or target levels of Cost, Quantity, Cycle Time, Quality, etc.

♦ Use checkmarks to nominate those sub-steps suggested as having the greatest Impact.

♦ Agree upon and circle in red the 3-4 steps (total) with the greatest Impact on overall process performance.

Typically you will focus your further process analysis and improvement efforts on these key process steps.

> HINT: Also consider the impact of suppliers on achievement of your desired or target levels of performance. Identify any new or modified **Supplier Requirements** that result from these performance targets, i.e., What do you need from your Suppliers to achieve these goals?
>
> Suppliers are not part of the process, but may provide materials or information at any time during operation of the process. In reviewing implications to suppliers, don't go overboard; focus on the key ones.

On the next page is an example Process Definition (5x5) for pizza delivery.

On the page after that is a blank Process Definition (5x5) worksheet.

Process Definition (5x5)

❷ Roles

❶ PROCESS: Deliver Pizza

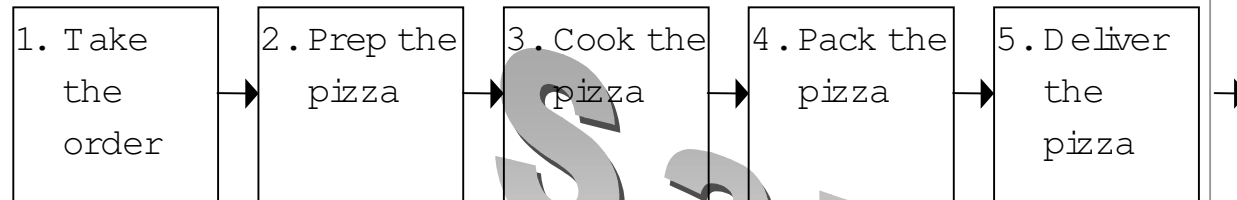Scribe: Joe   Facilitator: Dan

Date: Nov.28,1999   Meeting participants: Fred,Ethel,Lucy,Ricky,Jan,Peter   Timekeeper: Rollie

Process Owner: P.Pie   Process Operators/Performers: Bill,Ed,Jim,Leo,Pat,Margaret,Marie

❸ Process Boundaries and Major Steps

1. Take the order	2. Prep the pizza	3. Cook the pizza	4. Pack the pizza	5. Deliver the pizza

❺ Output	❻ Customers	❼ Requirements
Pizza Delivered *(all want taste, cost, options)*	Families	• Variety • Healthy
	Party givers	• Value • On-time
	Busy people	• In time

❹ "5x5" Substeps

1.1 Answer phone and greet the customer	2.1 Roll dough	3.1 Determine oven time	4.1 Put separator on pizza	5.1 Determine route
1.2 Write down order/info	2.2 Spread sauce	3.2 Determine place in queue	4.2 Fold box	5.2 Sequence pizzas
1.3 Repeat order/info	2.3 Cover with cheese	3.3 Put into oven	4.3 Insert pizza into box	5.3 Stack pizzas
1.4 State delivery time	2.4 Gather toppings	3.4 Check and rotate	4.4 Close box	5.4 Drive route
1.5 Pass order to kitchen	2.5 Place toppings	3.5 Remove from oven	4.5 Ring for delivery	5.5 Deliver and collect $

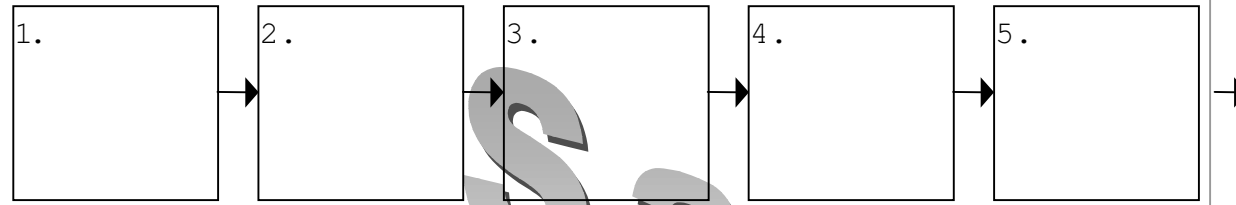|	❽ Baseline (current) Performance	❾ Benchmark Performance	❿ Target Performance
Cost	• 8 cents per inch	• 6 cents per inch	Reduce by 2 cents per inch (#6)
Quantity	• 175 per night	• 225 per night	Increase by 10 per night (#3)
Time	• 87% on time	• 93% on time	Improve OTD by 6% (#5)
Quality	• 5 wrong pizzas per month • 89% favorable rating	• 0 wrong pizzas per month • 96% favorable rating	Reduce # wrong pizzas by 5 per month (#4) Improve favorable rating 7% (#2)
Safety	• 5 accidents last year	• 0 accidents per year	Reduce by 5 accidents (#1)

