香港青聯科技協會
Hong Kong United Youth Science and Technology Association

Training Program

Competitiveness Diagnostic and Improvement Skills Training for IT Professional to Become a Consultant

Management

&

Consultancy

Management - Definition

Management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aim(s) viz. to create surplus.

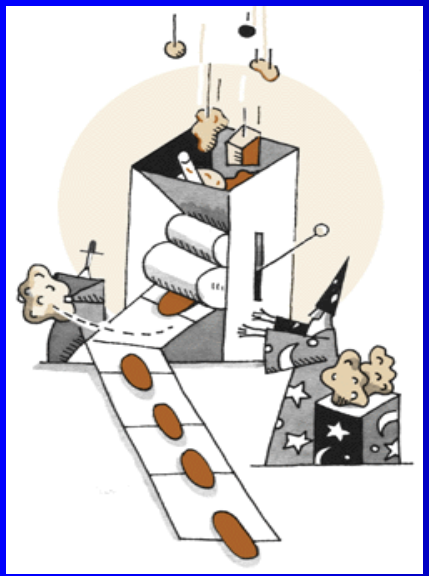
Management –

A Brief History

1890-1940

Scientific Management

Division of Labour

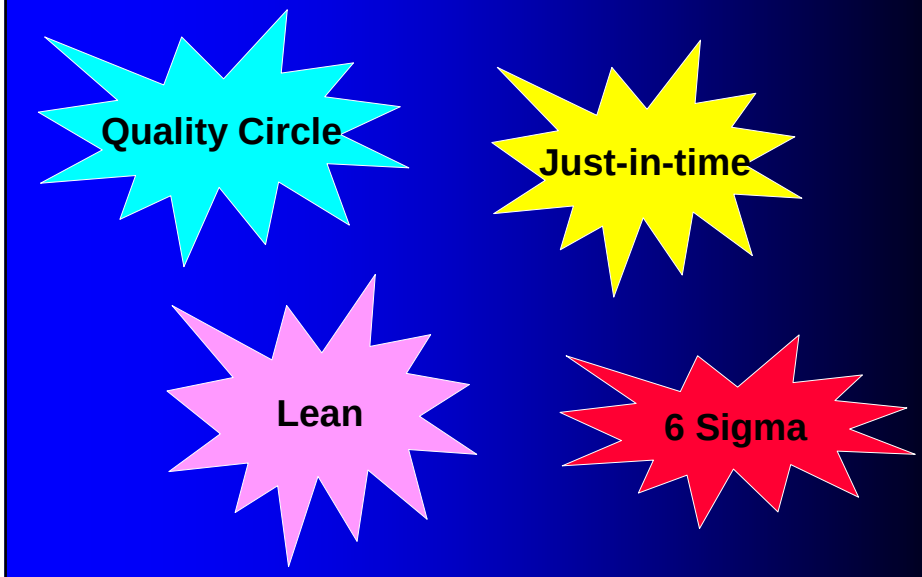


Standardization

1950 - 1970

- Good quality
- Lower price
- Better service

1970 - 1990

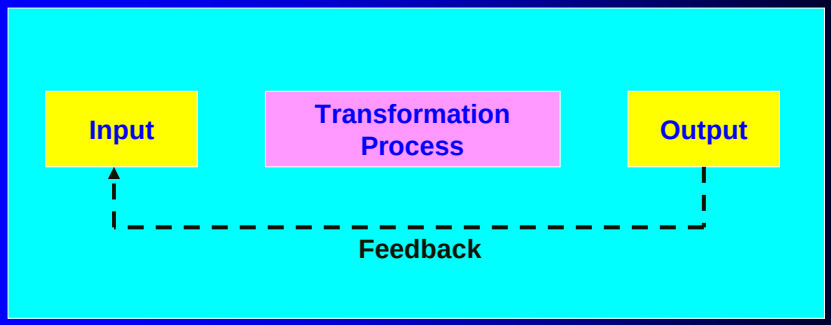


Management Functions

4 Functions of Management

- **Planning**
- **Leading**
- **Organizing**
- **Controlling**

System Approach to Management



Nine Disciplines of MBA

Nine Disciplines of MBA

Marketing	Strategy	Operations
Organization Behavior	Ethics	Economics
Accounting	Quantitative Analysis	Finance

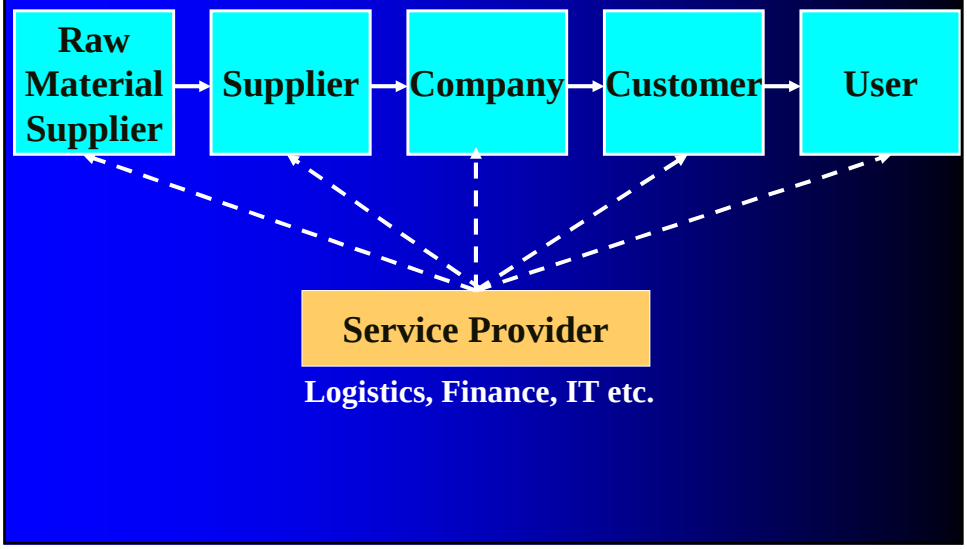
Supply Chain

Supply Chain

A supply chain is a SYSTEM involved in moving a product or service from supplier to customer.

System:
Organization, people, technology, activities, information & resources

Structure of Supply Chain

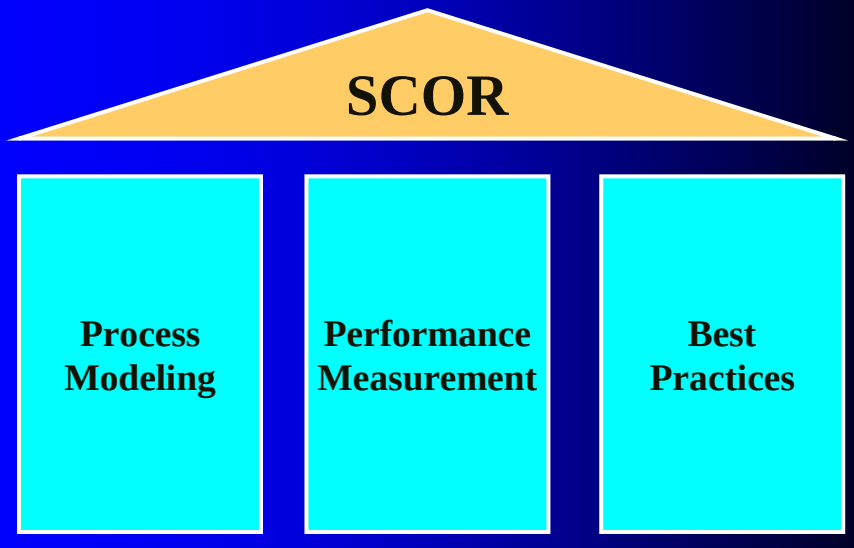


Supply Chain Operations Reference (SCOR)

