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Presents:

Designing an Excellent IT Process
Improvement Program

v1-Draft-B

April 24, 2009

1:00 pm - 3:00 pm Central Time

Agenda

- ◆ **Introduction**
- ◆ **Practices, Processes & Best Practice Frameworks**
- ◆ **Process Improvement**
- ◆ **Process Design and Deployment**
- ◆ **Process Maturity**
- ◆ **Summary**

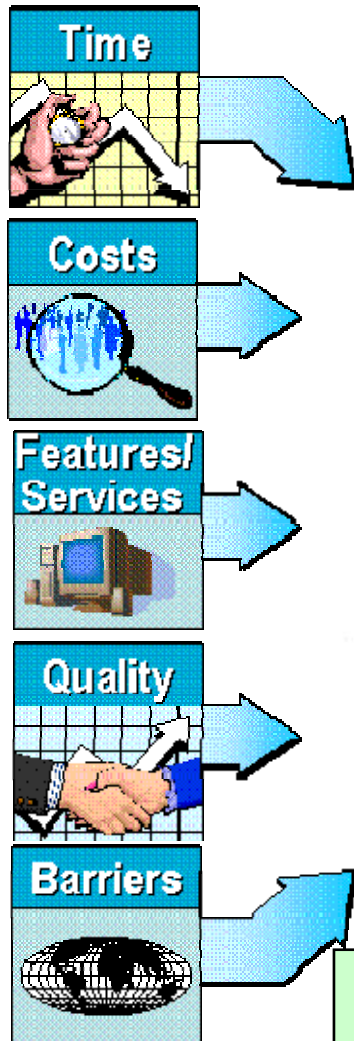
The goal for this workshop is to present an overview of a process design approach that has been successfully used by numerous companies.

Larry's Background

- ◆ **Process Improvement & Metrics Consultant**
- ◆ **Adjunct Professor, Software Engineering, DePaul University**
- ◆ **Founder and President of Pearl Street Group, Inc (PSG) a**

PSG Services	Partial Client List	
Project Management Services <ul style="list-style-type: none"> ◆ Critical Project Recovery ◆ PMO Implementation ◆ Portfolio Alignment Process & Measurement Improvement Services <ul style="list-style-type: none"> ◆ Process Development ◆ Measurement Development 	<ul style="list-style-type: none"> ◆ ABN Amro ◆ Advocate Medical Group ◆ Alltel Information Systems ◆ Allstate ◆ American Electric Power ◆ American Red Cross ◆ Assurant Health ◆ AT & T ◆ Baan 	<ul style="list-style-type: none"> ◆ Bear Stearns ◆ Eli Lilly ◆ GEICO ◆ Great West Healthcare ◆ Highmark Blue Cross ◆ JP Morgan Chase ◆ Procter & Gamble ◆ QuadTech ◆ Tribune Corporation ◆ United Plastics Group ◆ US Bank ◆ Western Digital

In Today's Global Economy, Organizations must Constantly Improve to Survive



Organizations must constantly:

- Reduce cycle time
- Reduce costs
- Provide latest features and improve services
- Improve quality
- Manage Entry Barriers
 - Reduce Barriers to enter other markets
 - Raise Barriers for others to enter their market

The Global Economic Crisis makes constant improvement even more important!

Our Goal – Improve our Organizations

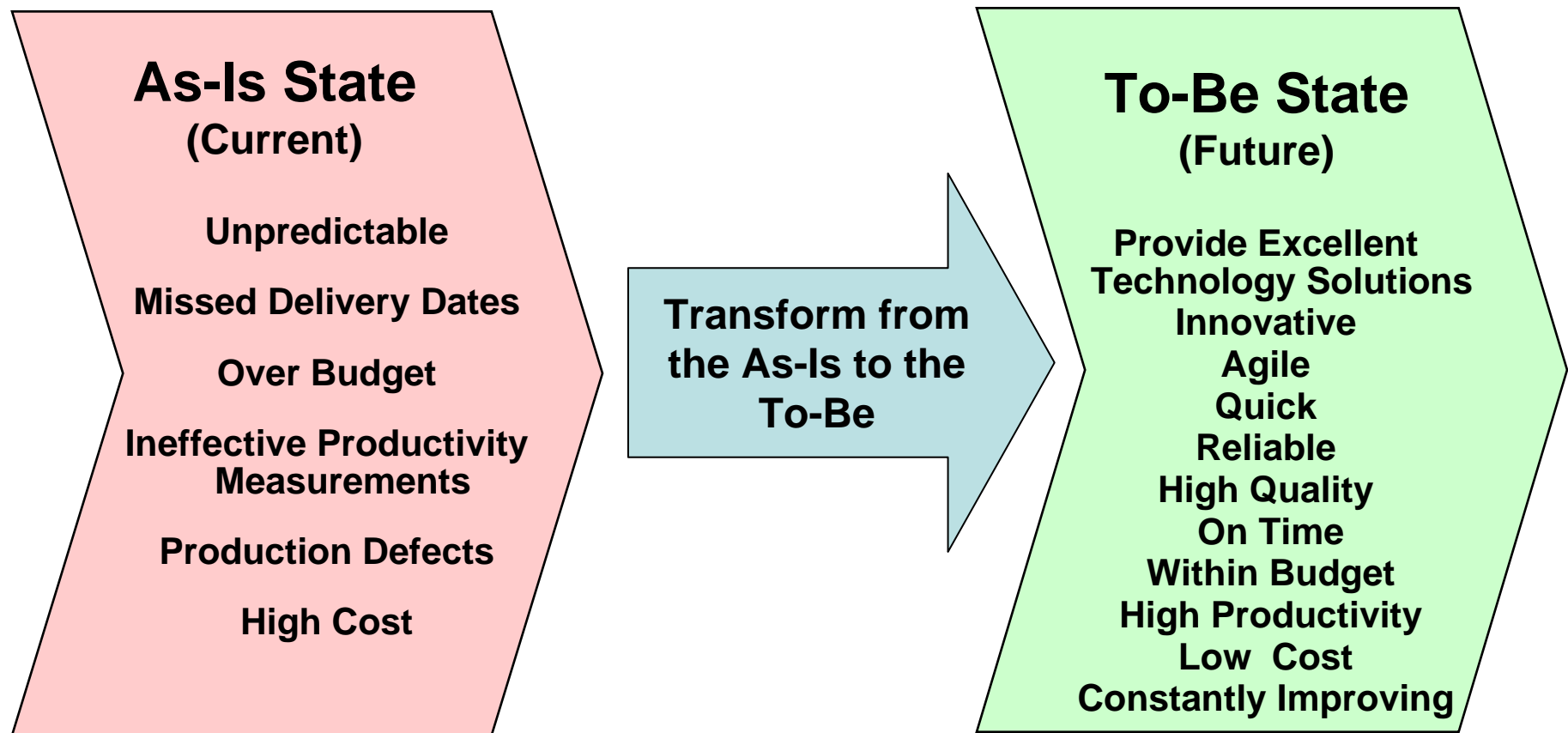
“Starting today, we must pick ourselves up, dust ourselves off and begin again the work of remaking America.”

