Understanding the true nature of processes to improve your business

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Widely accepted principles

Based on TQM principles as taught by Shewhart, Juran, Deming and Humphrey.

- Business is influenced by the quality of products/services offered to customers

- The quality of a product/service is largely determined by the quality of the process used to develop it and maintain it

- If you improve your processes you can improve your business

A new "silver bullet" ?
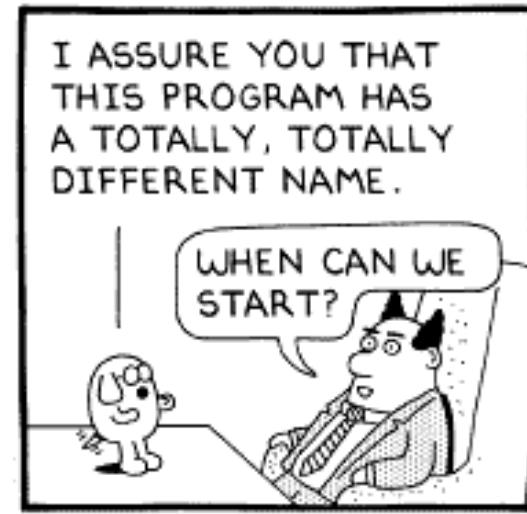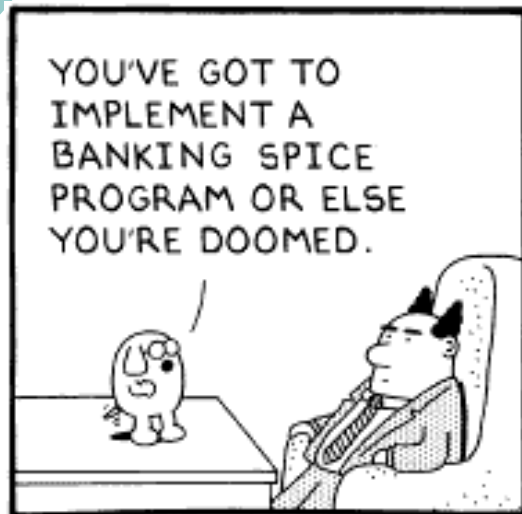
So what's new ?

○ Not a single cure - good for all

○ Not a magic formula from a Shaman

Instead….

○ A scientific approach:

- Understand the general nature of the subject (e.g. Model of the functioning of the human body)

- Assess the specific situation (i.e. the patient and his malfunctioning)

- Recommend action (medicine)