Supply Chain Operations Reference (SCOR)

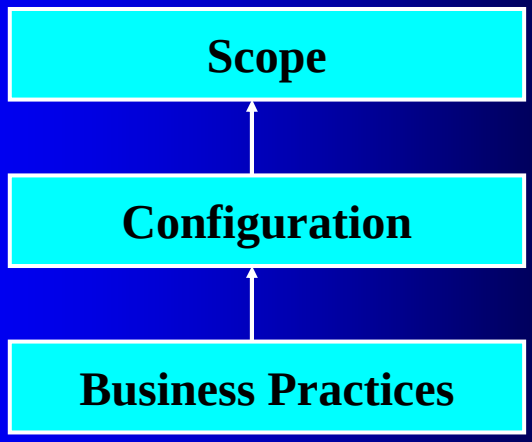
- **A supply chain management (SCM) tool**
- **For cross-industry standard diagnosis**
- **Address, communicate and improve SCM practice**

3 Pillars of the SCOR Model

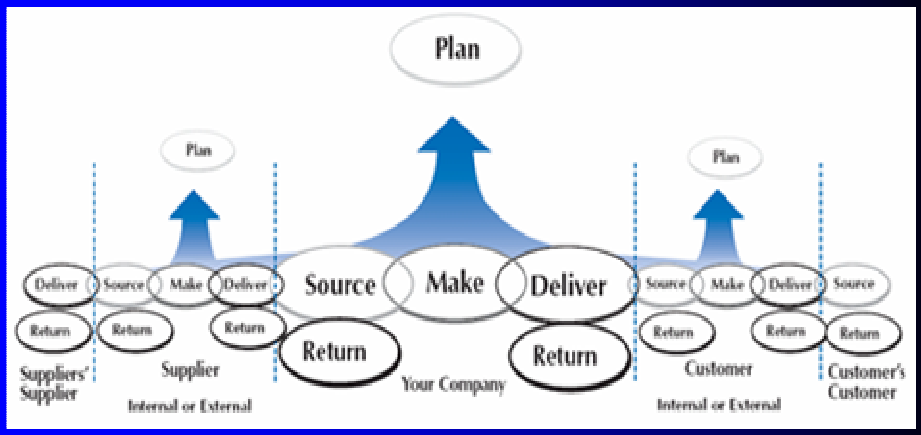


Supply Chain Process

SCOR Framework Levels



Business Practices



Problem Solving

The Problem Solving Process

- Identify and define the problem
- Analyze the problem
- Develop possible solutions
- Select the best solution
- Implement the solution
- Evaluate the solution

Problem Definition

- **Describe the problem in detail**
- **Get consensus**
- **Define scope (of solution)**
- **Deconstruct if too big**

Analysis

- **5-Whys**
- **Pareto diagram**
- **Fishbone analysis**

Develop Possible Solutions

- **Brainstorming**
- **Hypothesis testing**
- **Divide and conquer**

Select the Best Solution

- **Select the one with minimal risk**
- **Cost effectiveness**
- **Practical**
- **Without negative effect…**

Implementation

- **Planning**
- **Work breakdown**
- **Set milestones**
- **Set deliverables**

Evaluation

- **Are the deliverables in place?**
- **Any negative effect?**
- **Cost effectiveness?**
- **Timely?**
- **In full scope?**

Balanced Scorecard (BSC)

What is Balanced Scorecard?

- A strategic performance management tool
- Uses performance indicators to keep track and control the results of activities
- Aims to provide an all-round measure of organization performance

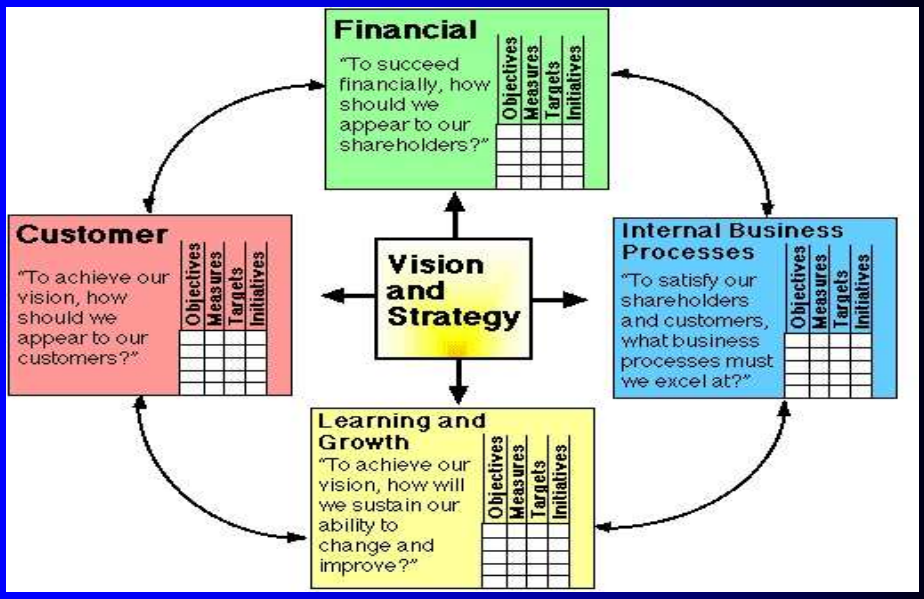
Balanced Scorecard- a Brief History

- 1987 – Created by Art Schneiderman
- 1992 – An article on BSC by R.S. Kaplan and D. Norton in Harvard Business Review
- 1996 – the book: *Balanced Scorecard*
- 2000 – Another book: The Strategy Focused Organization
- From 2000 to Now - Many companies start to use BSC

Developing a BSC Strategy

1. From vision to objectives
2. Link objectives to individual performance
3. Set measurements according to business plan
4. Obtain feedback and adjust the strategy

The 4 Perspectives of BSC



(by Norton and Kaplan)

Financial Perspective

Three themes:

1. **Revenue growth and mix**
2. **Cost reduction/productivity improvement**
3. **Asset Utilization**

2. Customer Perspective

- Market share
- Customer retention
- Customer acquisition
- Customer satisfaction
- Profitability

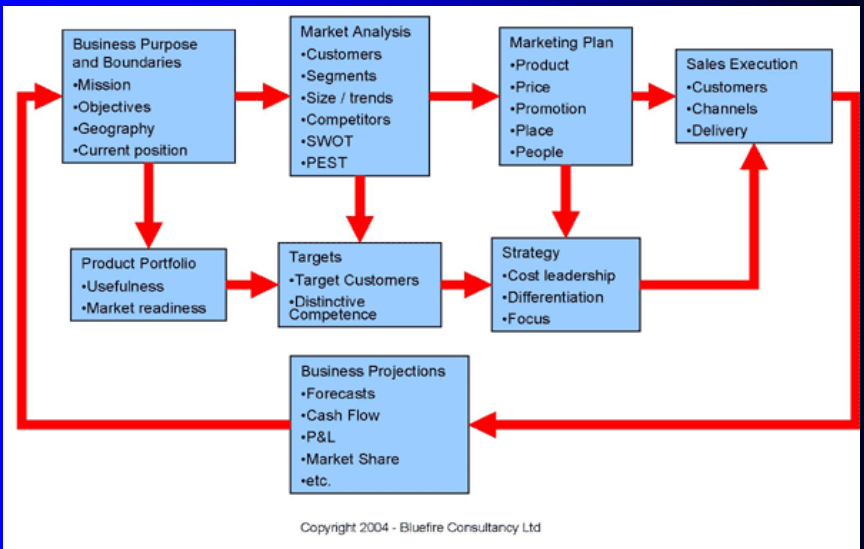
3. Internal Business Process Perspective