Barack Obama, Inauguration Speech, January 20, 2009

...and of remaking the American Software Industry!

**Our goal should be to enable our organizations
to become successful global competitors!**

Our Challenge: How do we transform from our As-Is State to an improved To-Be State?



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- ◆ **Practices, Processes & Best Practice Frameworks**

- ◆ Process Improvement

- ◆ Process Design and Deployment

- ◆ Process Maturity

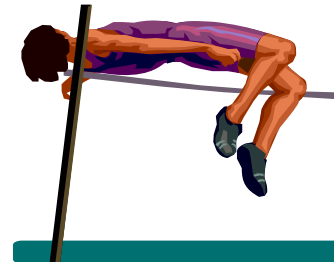
- ◆ Summary

A practice is a consistent, repeatable way of working.

Adapted from: The Official Introduction to the ITIL Service Lifecycle, OGC, 2007



**Old Best Practice:
Traditional Face First
High Jump Approach**



**New Best Practice:
Fosbury Flop – Jump
Over Backwards
set new records**

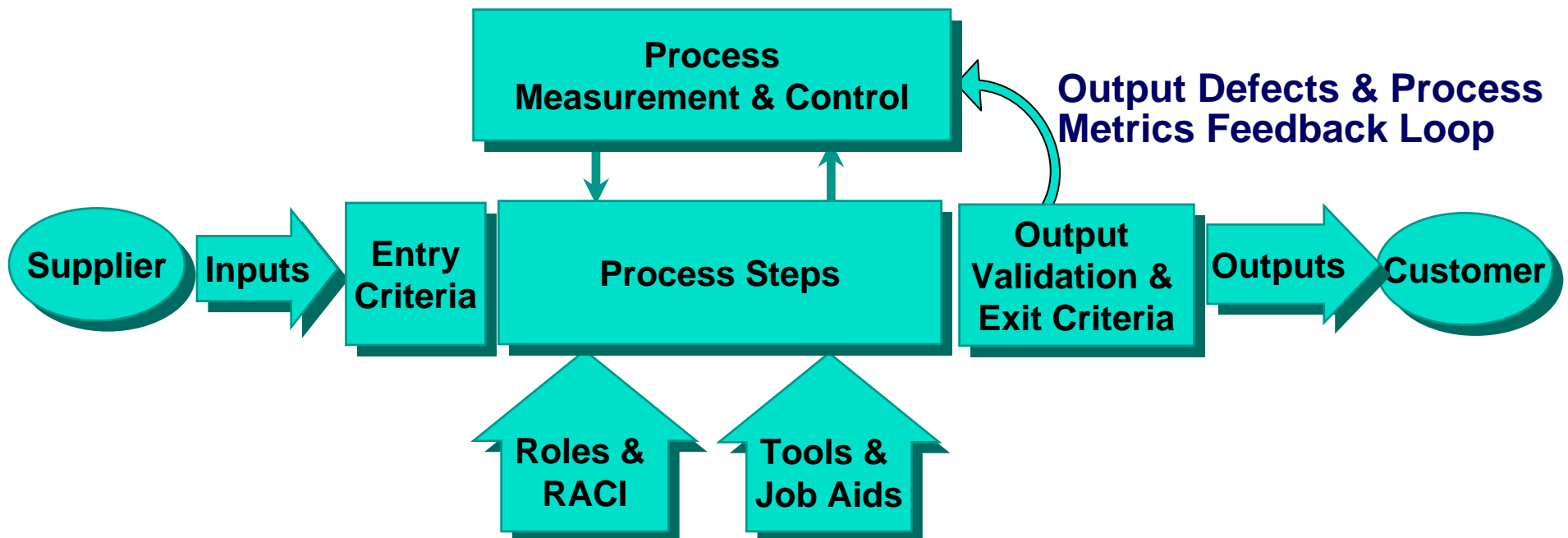
**A “Best Practice” is a practice that has proven to be
more effective and efficient than others,
over time and across multiple organizations.**

Adapted from: ITIL v3.0 & Wikipedia

Best Practices are constantly being improved!

Process Definitions

- ◆ Processes are organized sequences of activities and practices that transform inputs into outputs
- ◆ Processes are the foundation for the organization's work
- ◆ Processes can be improved once they become repeatable
- ◆ Measurement is essential for process improvement



Excellent organizations design streamlined processes to get work done!

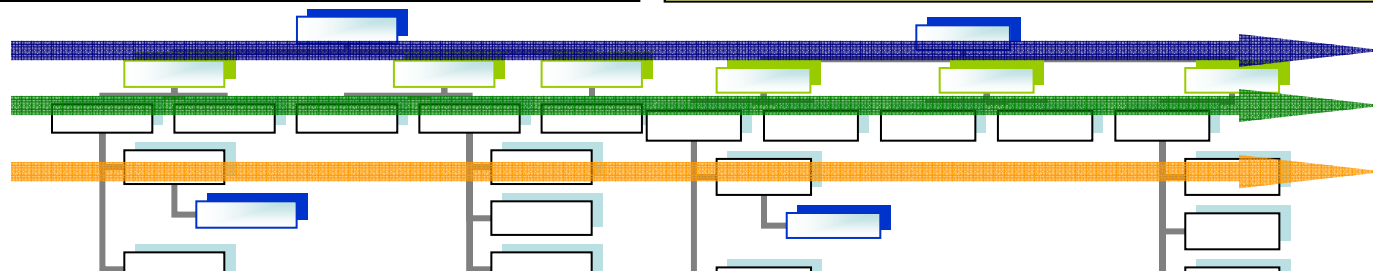
Functional View vs. Process View

Functional Organization

- ◆ Lack End-To-End view of work
- ◆ Lack overall ownership
- ◆ Divergent functional goals often result in:
 - Conflicts between functions
 - Delays between functions
 - Duplication of work
- ◆ Continuous improvement is difficult
- ◆ Limited functional metrics

Process Focus

- ◆ Provides an End-To-End view
- ◆ Provides for overall process ownership
- ◆ Focus is on the process and customer goals versus functional goals
- ◆ Continuous improvement is easier
- ◆ Process metrics are used to manage the End-to-End process



Successful improvement requires a process, not a functional view.