Models

- We need a general model to represent the nature of processes

- Model = simplified approximation of reality that provides insight

"All models are wrong, but some are useful"
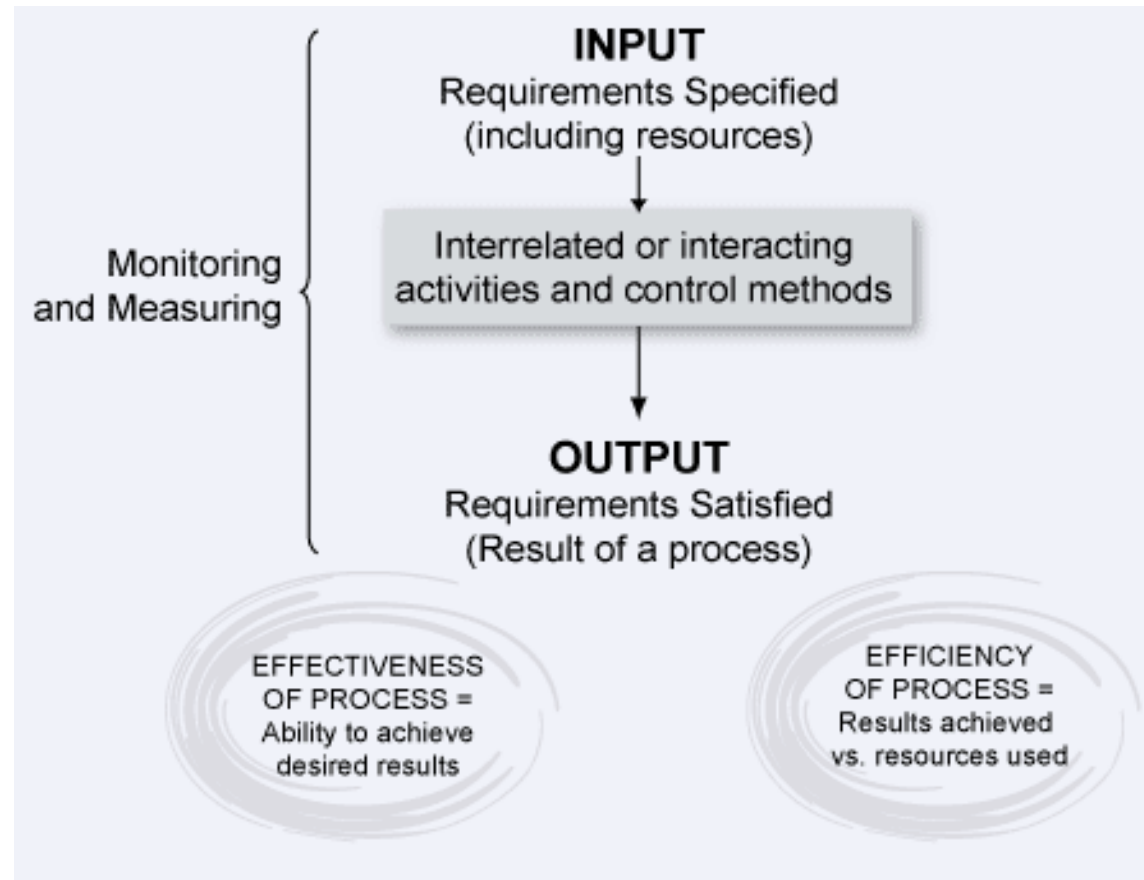
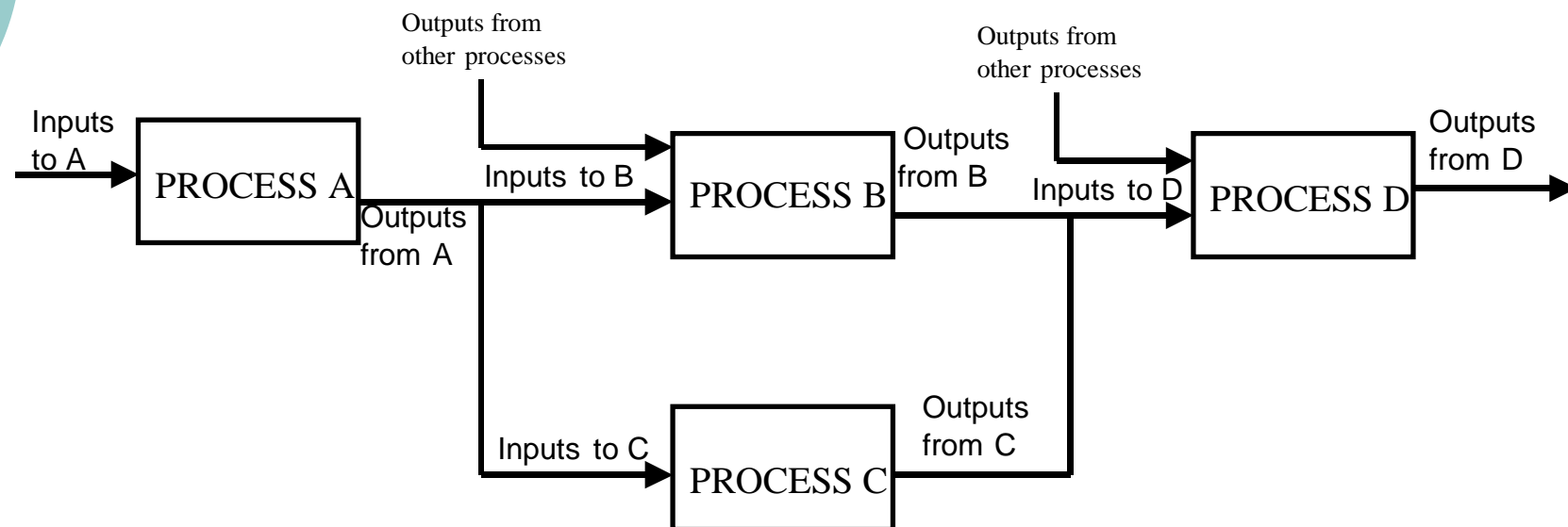George Box

What do we know today about processes ?

- Processes have been studied for many years in various disciplines dealing with production quality (e.g. TQM, SPC, PDCA Cycle, Six Sigma, etc..)

- Year 2000 – ISO 9001, the most widely used quality management standard, adopts and promotes a **process approach** as opposed to a functional approach

- ISO 9001:2000 definition of process:

  "***Set of interrelated or interacting activities, which transforms inputs into outputs***"

Process definition in ISO 9001

INPUT
Requirements Specified
(including resources)

Monitoring
and Measuring

Interrelated or interacting
activities and control methods

OUTPUT
Requirements Satisfied
(Result of a process)

EFFECTIVENESS
OF PROCESS =
Ability to achieve
desired results

EFFICIENCY
OF PROCESS =
Results achieved
vs. resources used

Adapted from ISO/TC 176/SC 2/N 544R2(r)