- Basic and applied research
- Product development
- Operation process
- Post-sales services

4. Learning & Growth Perspective

- Employee capabilities
- Information technology efficiency
- Climate of operation

The Strategy Map



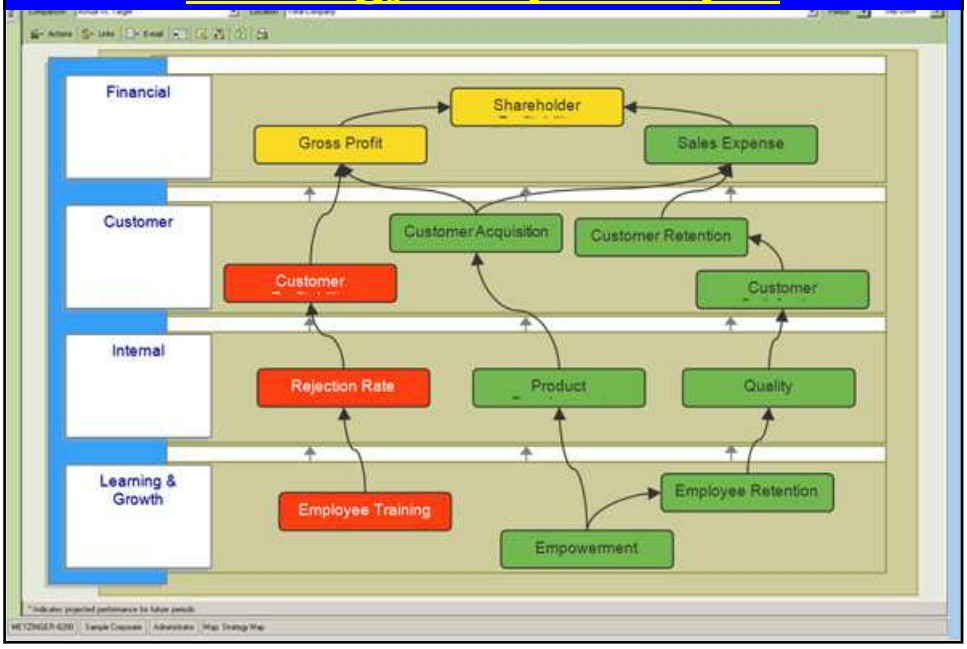
Definition of Strategy Map

- *A diagram that is used to document the primary strategic goals being pursued by an organization or management team*
- **A second generation of BSC design**

Strategy Map

- **A one-page graphical representation of what to do in the 4 BSC perspectives**
- **A clear and powerful communication tool**
- **Should tailor for YOUR organization**
- **Usually limit to 15 objectives**

Strategy Map Sample



Key Performance Indicator

Key Performance Indicator

- *A set of quantifiable measures that a company or industry uses to gauge or compare performance in terms of meeting their strategic and operational goals*
- **KPIs vary between companies and industries, depending on their priorities or performance criteria**

KPI Compared With Other Performance Measurement Tools

	KPI	Others
Goal	Strategy based	Control based
Development	Top down, analyze tactics	Top down, based on past performance
Source	Based on competitive requirements	Review of past data
Function	Combined with non-financial indicators for both long and short terms	Stress on financial perspective and performance improvement

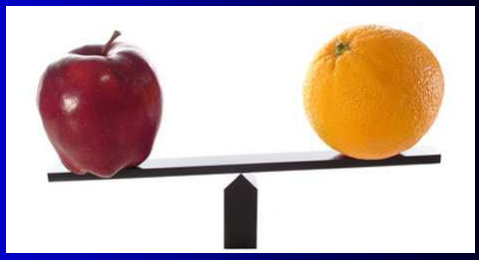
KPI in Practice

- Based on the 4 BSC perspectives
- Usually less than 12
- Make known to shareholders
- Formally stated in annual reports for performance comparison