Core Processes and Sub-Processes

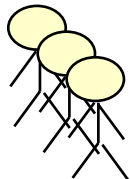
Processes can be decomposed into Sub-Processes



The output of one process can be linked to the input to the next processes to create **Core Processes** also known as **Value Chains**

The result is an End-to-End view of work that transforms ideas into products and services.

Core Processes Define The Key Work Activities Of The Organization.



**Customer
Needs**

IT Strategy, Architecture & Planning

Develop, Operate & Maintain Solutions

Program & Release Management

Administrative & Resource Management

Quality Assurance & Testing Support

Configuration Management

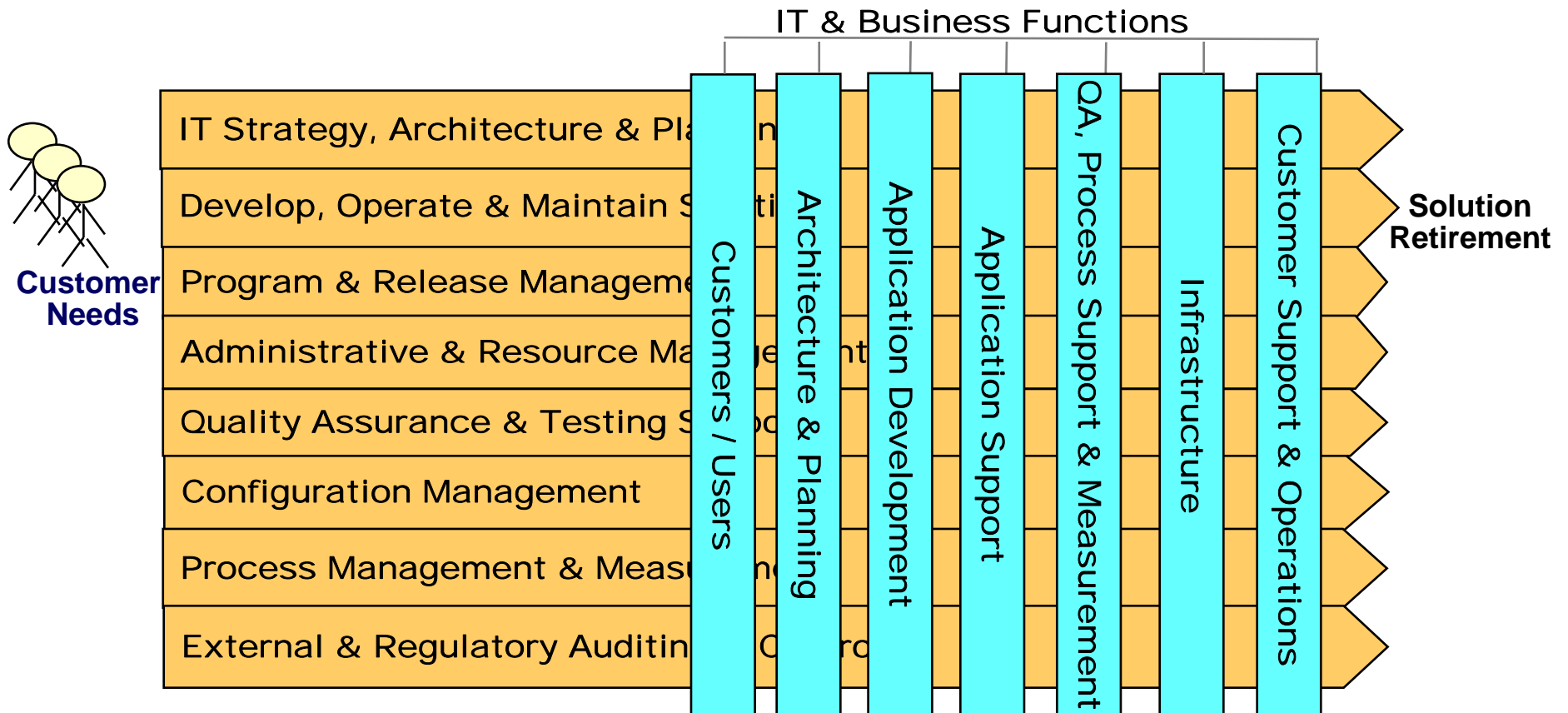
Process Management & Measurement

External & Regulatory Auditing & Control

**Solution
Retirement**

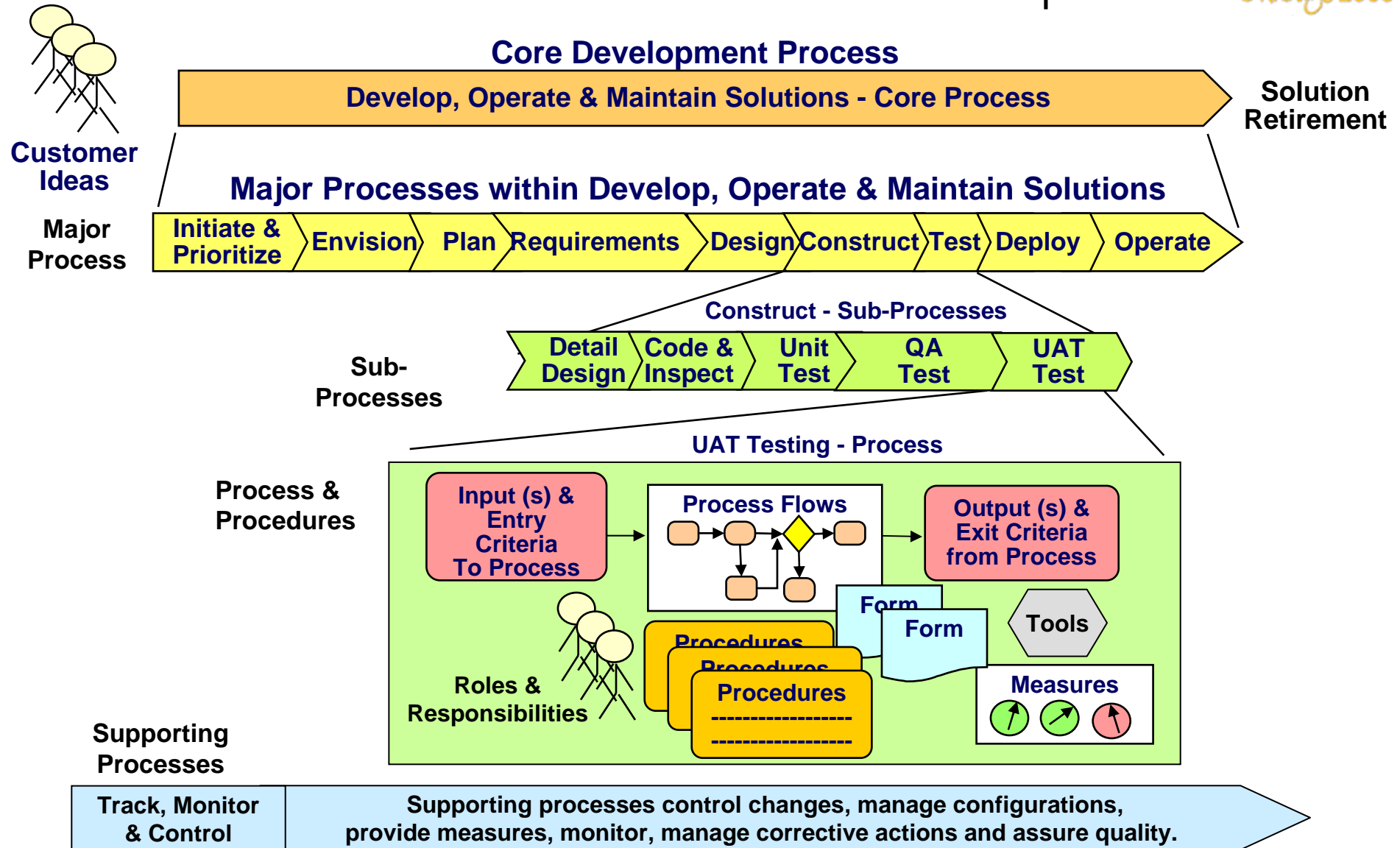
Most organizations can be defined by 7 to 10 core processes.