Process sequence and interactions

Outputs from other processes

Outputs from other processes

Inputs to A

PROCESS A

Outputs from A

Inputs to B

PROCESS B

Outputs from B

Inputs to D

PROCESS D

Outputs from D

Inputs to C

PROCESS C

Outputs from C

ISO/TC 176/SC 2/N 544R2(r)

A system of processes

SUBSYSTEM A

PROCESS

PROCESS

PROCESS

PROCESS

PROCESS

PROCESS

PROCESS

PROCESS

PROCESS

(Macro) PROCESS

PROCESS

PROCESS

| ACTIVITY A	ACTIVITY B

| Sub-Process A	Sub-Process B
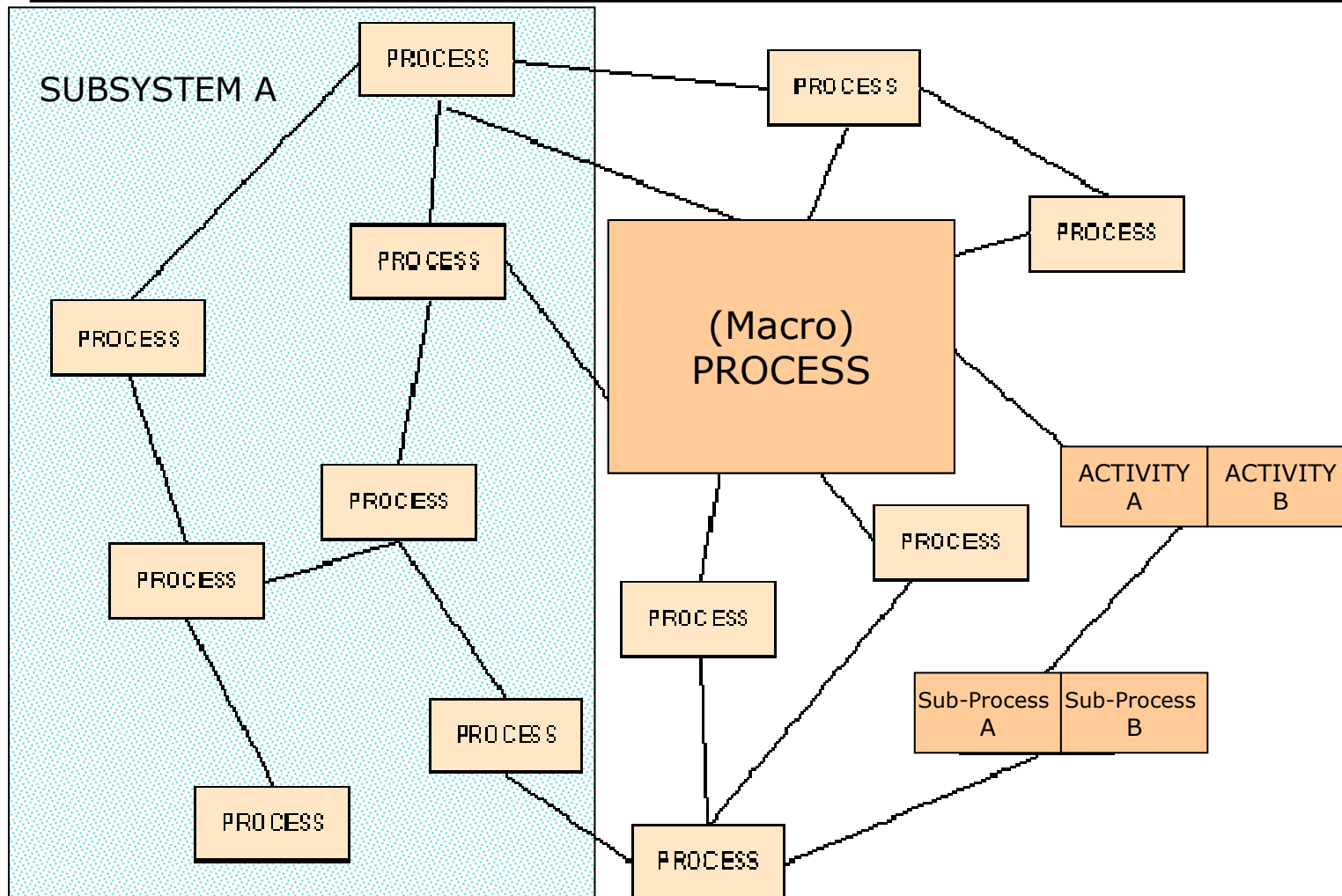
PROCESS

How to identify processes ?

○ **Granularity**

- Hierarchical structure ([Macro/Sub]Process, activities, tasks)

- Not too big (too complex to manage) nor too small (no real need for management)

○ Principle of **ownership**

- a process should be associated with a **unique responsibility** (Process Owner)

○ Principle of **modularity** - processes should be:

- **Strongly cohesive -** all parts of a process should be strongly related

- **Loosely coupled** - the number of interfaces among the processes should be kept to a minimum.