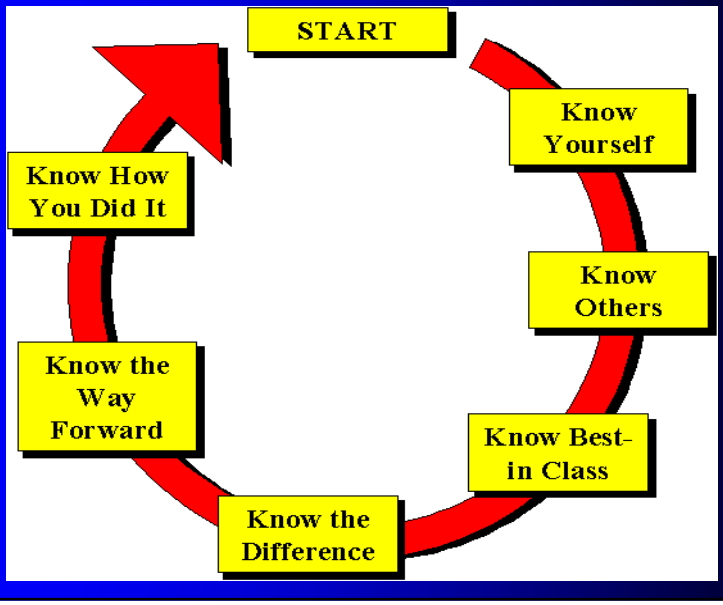
Benchmarking

Benchmarking

Comparing one's business process and performance with industry best



Benchmarking

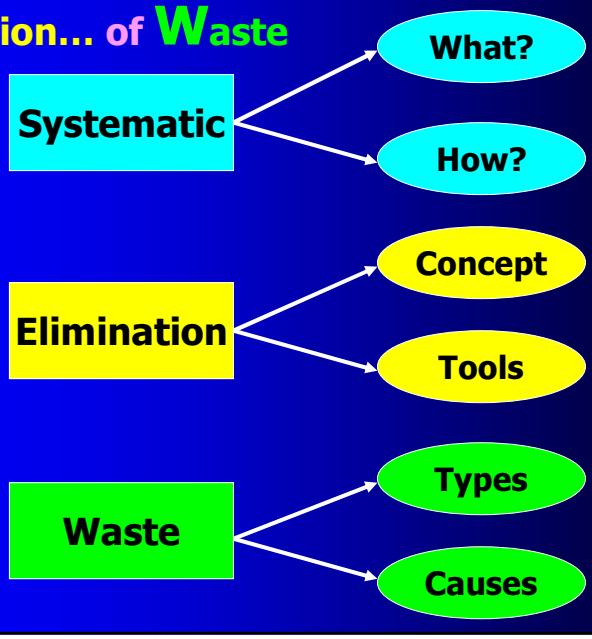


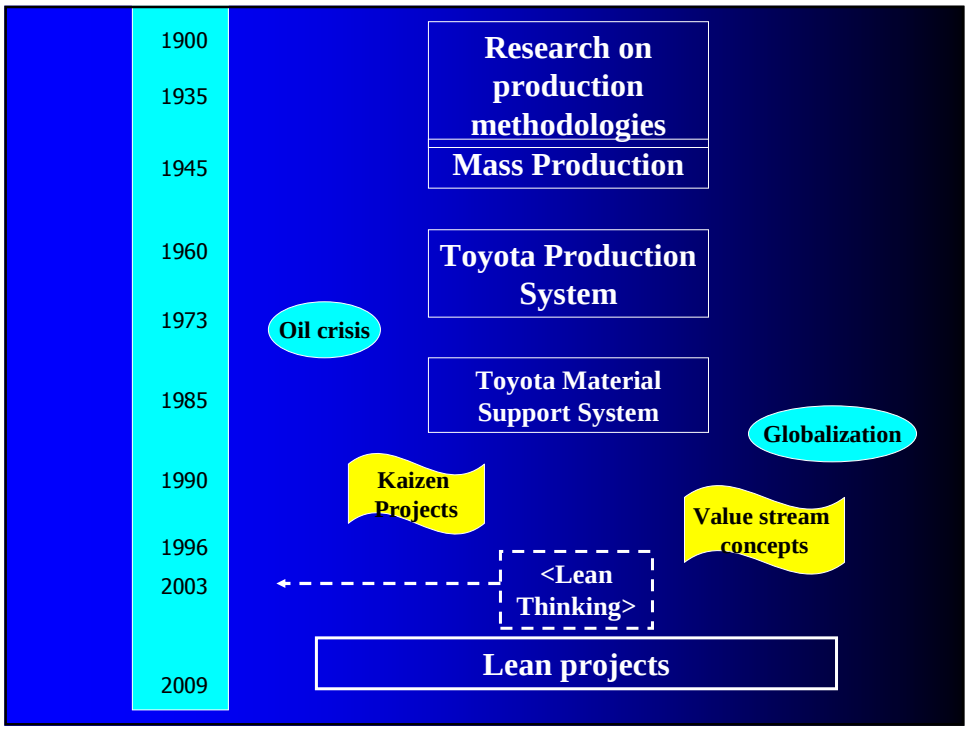
Lean Thinking

Lean

Lean: ***The systematic elimination of waste…***

The Systematic…
Elimination… of Waste



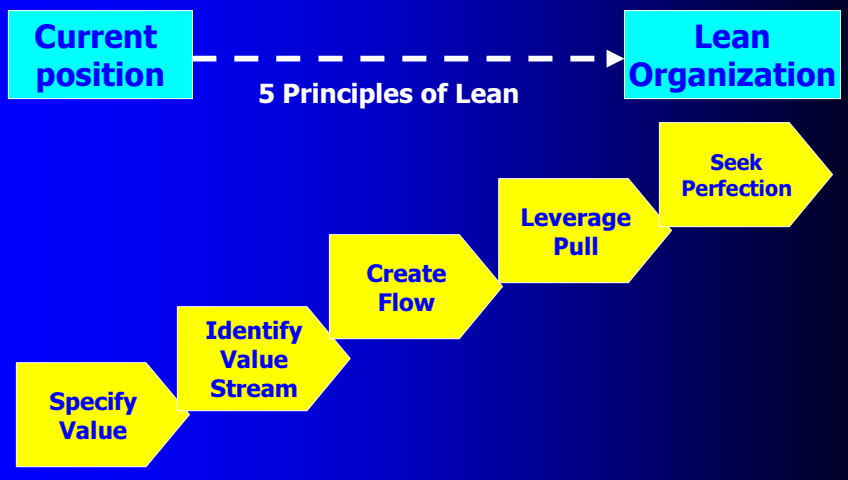


Performance Improvement

- Reduce work-in-progress and stock
- Reduce cost
- Improve efficiency
- Reduce lead-time
- Save manpower

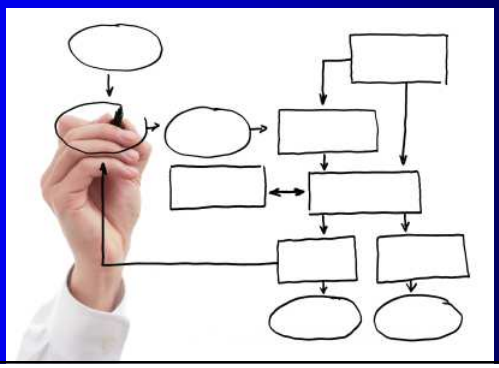
5 Principles of Lean

The Lean Journey



Definition of Value Stream

Sequence of activities required to design, produce, and provide a specific good or service, and along which information, materials, and worth flows.



Examples of Value Streams

- **Transforming material to finished products and deliver to customers**
- **Provide service that meet customer needs**
- **From concept to action plan**

Value Stream Mapping

Usage of Value Stream Mapping

- Examine flow
- Connect material and information flow
- Common language
- Blueprint for improvement
- Meeting point of Lean concept and its tools

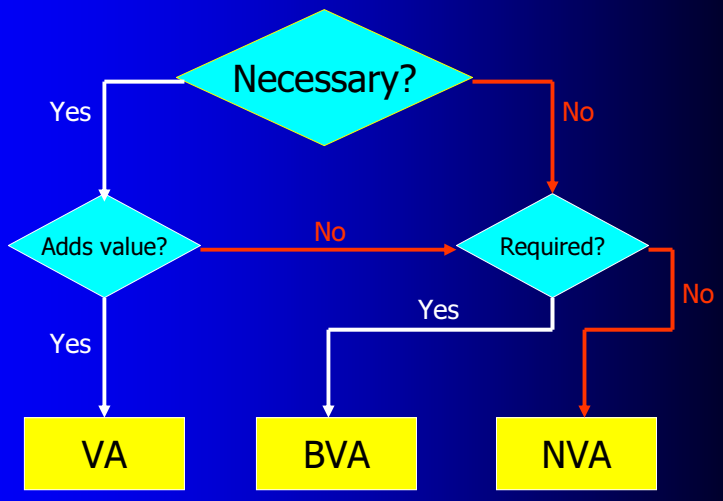
Values

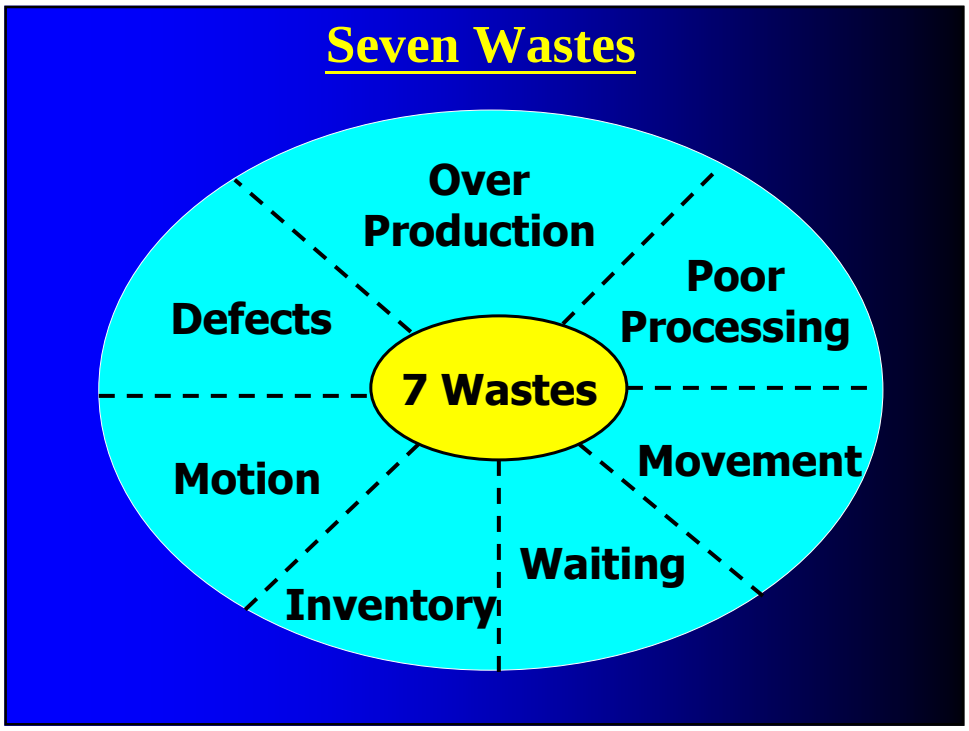
Value Added: *Activities necessary for meeting customer requirements*