Core Processes Cross Organizational Functions



Functional organizations need to support the core processes by implementing them in their functional areas.

Sub- Processes Can Be Further Decomposed



Best Practice Processes Frameworks

- ◆ **Best Practices have been codified into Best Practice Frameworks**
- ◆ **Key IT Best Practice Frameworks include:**
 - **Agile Methods** – focuses on rapid, iterative development
 - **CMMI** – focuses on custom development (waterfall & iterative)
 - **ITIL** – focuses on IT operations
 - **ISO9000** – focuses on quality
 - **PMBOK** – focuses on project management
 - **OPM-3** – focuses on the relationship between projects, programs and portfolios
 - **Sarbanes-Oxley / CobiT** – focuses on risk reduction and security

Note: Six Sigma (6σ) is not a process framework, but a set of tools and techniques focused on metrics, process design and improvement.

Excellent IT organizations use Best Practice Frameworks to guide them in their quest for excellence.

Core Processes, Major Processes and the IT Process Model

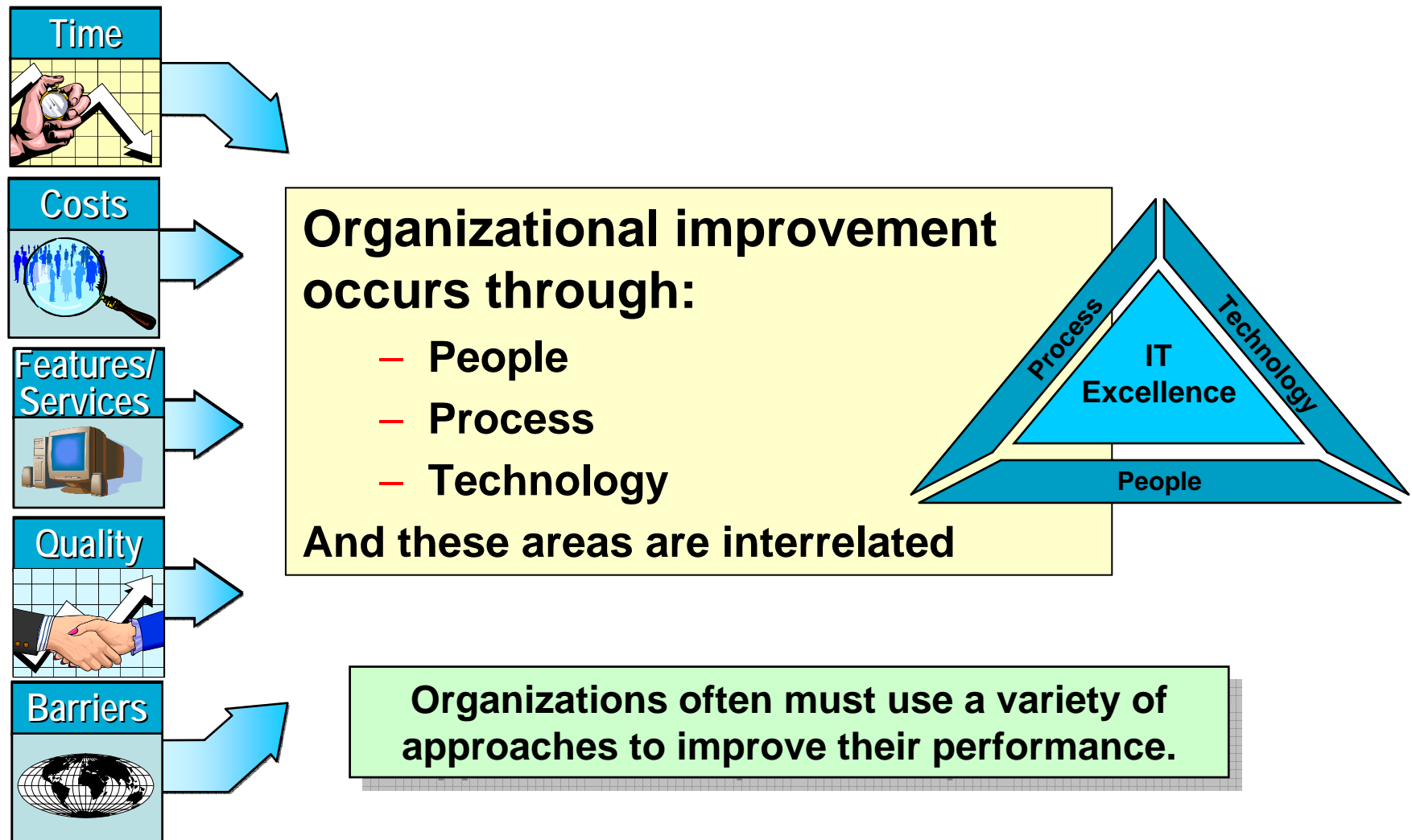
IT Strategy, Architecture & Planning A	Financial & Strategic Information Gathering A1	Business Strategy ID A2	Research & Opportunity Evaluation A3	Financial Planning A4	IT Strategy Formulation A5	IT Architecture Development A6	IT Planning A7	IT Operations Planning A8
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Track, Monitor & Control								

Excellent IT organizations need to develop their own process model based on best practices in a way that fits their culture and needs.