Functional approach
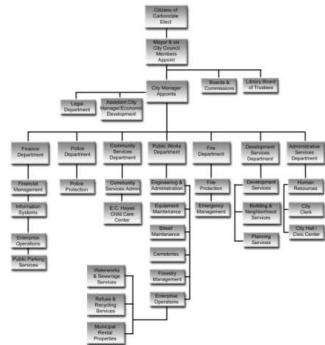
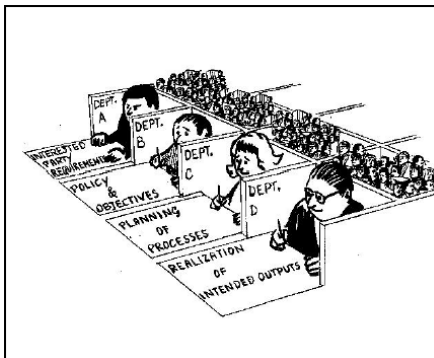- ○ Organizations often structured into a hierarchy of functional units.
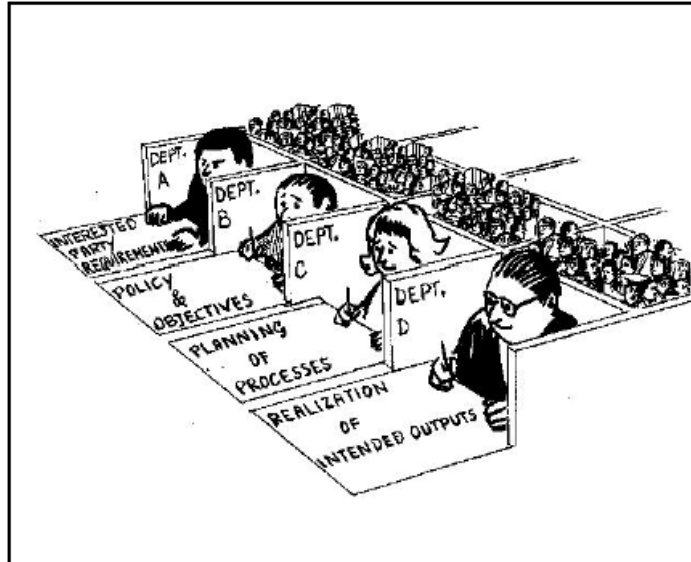
- ○ Usually managed vertically, with responsibility for the intended outputs being divided among functional units.

- ○ Each function performs many tasks – perhaps part of many different processes
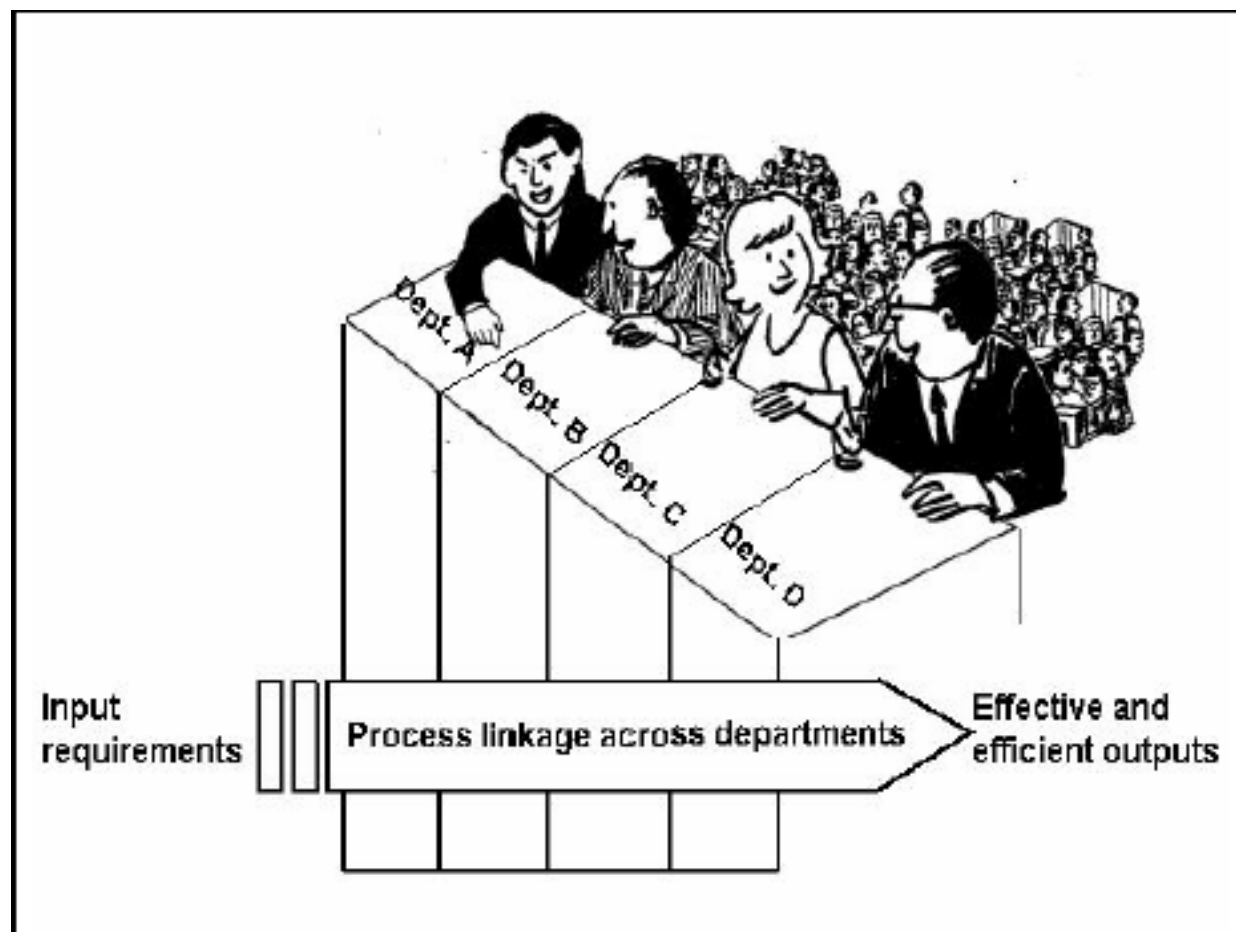
ISO/TC 176/SC 2/N 544R2(r)