Business Value Added: *Activities not involved with meeting customer requirements but are necessary*

Non-Value Added: *Activities NOT necessary for meeting customer requirements*

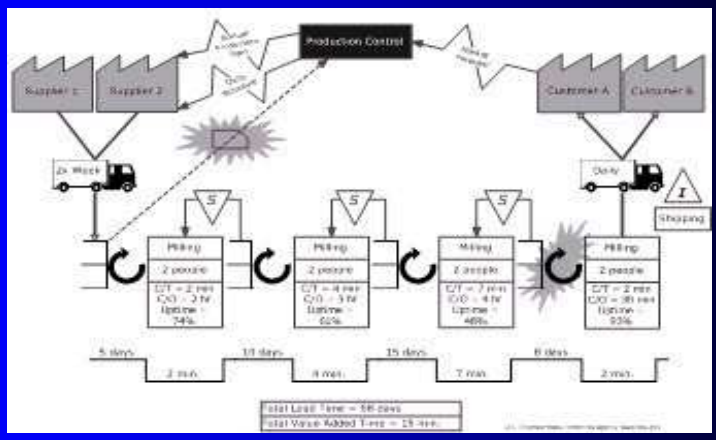
VA, BVA or NVA?



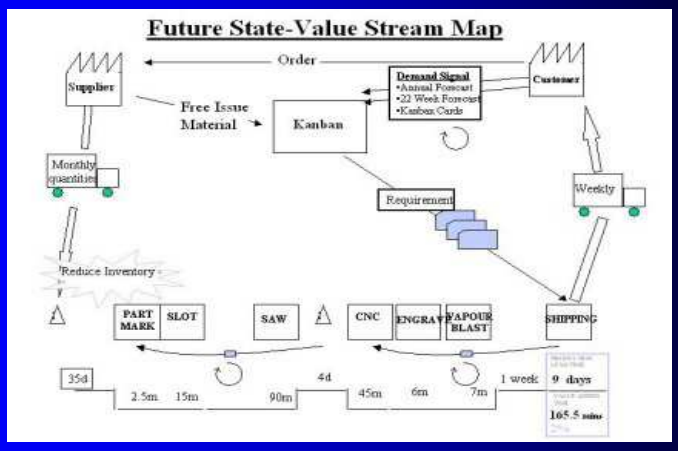

Seven Wastes
Over Production
Poor Processing
Defects
7 Wastes
Motion
Movement
Waiting
Inventory


LEAN
T O O L S

現況價值流圖(Current State Map)



未來價值流圖(Future State Map)



5S

- Seiri (整理) -- **S**ort
- Seiton (整頓) -- **S**et
- Seiso (清掃) -- **S**hine
- Seiketsu (清潔) -- **S**tandardization
- Shitsuke (素養) -- **S**ustain

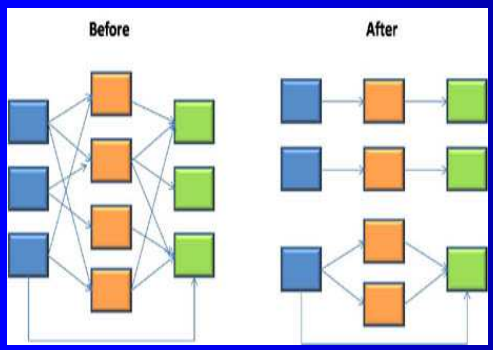
Gemba Management

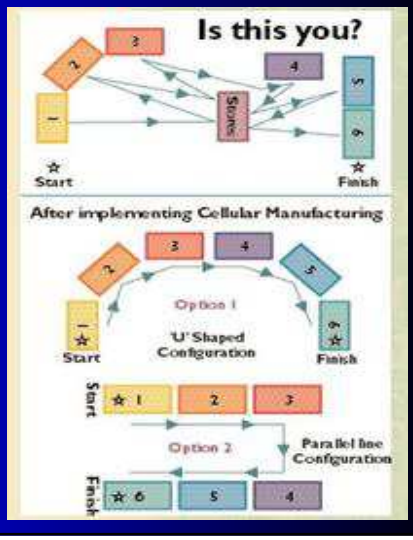
- **When a problem arise, go to gemba first**
- **Check the relevant objects**
- **Take temporary counter-measures on the spot**
- **Find the root cause**
- **Standardize to prevent recurrence**

Visual Management

- Diagrammatic representations
- Labels
- Kanban
- Checklists
- Warning signs

Re-layout



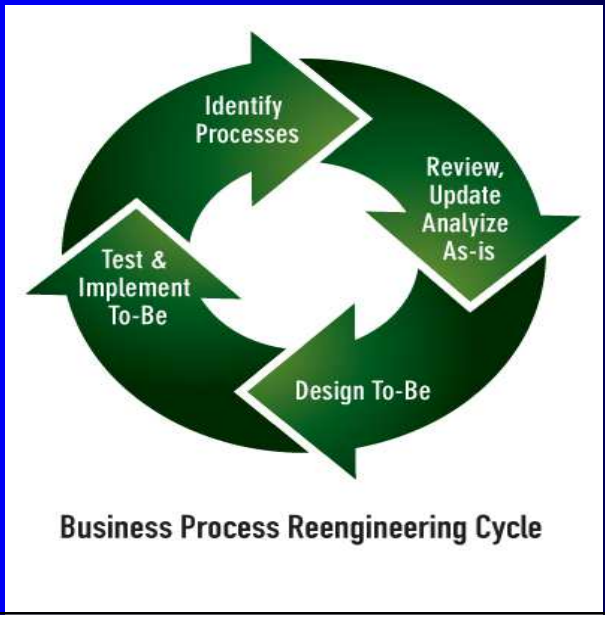


Business Process Reengineering

Business Process Reengineering (BPR)

Analyze and design/re-design of workflow and processes within an organization

BPR Cycle



Business Process Reengineering Cycle

Themes

- Process orientation
- Ambition
- Rule-breaking
- Creative

Principles and Tools

- Flexible routings
- Assignment of cross functional process manager/officer-in-charge
- Streamline process flow
- Customer oriented
- Goal congruent

Preparation and Planning Phase

Roles of IT in BPR

- Database sharing
- Communication network
- Decision support / Expert System
- Automatic identification