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Improvement Approaches

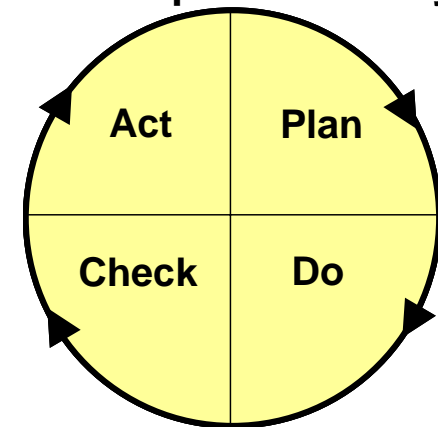


Improvement through Process

Process improvement has a long and proven history as an excellent means of improving the organization

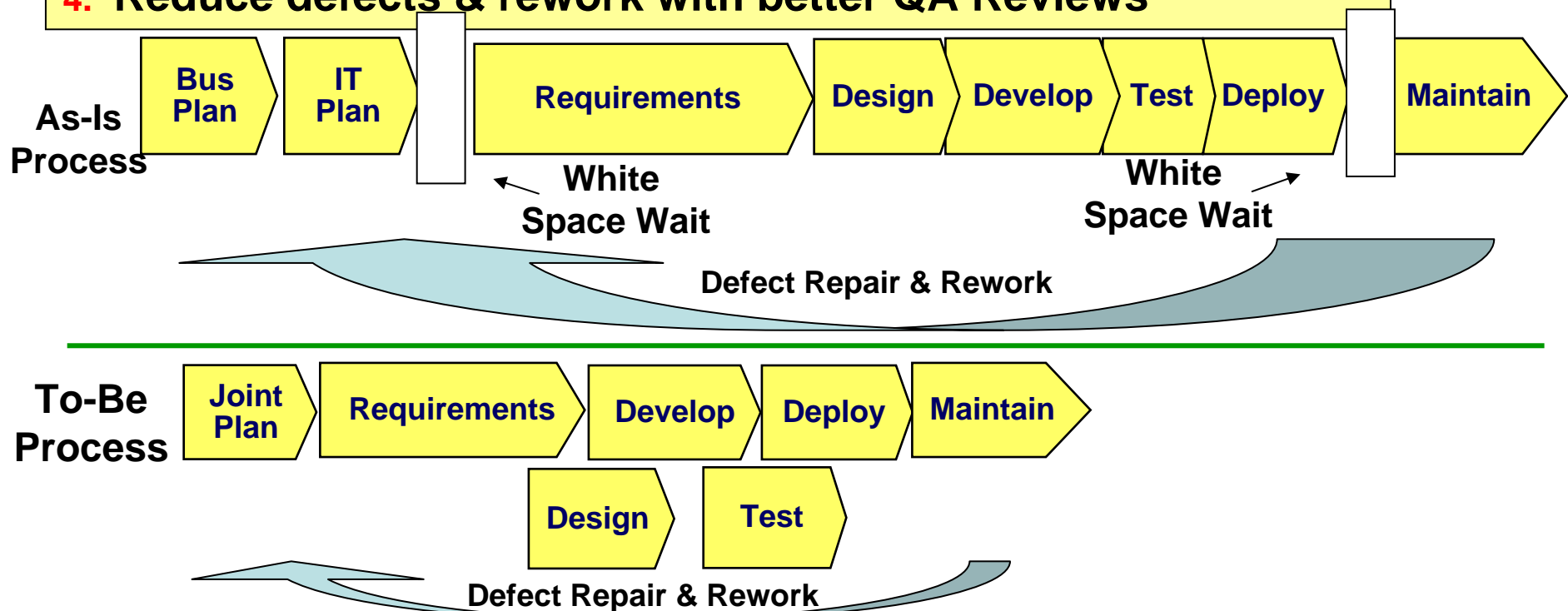
- **Walter Shewart, Statistical Process Control, AT&T, 1930's**
- **W. Edwards Deming, *Out of Crisis*, 1986**
- **Joseph Juran, *Juran on Planning for Quality*, 1988**
- **James Champy & Michael Hammer, *Reengineering the Corporation*, 1993**
- **Michael George, *Lean Six Sigma*, 2003**
- **CMMI v1.2, August, 2006**
- **ITIL v3.0, June, 2007**

Deming's Continuous Process Improvement Cycle



A Process Improvement Example

1. Eliminate Activities & White Space Wait Times
2. Reduce Process Execution Time for Requirements
3. Overlap the Development Process with Design & Testing
4. Reduce defects & rework with better QA Reviews



Result: Shorter cycle time, less rework, higher productivity and lower costs.

Improvement through Technology & Tools

- ◆ **Technology & tools is another way to improve the organization by enabling and automating processes**
- ◆ **New processes often require new tools to operate effectively**
- ◆ **However:**
 - **Good processes are required for the tools to be effective**
 - **Staff may be insufficiently trained in the new tools resulting in the tools being underutilized**
 - **Many technology solutions are overly hyped**
 - **They do not work as well as they are marketed**
 - **There is often a need to wait for the next release for “what we really need”**

Technology and tools need to be tied to process improvements to improve the organizations competitive position!

Improvement through People

- ◆ People are key to any improvement initiative
- ◆ However, not all improvements through people are effective:

Type of Change	Pros	Cons
Reorganize	Can be easy to do ...if no layoffs are involved	<ul style="list-style-type: none"> ◆ Often doesn't make much of an improvement ◆ Can reduce productivity if layoffs are involved
Replace	If the replacement person is better than the original, improvements should occur	<ul style="list-style-type: none"> ◆ Can't always find "right" replacement and the improvements do not always occur ◆ Example: Professional sports teams
Outsource	Can lower costs, as global labor rates are out of balance	<ul style="list-style-type: none"> ◆ Often done without knowing true costs ◆ Often increases risks
Layoff Staff	Can quickly reduce costs	<ul style="list-style-type: none"> ◆ Can cause morale problems which prevent other types of improvement such as: Reducing Cycle Time, Adding Features, etc.
Train / Educate	<ul style="list-style-type: none"> ◆ Easy to do ◆ Often tied to process improvement training 	<ul style="list-style-type: none"> ◆ Often insufficient training is provided which may result in little improvement
Staff participates in Process improvements	<ul style="list-style-type: none"> ◆ Easy to do and gets buy-in from management & staff 	<ul style="list-style-type: none"> ◆ If staff is not given opportunity to participate they may undermine the improvement initiative

The best people oriented improvement approaches should be integrated with process improvement initiatives.