Risks with the "functional approach"

○ Actions usually focused on the functions, rather than overall benefit to the organization and stakeholders.

○ End customer or other interested party not always visible to all involved

○ Problems occurring at interface boundaries often given less priority than short-term goals of the units:

- Unit generating output:
  - no interest on where it goes and how it is going to be used
  - little or no concern about expected quality
- Unit receiving output from other unit:
  - concerned about the quality of input but…..
  - little authority to enforce output quality from another function

Process Approach

Input requirements — Process linkage across departments — Effective and efficient outputs

Dept. A / Dept. B / Dept. C / Dept. D

ISO/TC 176/SC 2/N 544R2(r)

Process Ownership
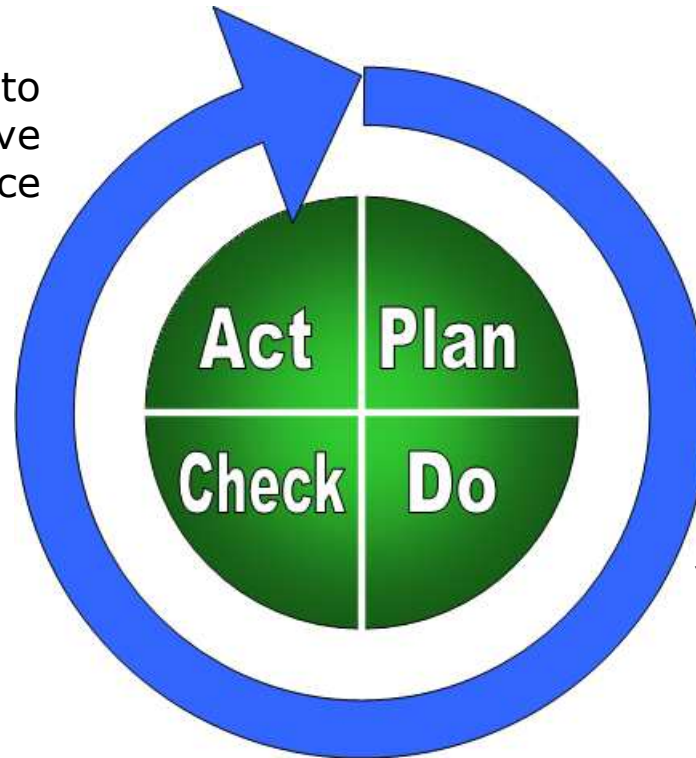
○ Instead of functional ownership/authority we need process ownership

○ Management should define individual authorities and responsibilities for ensuring the <u>design, implementation, maintenance and improvement</u> of each process and its interactions.

○ Usually referred to as the "**Process Owner**".

○ To manage <u>process interactions</u>, it may be useful to establish a "process management team", that has an overview across all the processes, and which includes representatives from each of the interacting processes.