Six Sigma

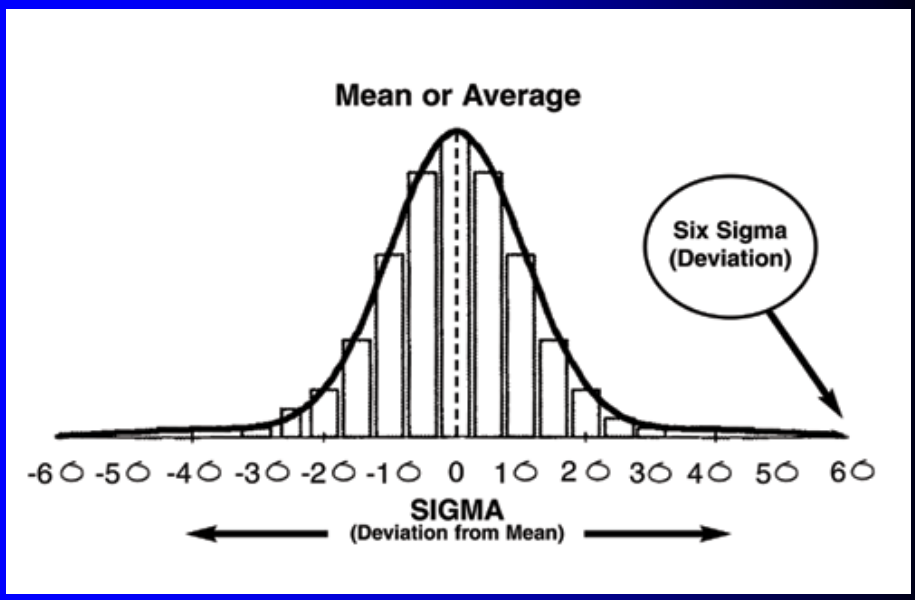
What is Six Sigma

Six Sigma is a management philosophy developed by Motorola that emphasizes setting extremely high objectives, collecting data, and analyzing results to a fine degree as a way to reduce defects in products and services

Sigma Level – Defect Per Million Opportunities (DPMO)

1	691,462
2	308,537
3	66,807
4	6,210
5	233
6	3.4

Six Sigma



A Brief History of Six Sigma

- Originated at Motorola in 1980s
- Migrated to AlliedSignal in early 90s
- General Electric adopted 6 Sigma as management philosophy in mid 90s
- Now – about 50% of the Fortune 500 companies used 6 Sigma

Benefits from using Six Sigma - Examples

Improve customer loyalty

Less waste

Better safety performance

Use of standardized operation process

Faster to market

Save cost – eg. saved US$427 billion for the Fortune 500 companies in the past 20 years

The Six Sigma Process:

Define

Measure

Analyze

Improve

Control

Common Six Sigma Tools

VOC – Voice of Customer

Voice of the Customer (VOC) is a market research technique that produces a detailed set of customer wants and needs, organized into a hierarchical structure, and then prioritized in terms of relative importance and satisfaction with current alternatives.

Critical to Quality (CTQ) Tree

CTQs – ***the key measurable characteristics of a product or process whose performance standards or specification limits must be met in order to satisfy the customer.***

- **Derived from customer need**
- **Should be measurable terms**
- **Should include upper & lower limits**

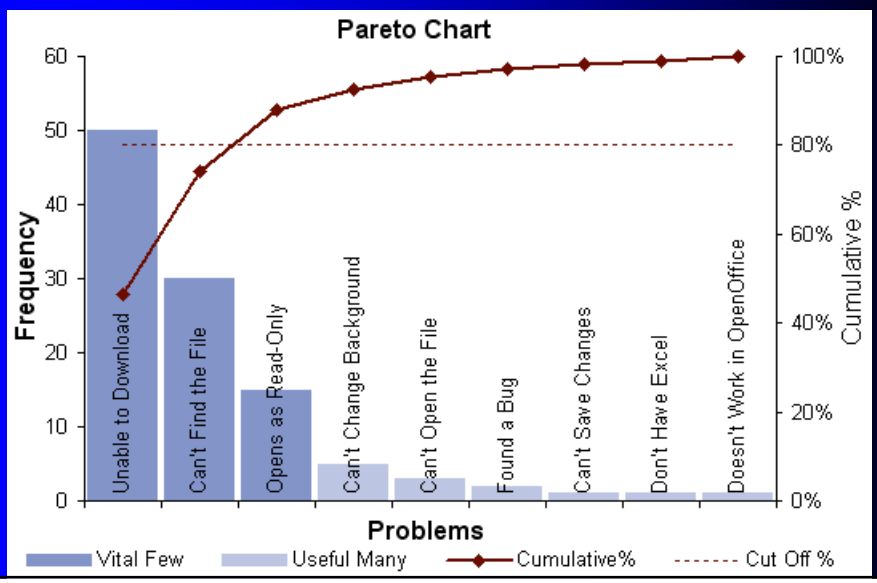
Statistical Process Control (SPC)

Statistical process control (SPC) is the application of statistical methods to the monitoring and control of a process to ensure that it operates at its full potential to produce conforming product.

Pareto Chart

A Pareto chart, named after Vilfredo Pareto, is a type of chart that contains both bars and a line graph, where individual values are represented in descending order by bars, and the cumulative total is represented by the line.

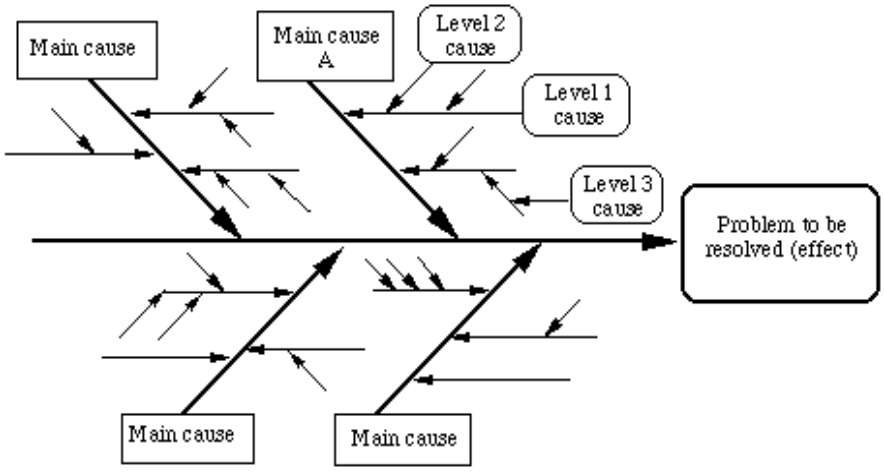
Pareto Chart



Failure Mode & Effect Analysis (FMEA)

Failure Mode and Effects Analysis (FMEA) is a model used to prioritize potential defects based on their severity, expected frequency, and likelihood of detection. An FMEA can be performed on a design or a process, and is used to prompt actions to improve design or process robustness.

Cause & Effect "Fishbone" Diagram



5 Whys Analysis

The 5-Why analysis method is used to move past symptoms and understand the true root cause of a problem. It is said that only by asking "Why?" five times, successively, you can delve into a problem deeply enough to understand the ultimate root cause

The Six Sigma Project Team

- Senior Executive
- Executive Committee
- Champion
- Process Owner
- Master Black Belt
- Black Belt
- Green Belt

Lean Six Sigma

Lean Six Sigma

Lean Six Sigma is a relatively new management approach for problem solving and quality initiatives within companies based on a combination of the different tools of Six Sigma and Lean.