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A People Oriented Approach to Improvement

- 1. Establish an Urgent Need to Change**
- 2. Build Coalition of Change Champions**
- 3. Develop Vision, Strategy & Plan**
- 4. Communicate Vision & Mobilize the Organization**
- 5. Establish Process Improvement Foundation to Empower Change**
- 6. Improve Processes to Generate Quick Wins**
- 7. Consolidate Gains, Measure Progress & Produce More Change**
- 8. Anchor the Changes in the Organization's Culture**

Leading Change, John Kotter, 1996

This people oriented process improvement approach is an integration of John Kotter's eight step approach with Gemini Consulting's Organizational Change Management Practices, Six Sigma & Agile Development techniques.

1. Establish an Urgent Need to Change

- ◆ **Change begins when someone sees a situation (problem) that requires the organization to change**
- ◆ **A sense of urgency is necessary to gain the cooperation needed to change an organization**
- ◆ **Natural Urgent “Burning Platforms”**
 - New Manager / CIO
 - Government, FDA or ISO Compliance Violation
 - Completion
 - Metrics – Motorola Six Sigma Example
- ◆ **If the “Burning Platform” is not obvious**
 - Those who identified the problem must gather facts
 - Show that change is urgently needed
 - Define the As-Is situation with its problems

A “Burning Platform” is required to initiate change!
Watt’s Humphrey, CMM architect.

2. Build a Coalition of Change Champions

- ◆ Typically those who identified the urgent need to change must enlist the help of others to make change happen
- ◆ They must find the right team members to guide the change who together have:
 - Position Power
 - Expertise
 - Credibility
 - Leadership & Management Skills
- ◆ Once the right individuals have been identified, they must be molded into a highly effective team of Change Champions who:
 - Believe in the change effort
 - Create trust
 - Develop a common goal
 - Have a sense of urgency

Change Champions do not have to be the senior leaders of the organization, but they need to form an effective team with the senior leaders to guide the change.

3a – Define the To-Be Vision

♦ Characteristics of an Effective Vision:

- Imaginable
- Desirable
- Feasible but “stretch” goals
- Focused and measurable
- Flexible
- Simple, easy to visualize & communicate

♦ Examples

- John Kennedy, “ ... landing a man on the Moon and returning him safely to the Earth” by the end of the decade
- Reduce defects by an order of magnitude in 3 years (Motorola – Six Sigma)

To-Be Vision:
**Achieve CMMI L3 in
1 year to reduce
outsourcing**
**Provide Excellent
Technology Solutions**
Innovative
Agile
Quick
Reliable
High Quality
On Time
Within Budget
High Productivity
Low Cost
Constantly Improving

“A Vision is a picture of the future with some commentary as to why people should strive to create the future.” John Kotter, *Leading Change*

3b – Develop Improvement Principles

The organization must develop principles to guide the improvement

Example Process Improvement Principles:

- 1. Run Process Improvement as a Program w/Projects**
- 2. Minimize the number of concurrent projects**
- 3. Iteratively implement small changes**
- 4. Make use of internal and external “best practices”**
- 5. Minimize change to in-flight work and projects**
- 6. Document processes just enough, less a little**
- 7. Constantly communicate every change**
- 8. Recognize, reward and celebrate successes**
- 9. Measure results and build in continuous improvement**
- 10. Use Organization Change Management to Change the Culture**

Each organization must develop and agree to its own set of Improvement Principles.

3c – Select an Improvement Strategy

There are three basic approaches to implementing an Improvement Program:

1. **Big Bang** – Develop all Process Areas at the same time and then implement them all at the same time
2. **By Process Area** – Develop and implement one Process Area at a time – horizontally, Requirements Management and then go to another horizontal Process Area – e.g. Project Planning
3. **By Incremental Release** – by Vertical Slice to develop and implement an increment of all interrelated Process Areas – e.g. Vertical Slice 2

Big Bang -
Do it all at
the same
time

Recommendation Process Area	Slice 1	Slice 2	...	Slice n
Portfolio Management				
Project Planning				
Requirements Development				
Requirements Management				
Develop Technical Solution				
Project Monitoring & Control				
Process & Product Quality Assurance				
Measurement & Analysis				
Configuration Management				

- ♦ Start by completing one small change and then do more.
- ♦ Don't try and do too much or no improvements will be made.

3d – Use the Process Model to Prioritize

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Legend: Green – 1st Release Orange – 2nd Release