Process Definition (5x5)

❷ Roles

❶ PROCESS: _____ Scribe: _____ Facilitator: _____

Date: _____ Meeting participants: _____ Timekeeper: _____

Process Owner: _____ Process Operators/Performers: _____

❸ Process Boundaries and Major Steps				
1.	2.	3.	4.	5.

❺ Output	❻ Customers	❼ Requirements

❹ "5x5" Substeps				
1.1	2.1	3.1	4.1	5.1
1.2	2.2	3.2	4.2	5.2
1.3	2.3	3.3	4.3	5.3
1.4	2.4	3.4	4.4	5.4
1.5	2.5	3.5	4.5	5.5

	❽ Baseline (current) Performance	❾ Benchmark Performance	❿ Target Performance
Cost			
Quantity			
Time			
Quality			

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❶❷ Checklist -- After completing the 5x5, consider the following checklist, which is intended to remind the team of areas that frequently determine the success or failure of an improvement effort.

> **CAUTION!** In reviewing this checklist, recognize that some of the items will be more meaningful to your team than others. Don't get "hung up" on any one item. Simply use the checklist to clarify what you know, and identify what you still need to decide or discover.

Purpose & Scope --What & Why?

✔ Is the purpose of the improvement effort clear? Have goals/priorities for improvement been established? Agreed to by all key parties?

✔ How far will this team carry the project? Will it only study the current process and recommend changes? Or plan for implementation of the redesigned process? Or develop and implement the redesign? Or operate the redesigned process?

✔ Is there a known BEST PRACTICE for this process the team should study?

✔ What resources (people, time, money) will the team have access to?

✔ What is outside the team's scope or authority?

The Team and Other Key Players -- Who?

✔ Who will serve as the team's Sponsor, i.e., the person who initiates and funds the team?

✔ Will someone outside the team serve as a Gatekeeper, i.e., to review and approves team recommendations at key points? If so, who?

✔ Who will serve as the Team Leader, i.e., the person accountable to the sponsor for results?

✔ Given the clarified scope and purpose of the improvement effort, who should be members of the core improvement team (5-7)?

✔ Who might be needed as extended team members, i.e., individuals brought in for their expertise at key points, but not needed throughout entire project?

✔ Will the team have an Advisor or Consultant, i.e., someone to support the team and provide expertise on the improvement process itself?

✔ Who are Customers or users of the product/service output that is produced by this process? How/when will they be involved?

✔ Who will Implement the process changes? How/when will that team be involved?

✔ Who will "own" the redesigned Process? ie., the person who will manage the process day-to-day?

✔ Who will "operate" the redesigned process? How/when will that team be involved?

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Project Timeline -- When?

✔ What is the timeline for completing the project?

✔ What are the key milestones or checkpoints?

✔ When/how will the team's progress be monitored?

✔ Is there a deadline for recommending changes to the process? For implementation of process changes? For realizing improved performance from the redesigned process?

✔ Have the appropriate parties agreed to the team's overall plan for the improvement project? To the key process measures?

✔ How will the team be held ACCOUNTABLE for results?

✔ What is the priority of this improvement effort relative to other responsibilities of the team?

Below is an example Gantt chart for an improvement project.

Gantt Chart — Calendar (Meetings, Weeks or Months)

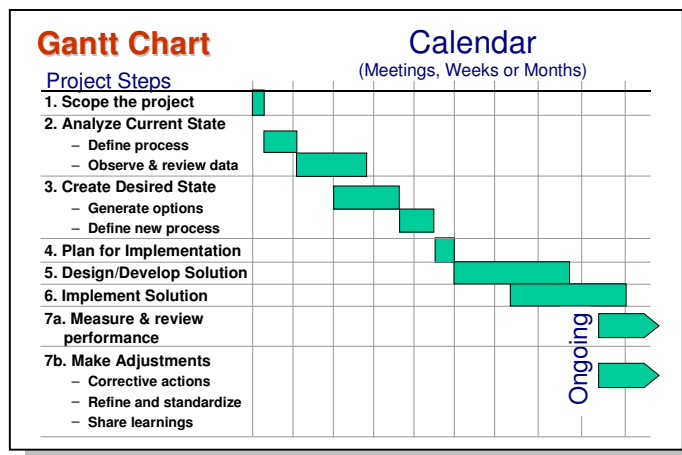| Project Steps |
| --- |
| 1. Scope the project |
| 2. Analyze Current State |
| – Define process |
| – Observe & review data |
| 3. Create Desired State |
| – Generate options |
| – Define new process |
| 4. Plan for Implementation |
| 5. Design/Develop Solution |
| 6. Implement Solution |
| 7a. Measure & review performance |
| 7b. Make Adjustments |
| – Corrective actions |
| – Refine and standardize |
| – Share learnings |