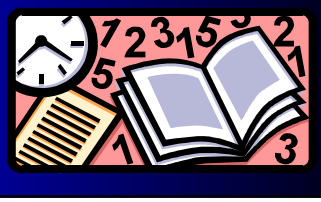
Constraint Management - The Theory of Constraints

Theory of Constraints (TOC)

- A management philosophy
- Introduced by Dr Eliyahu Goldratt
- First book of TOC – THE GOAL
- Key assumption – Every system is limited by at least one constraint
- Developed to be an effective Process Of On-Going Improvement (POOGI)

TOC Body of Knowledge

1. Supply Chain Logistics
2. Thinking Process
3. Finance & Measurement
4. Critical Chain Project Management
5. Marketing and Sales
6. Business Strategy



TOC's Belief On Systems

The more Complex a System, the more degrees of freedom / independent causes and…

There are no complex systems in reality
(all parts are interdependent
with very few "leverage points")

TOC Basic Assumptions

1. *Everything within a system is connected by cause and effect relationships. Identification of the causes leads to a convergence onto an apparent core problem/contradiction/ conflict*

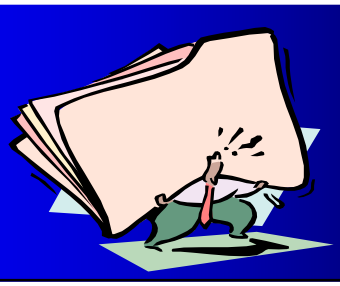
2. *All contradictions can be resolved without compromise - our level of understanding and our assumptions hold the contradiction in place. (A compromise is not usually a win-win solution)*

3. *There is no resistance to improvement - people do not embrace change because we have not brought them to see the win for them*

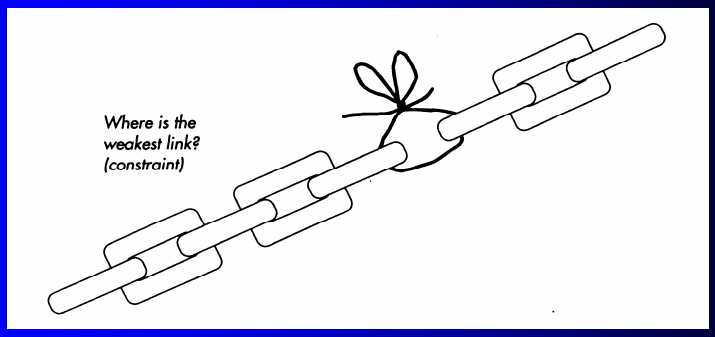
The Operation Paradigm

For systems operating under the same mode, there will only be little improvement…

No matter how hard you try!



The System Constraint



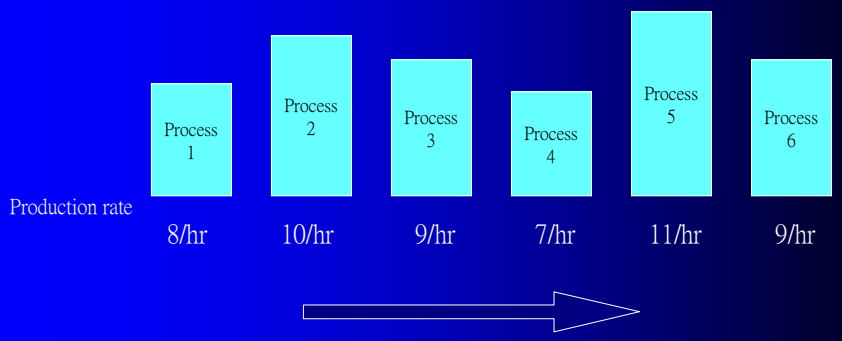
There would be no increase in strength to the system unless improvement is done in the weakest link…

Local Optima

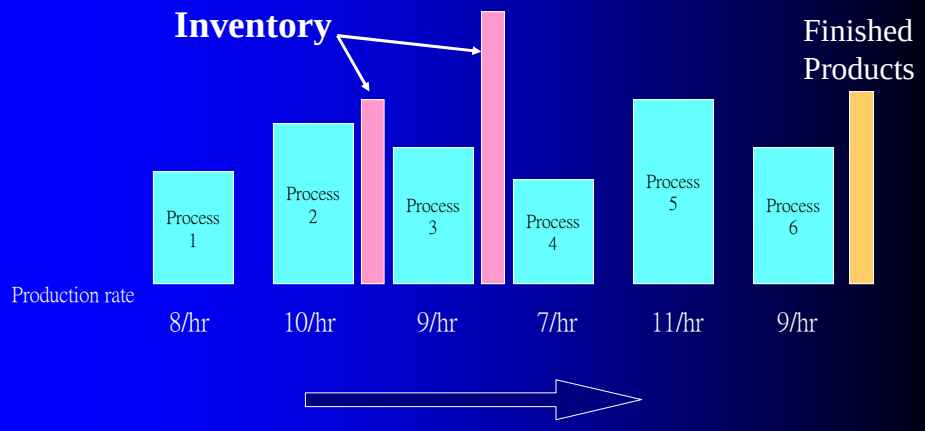
Local optimum is not even an indication for the global optima. (Local optimum should not be used for decision making or for individual "behaviour")

Every local action must contribute to the global performance.

A Work Process



Results of Local Optima



The Long Delivery Lead Time

Delivery Lead Time 30 days

Time Wastage = 80 - 90%


Document


Line Change


Waiting


Movement


Touch Time

3-4 Days

TOC In Action

The Five Focusing Steps

Step 1: IDENTIFY the System Constraint

Step 2: Decide how to EXPLOIT the System Constraint

Step 3: SUBORDINATE everything to the above decision

Step 4: ELEVATE the Constraint

Step 5: If the constraint was removed in previous steps, GO BACK to Step 1

Process Of On-going Improvement (POOGI)

Constraint Management

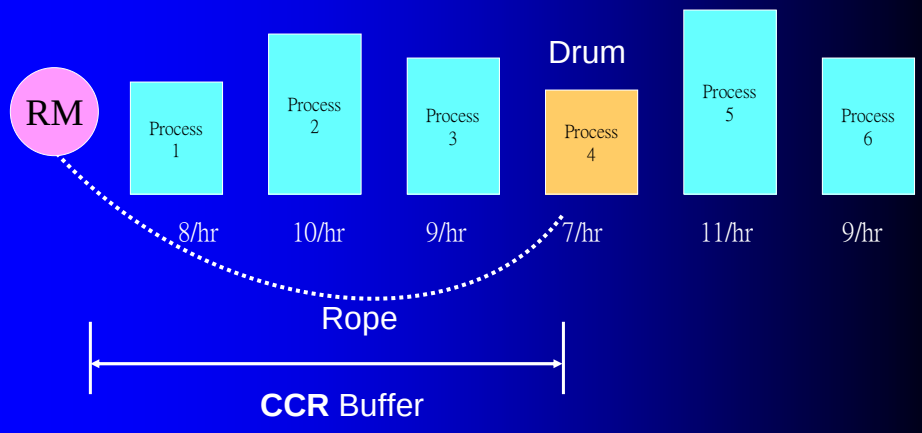
Drum-Buffer-Rope (DBR)

Drum – The weakest link (CCR) in a system and serves as a pace setter

Buffer – A period of time to protect the Drum resource from problems that occur upstream

Rope – Work release mechanism or timing

Simplified DBR Operation

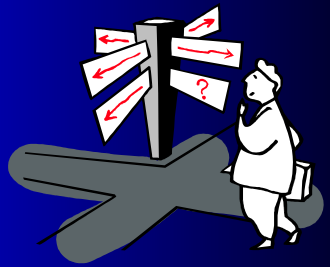


4 Questions For Change

1. Why Change?
2. What to Change?
3. What to Change to?
4. How to Cause the Change?

2 Questions For Strategy

1. WHAT IS THE DIRECTION OF THE COMPANY?
2. WHAT IS THE DIRECTION OF THE SOLUTION?



System Thinking

System Thinking

System Thinking is the process of understanding how things influence each other within an entity.