3e – Develop a Process Improvement Plan

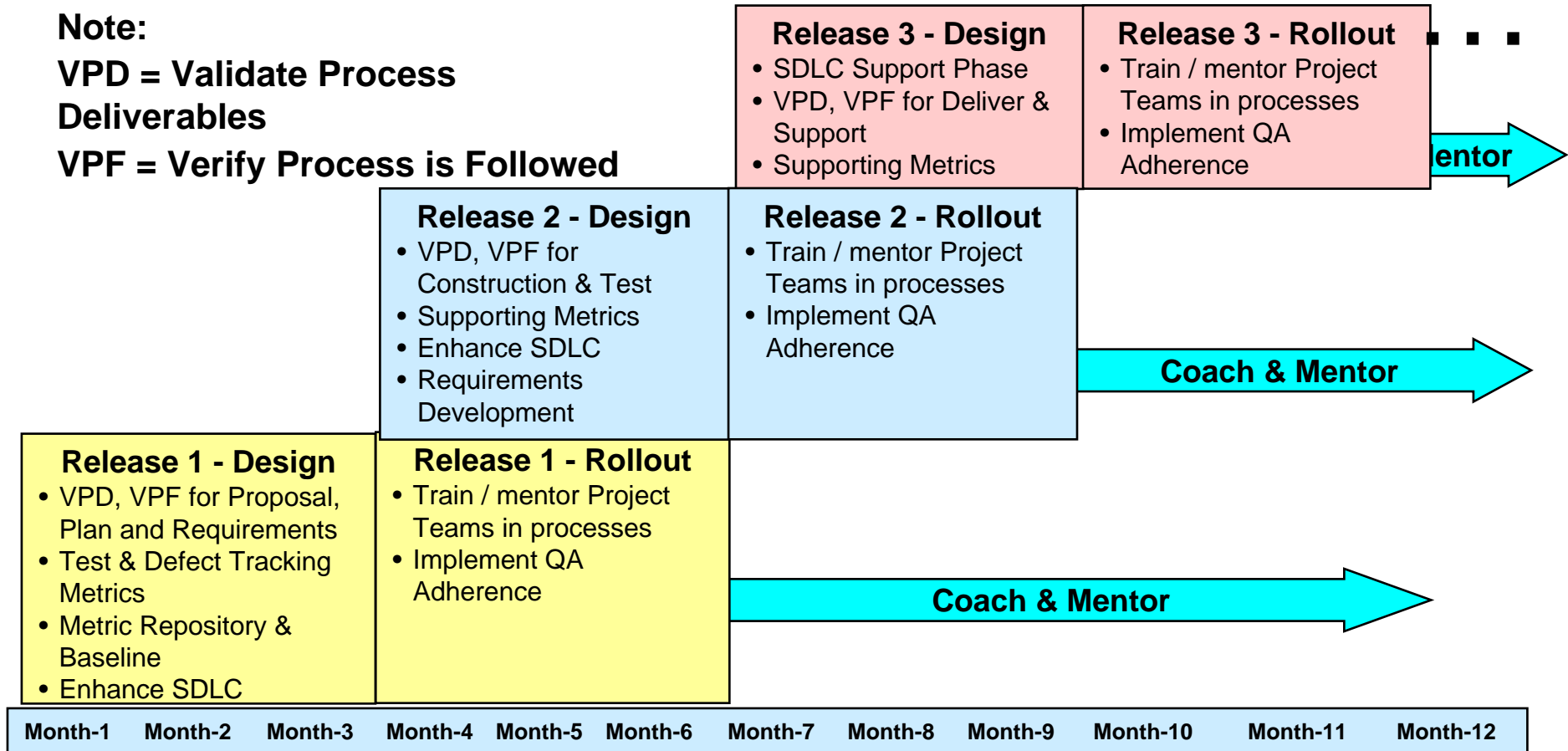
Process Improvement Program Management

Note:

VPD = Validate Process

Deliverables

VPF = Verify Process is Followed



This drawing shows an interactive release approach to process deployment based on one release per quarter.

4. Communicate & Mobilize the Organization

- ◆ **Develop a Communications Plan with a focus on mobilizing the organization to action**
- ◆ **Communicate the Vision, Strategy and Plan to the organization using:**
 - All hands meetings
 - Email
 - Voice Mail
 - One on One
 - Lunch & Learns
 - Expert Speakers Series
 - Video
 - IPOD
 - ...

You can never communicate too much!

5. Establish Process Management Foundation

- ◆ In order to empower change, a solid Process Improvement Foundation must be established
- ◆ The Process Improvement Foundation includes:
 - Senior Management Commitment
 - Process Management and Ownership
 - Processes to Develop, Change and Support Process Improvements
 - Process Compliance
 - Process Repository
 - Measurement & Analysis

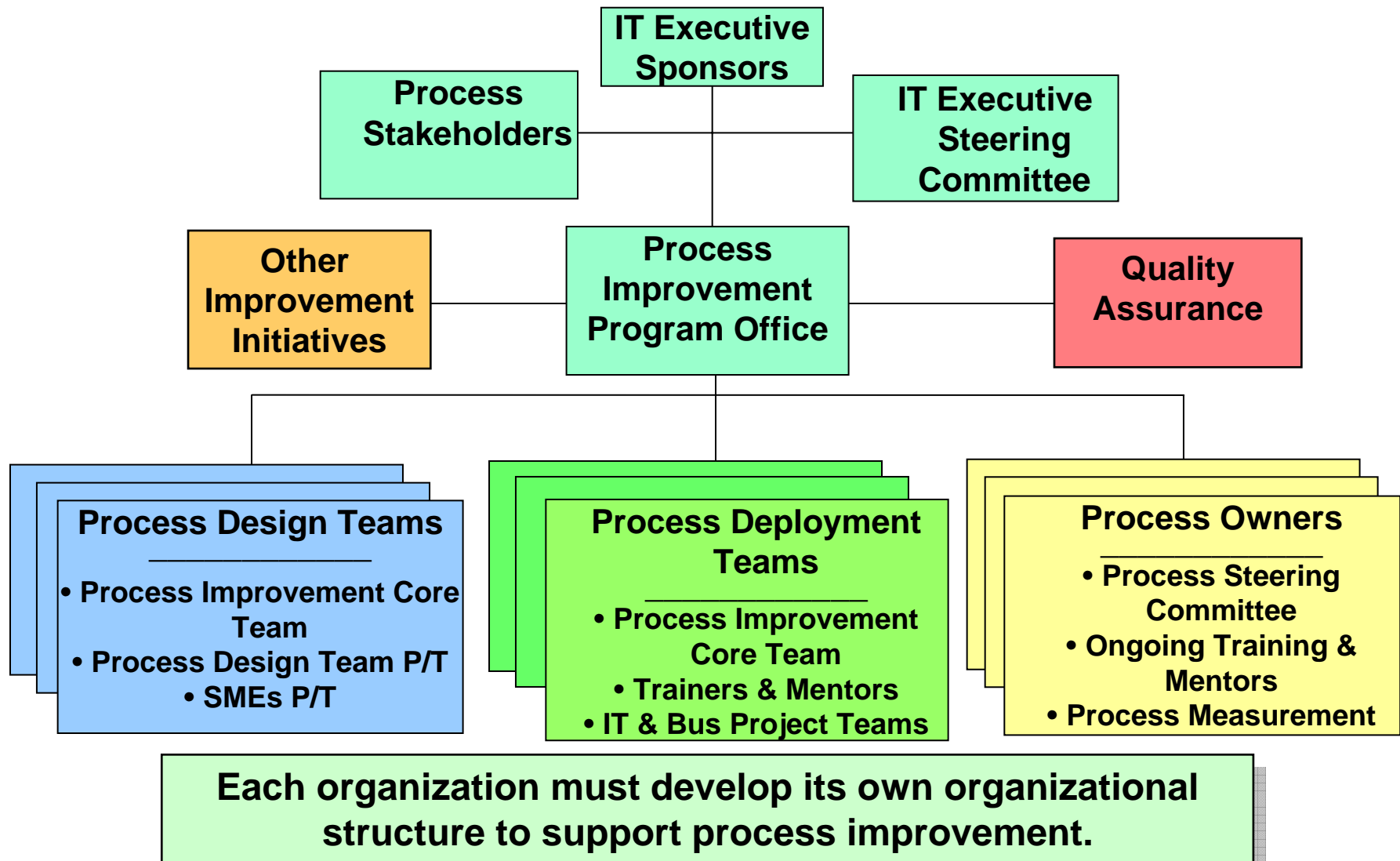
A solid Process Management Foundation is needed to support process improvement projects.