Continual Improvement

"**Act**" - Take actions to continually improve process performance

"**Plan**" - Establish the <u>objectives</u> and activities necessary to deliver results in accordance with requirements and policies;

Act | Plan

Check | Do

"**Check**" - Monitor and measure the process and products against policies, <u>objectives</u> and requirements for the product and report the results;
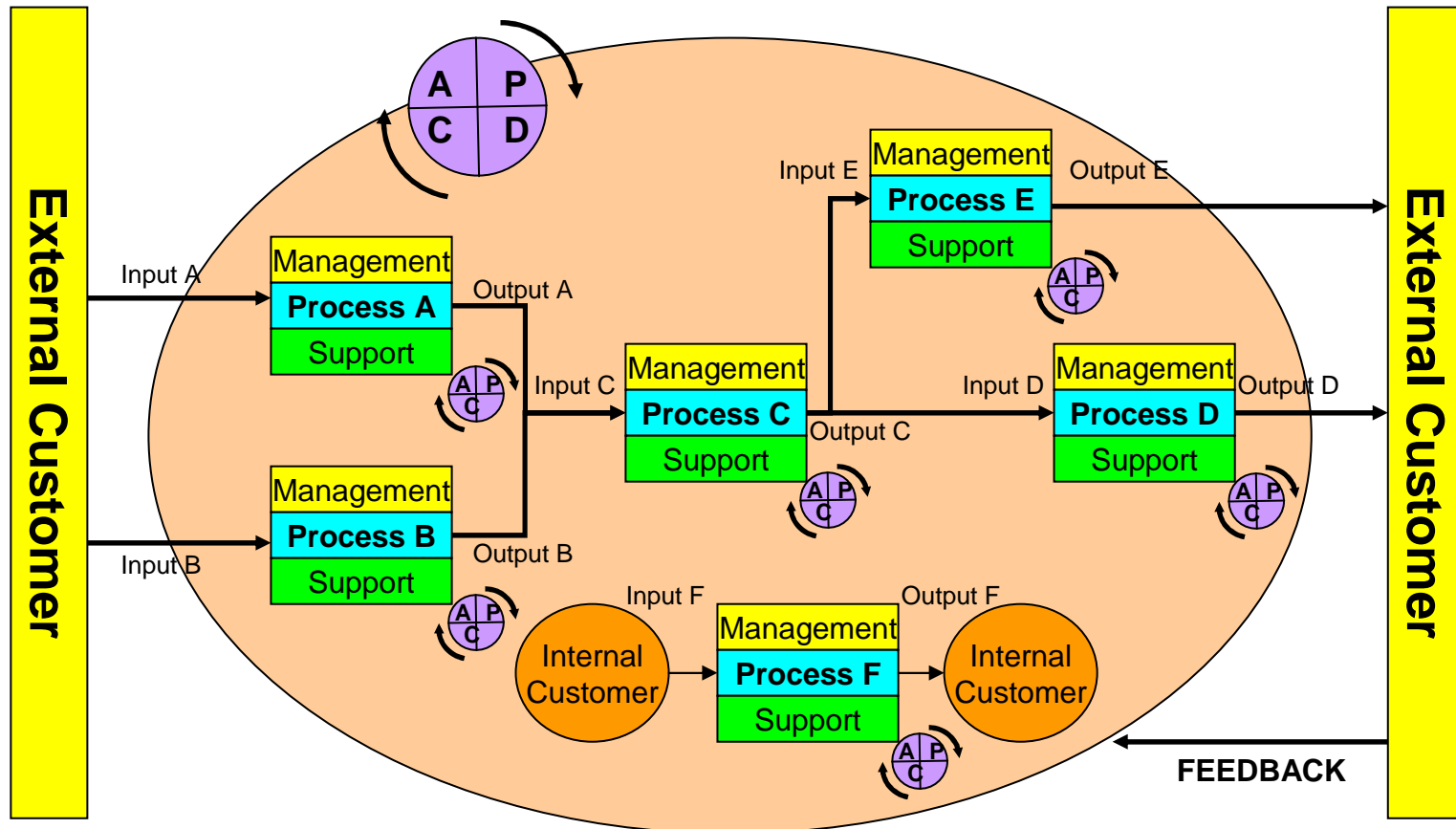
"**Do**" - Implement the process

The PDCA cycle was first developed by Dr. Walter A. Shewhart and later introduced by Dr. Edward Deming in Japan

# Processes interacting and improving

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Continual vs Continuous improvement

○ Continual improvement is broader in scope - continuous improvement is a subset of continual improvement.

○ Continuous improvements are linear, incremental improvements to an existing process (Kaizen).

○ Continual improvement includes "discontinuous" improvements (innovative or radical improvements).

○ Continual improvement speaks to the PROCESS of improvement (always and forever – continually - in all of its forms and in all areas) rather than the NATURE of the improvements (continuous vs discontinuous).

Issues

○ PDCA promotes a continual improvement cycle but…is there a specific path to follow?