Example of Systems:

Human body, Braking system, Ecosystem

Characteristics of a System

- Has a purpose
- All parts be present and have special function
- Parts arranged in a particular way
- Change in response to feedback
- Tends to maintain stability by making adjustment

Themes of System Thinking

- Emphasis the whole rather than parts
- Stress the role of interconnection
- Emphasis balancing, feedback, and reinforcing

Use of System Thinking

- **Understand the structure of a system graphically**
- **Communication**
- **Design of high-leverage interventions**

System thinking Tools

- **Causal loops**
- **Behavior over time graph**
- **Flow diagrams**
- **Systems archetypes**

Critical Thinking

Critical Thinking

- ***Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.***

Ability to Think Critically

- **Attitude of being disposed to consider in a thoughtful way based on experience**
- **Knowledge of methods of logical inquiry and reasoning**
- **Skill in applying the logical methods**

What a Critical Thinker Do?

- **Raise vital questions**
- **Gathers and assesses relevant information**
- **Test conclusions/solutions against relevant criteria and standards**
- **thinks openmindedly within alternative systems of thought**
- **communicates effectively with others in figuring out solutions**

Barriers to Critical Thinking

- **Bias**
- **Trusting testimonial evidence**
- **Memory lapse**
- **Accepting authority without question**
- **Generalizing from too few observations**
- **Ignorance**
- **Coincidence**

Roles of a Consultant

Different Roles of a Consultant

- **Expert**
- **A pair of helping hands**
- **Collaborative**

Expert Role

- **Interact with client but consultant responsible for results**
- **Information gathering and decision is made by consultant**
- **The consultant plans and implements the main events**
- **Recommendation made by consultant**

A Pair of Helping Hands

- Take passive role
- Decisions make by client
- Goals and procedures decide by client
- The consultant's goal is to complete the task
- The client receives the result of a task accomplished, but not the ability to deal with similar tasks in the future

Collaborative Role

- Work closely and interact with client
- Decision make by mutual consensus
- Data collection and analysis are joint efforts
- Communication is two way
- Implementation and responsibilities are determined by discussion and agreement
- Client is to learn and gain experience

Consultancy Project Planning

Consultancy Project Planning

- **Identify client needs**
- **Current situation preview**
- **Detail client requirements**
- **Proof of concept development**
- **Define scopes and responsibilities**
- **Project proposal**

Consultancy

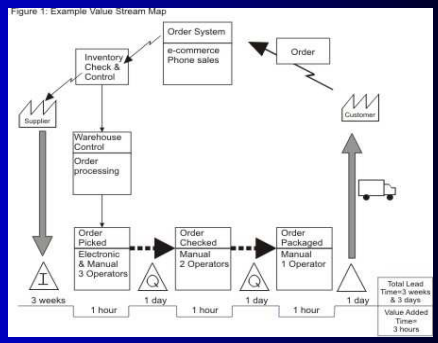
Project Implementation

Consultancy Project Launching

1. Select value stream
2. Conduct current situation analysis
3. Map current state
4. Identify and prioritize changes
5. Craft future state
6. Set implementation time frame
7. Continuous process improvement

1. Select value stream

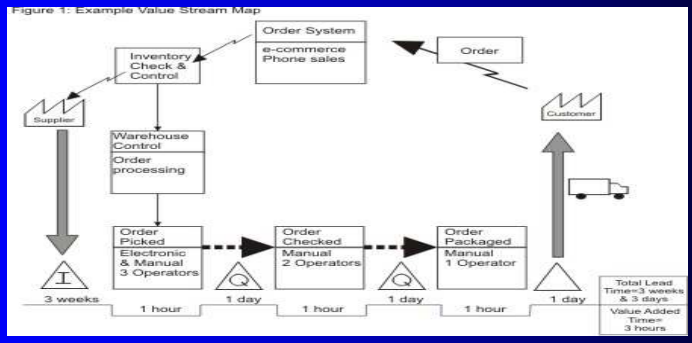
From customers' viewpoint…



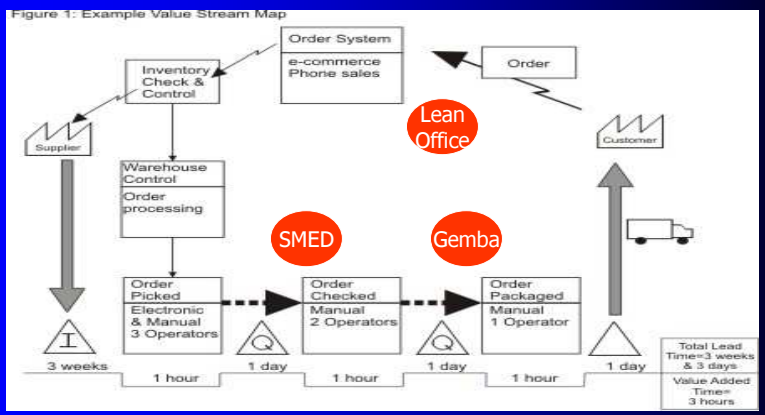
2. Conduct current situation analysis

- Manpower
- Cycle time
- Changeover time
- Stock level
- Waste
- Machine utility

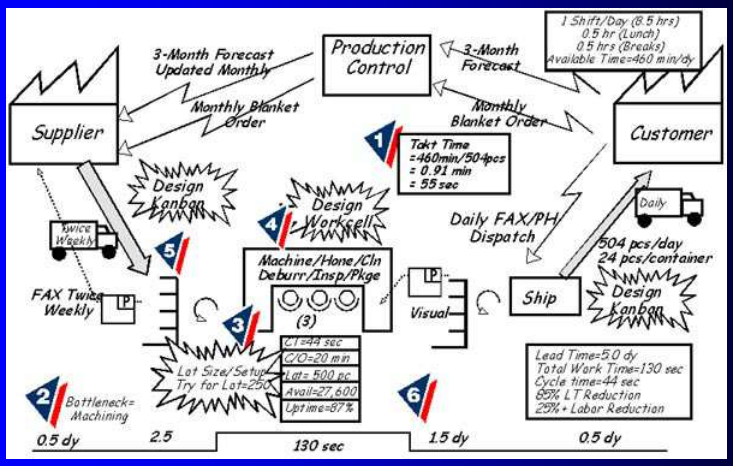
3. Map current state



4. Identify and prioritize changes



5. Craft future state



6. Set implementation time frame

Break down tasks, set target time…

7. Continuous process improvement

Don't let inertia hinder your progress…

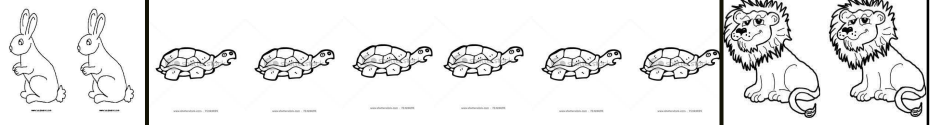
Change Management

Principles

- **Involve and agree support from people**
- **Understand where your organization is**
- **Understand where you want to be**
- **Plan development**
- **Communicate: early, fully and frequently**

The Process of Change

The 20-60-20 Rule



Quick Follower	Wait and See	Reluctant to Change

8 Steps to Successful Change

- **Increase urgency**
- **Build a guiding team**
- **Get the vision right**
- **Communicate for buy-in**
- **Empower action**
- **Create short-term wins**
- **Don’t let up**
- **Make change stick**

By: J. Kotter


The end