Ongoing

HINT: If the project will be more than 1/4-time for team members, or last for more than one month, establish specific measures and rewards for individual performance. For even longer projects, clarify team members' opportunities for future positions after completion of the project.

Performance Measures -- How Much?
If data for current performance is lacking…

✔ WHAT data will be collected to establish baseline levels of performance for key result areas?

✔ WHO will collect the data?

✔ WHAT methods will be used to collect and record the data?

✔ WHEN will the data be collected? How frequently? For how long?

✔ HOW much data will be collected? 100% of events or samples? If sampling is done…
-- HOW will you define rational sub-groups to ensure validity?
-- HOW will you select samples randomly to minimize bias?

✔ HOW will reliability of the data be assured?

✔ HOW will the data be sourced or identified?

✔ HOW will the data be reported? Reviewed?

Following are optional exercises a team may complete as a way to finalize the kick-off of a process improvement project and ensure clarity among team members.

> HINT: Remember, there is no perfect name. Strive for improved clarity, not perfection.

❸ **The Name Game**--The name of your team or project can have significant impact on the outcomes you achieve. The following is a fun way to revisit Step #1 and:

- ◆ Finalize the team's purpose,

- ◆ Improve team members' understanding of the project purpose and aims,

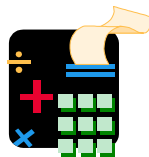- ◆ Determine an effective name for communicating about the project with others.

As the illustration at right suggests, the Name Game involves a cycle which the team completes several times as follows:

- ◆ Propose a name for the project.

- ◆ Identify 3 reasons why this name is not adequate.

- ◆ Propose another name that eliminates these problems.

- ◆ Identify 3 reasons why this name is not adequate.

- ◆ Continue until you have a usable name.

Name

3 Reasons why not
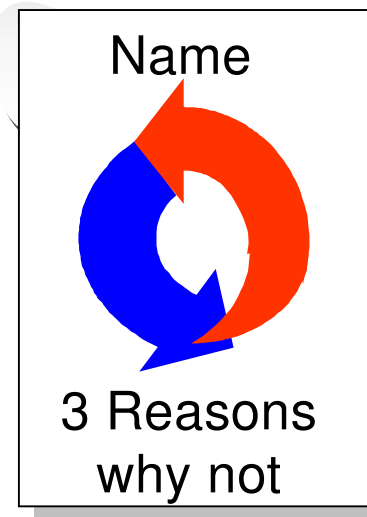
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⑭ The Clarity Ratio—Since clarity is simply the level of agreement about what is to be accomplished during a project, you can measure the degree of clarity present at the scoping stage of a project:

◆ Give 5-10 qualified individuals the project charter and/or scope document. Make sure some of these individuals were not involved in the chartering work.

◆ Ask each to independently estimate the project's likely cost or cycle time. For example, ask for estimates of such parameters as:

- Total cost to complete the project, or

- Time in calendar days or person-hours to finish, or

- Required level of performance for some key design characteristics such as reliability, durability, efficiency, capacity, etc.

◆ The degree of clarity can be estimated by "calculating" the level of agreement among different individuals on such parameters.

◆ Estimate the degree of clarity present in the project charter or scope using the formula below.

$$\textbf{Clarity} \approx \frac{\text{Highest Estimate}}{\text{Lowest Estimate}}$$

For example…

$$\textbf{Clarity} \approx \frac{\$420,000}{\$80,000} \approx \textbf{5.25}$$

◆ Perfect clarity is indicated by a Clarity Ratio =1. This never occurs, but if your Clarity Ratio is too high (≥4), continue clarifying project scope or requirements.

◆ Talk with the high and low estimators to uncover assumptions behind their answers. Use these discussions to locate the sources of remaining ambiguity.

A Sample of
Tools for Managers and Teams

the
End.