○ How do you identify the improvements steps if you don't have a vision of a path?
   [If you don't know where you're going, any road will do (Chinese proverb)]

○ When monitoring and measuring, in addition to policies, objectives and requirements, can we assess against a general "capability/maturity model" ?
   [If you don't know where you are, a map won't help (W.S. Humphrey)]

Maturity/Capability models
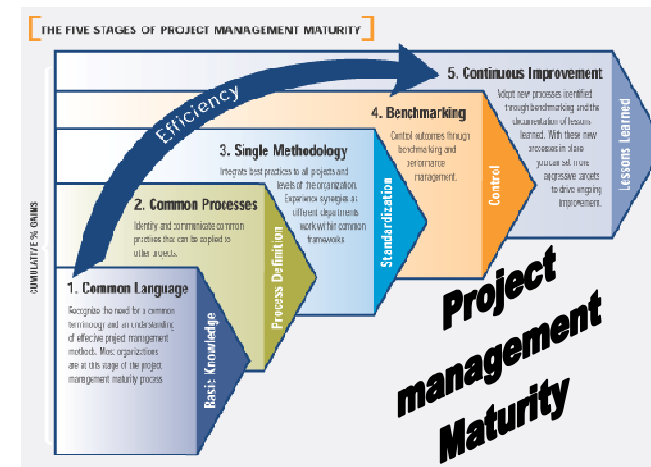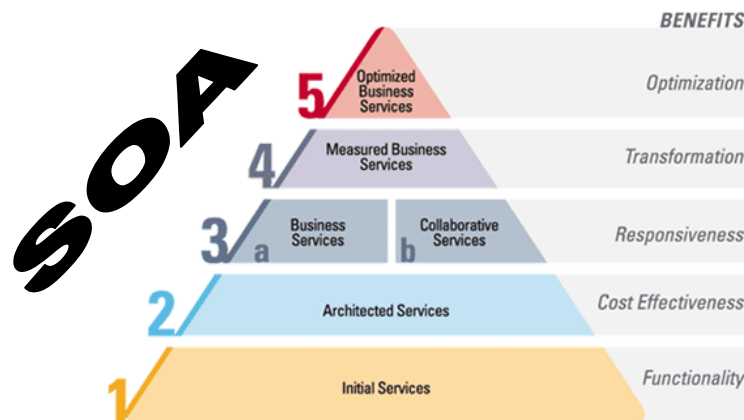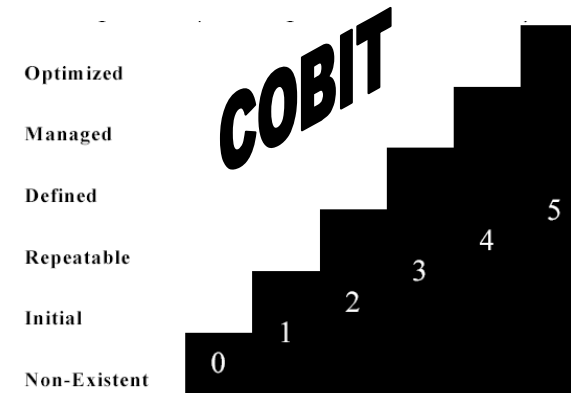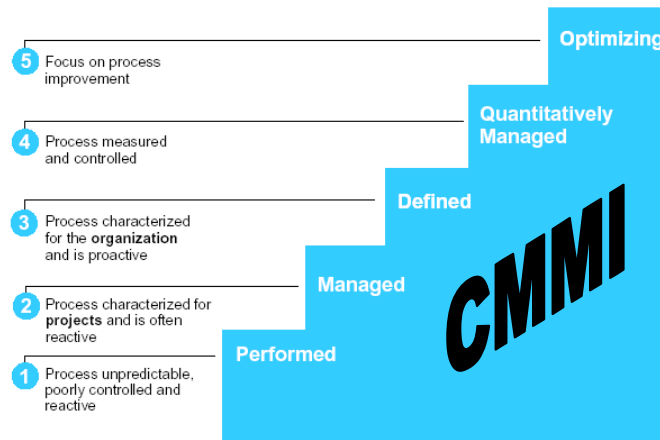
"Natural" Improvement Path

CONTINUALLY IMPROVING

- Proactive focus on continual improvement aligned with current and predicted business goals
- Orderly and planned approach to innovation without undesired disruption of current operations
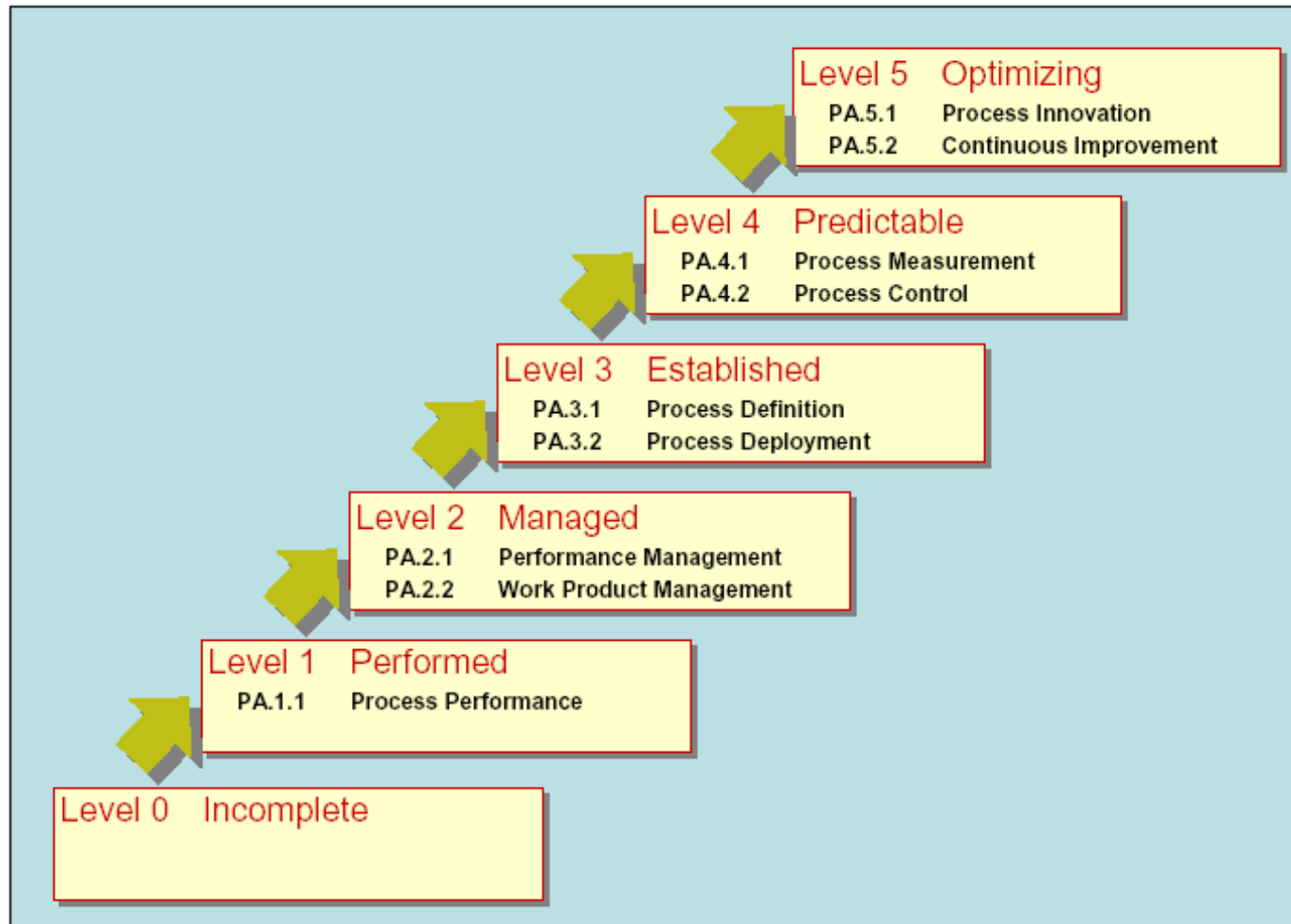- Evaluation of effectiveness of changes

PREDICTABLE PROCESS

- Quantitative understanding of process behavior
- Measures in place for process performance and product quality
- Process performs within established limits

STANDARDIZED PROCESS

- Process institutionalized (an asset for the organization)
- Standardized across all application but tailored as necessary
- Improves from deployment experiences

REPEATABLE PRACTICES

- Process performance planned and monitored
- Work products (input/output) quality controlled
- Proactive and repeatable…….. under same conditions

INFORMAL & CHAOTIC

- Evidence of input/output – no visibility on the quality of products or effectiveness/efficiency of the process
- Reaction driven process – fix things problems they occur

ISO/IEC 15504 (SPICE)
Capability Model

Level 5   Optimizing
PA.5.1   Process Innovation
PA.5.2   Continuous Improvement

Level 4   Predictable
PA.4.1   Process Measurement
PA.4.2   Process Control

Level 3   Established
PA.3.1   Process Definition
PA.3.2   Process Deployment

Level 2   Managed
PA.2.1   Performance Management
PA.2.2   Work Product Management

Level 1   Performed
PA.1.1   Process Performance

Level 0   Incomplete

Conclusions

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- Improving your processes can improve your business – no matter what business you are in

- Processes are characterized by common properties which can be modeled to provide insight and the basis for improvement

- Capability/Maturity models provide you with a roadmap for continual improvement of your processes

- Capability/maturity models are spreading into many disciplines and are here to stay

So….follow Dogbert's advice