5a - Senior Management Commitment

The Senior Leadership Team must:

- ♦ **Approve and fund the Improvement Program**
 - Provide adequate resources
 - Provide resources adequate time to participate in the process design activities and implementation
- ♦ **Sponsor, lead, role model and fully participate in the changes**
 - Oversight of the Improvement Program
 - Sr. Management Reviews
 - Validation and Verification Gate Reviews with Escalation
- ♦ **Require that the improvements be integrated into an overall Improvement Program**
- ♦ **Reduce the number of competing improvement initiatives**
- ♦ **Recognize and reward individuals and teams that improve**
- ♦ **Remove punitive & hero mentality**
- ♦ **Communicate, communicate, communicate**
- ♦ **Stay the course**

5b - Process Management & Ownership



5c - Develop Process Improvement Processes

- ◆ **Process Development Process** The process used to develop and deploy new & revised processes

- ◆ **Process Change Management**

The process to request changes to processes, prioritize the change requests and feed the Process Development Process

- ◆ **Process Support**

The process used to provide support to staff members while they are learning the new processes

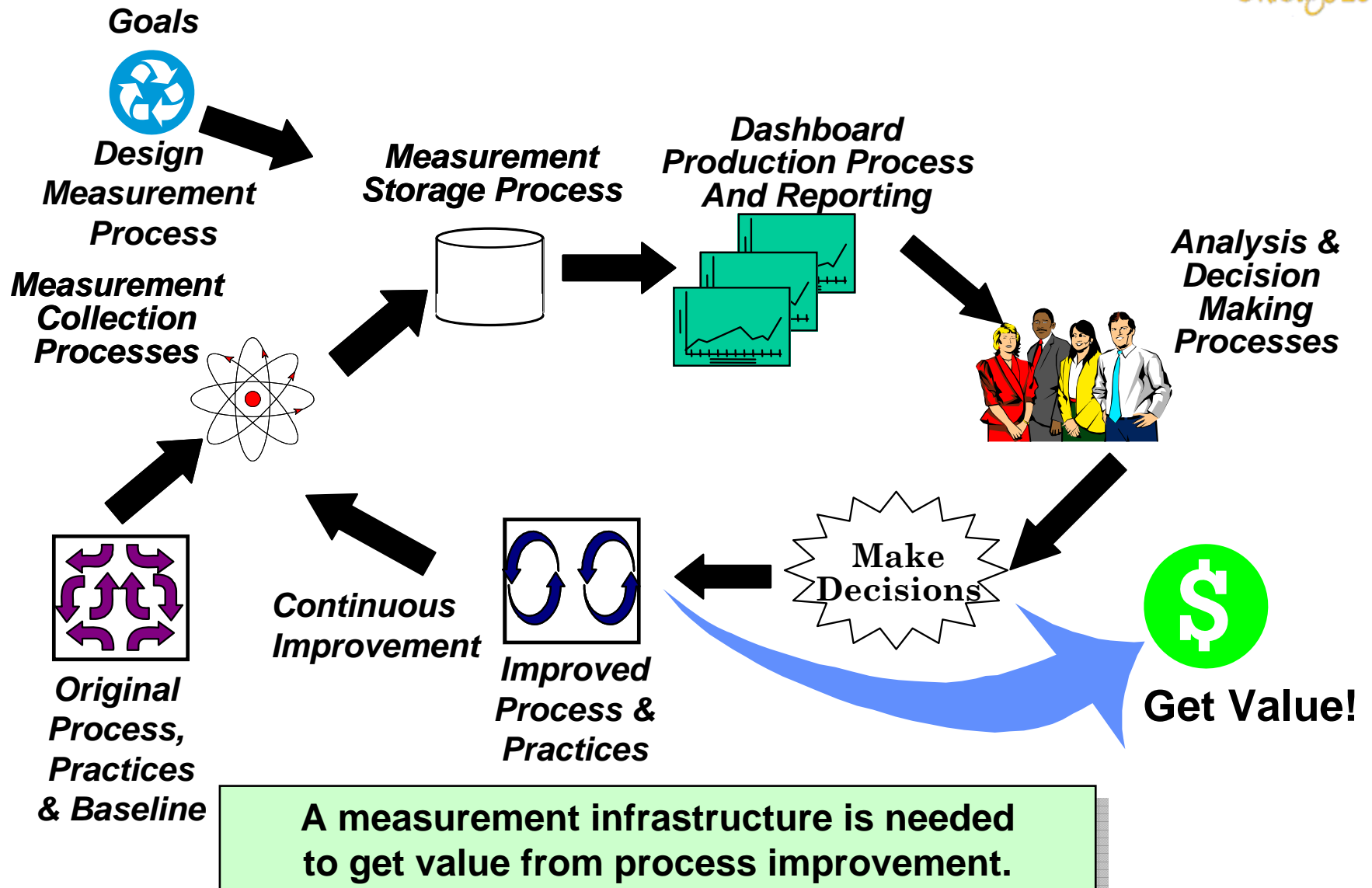
- Help Desk
- Training
- Mentoring

5d - Develop a Process Asset & Tools Library

- ◆ **The Process Asset Library is the one place that all process assets are stored**
 - Policies
 - Process Descriptions
 - Process Flows
 - Templates & Forms
 - Work Instructions
 - Job Aides
 - Tools
- ◆ **Provides One-Stop-Shopping**
 - Simple
 - Easy to use
 - Graphic or Text Based
 - Full Text Search



5e - Develop a Measurement Infrastructure



5f - Develop Process Compliance / Quality Assurance

- ♦ **In order to institutionalize behavior change, everyone must learn that it is important to follow the new process**
- ♦ **The key mechanism to do this is to institute a Process Compliance (Quality Assurance) Capability to:**
 - **Verify that the processes are being followed**
 - **Grant waivers from following the process with a “good” reason**
 - **Track process deviations**
 - **Measure Process Performance**
 - **There are many ways to implement this capability: Ex. In Extreme Programming, Pair Programming provides compliance**

Without a strong formal process compliance capability, there is little incentive for the staff to follow the new processes.

6. Process Design

Six Sigma DMAIC is a powerful tool for designing process improvements.

Define

Define problem and establish purpose and scope.

Measure

Define “As-Is Process” and gather baseline metrics.

Analyze

Identify problems and design improved “To-Be” process.

Improve

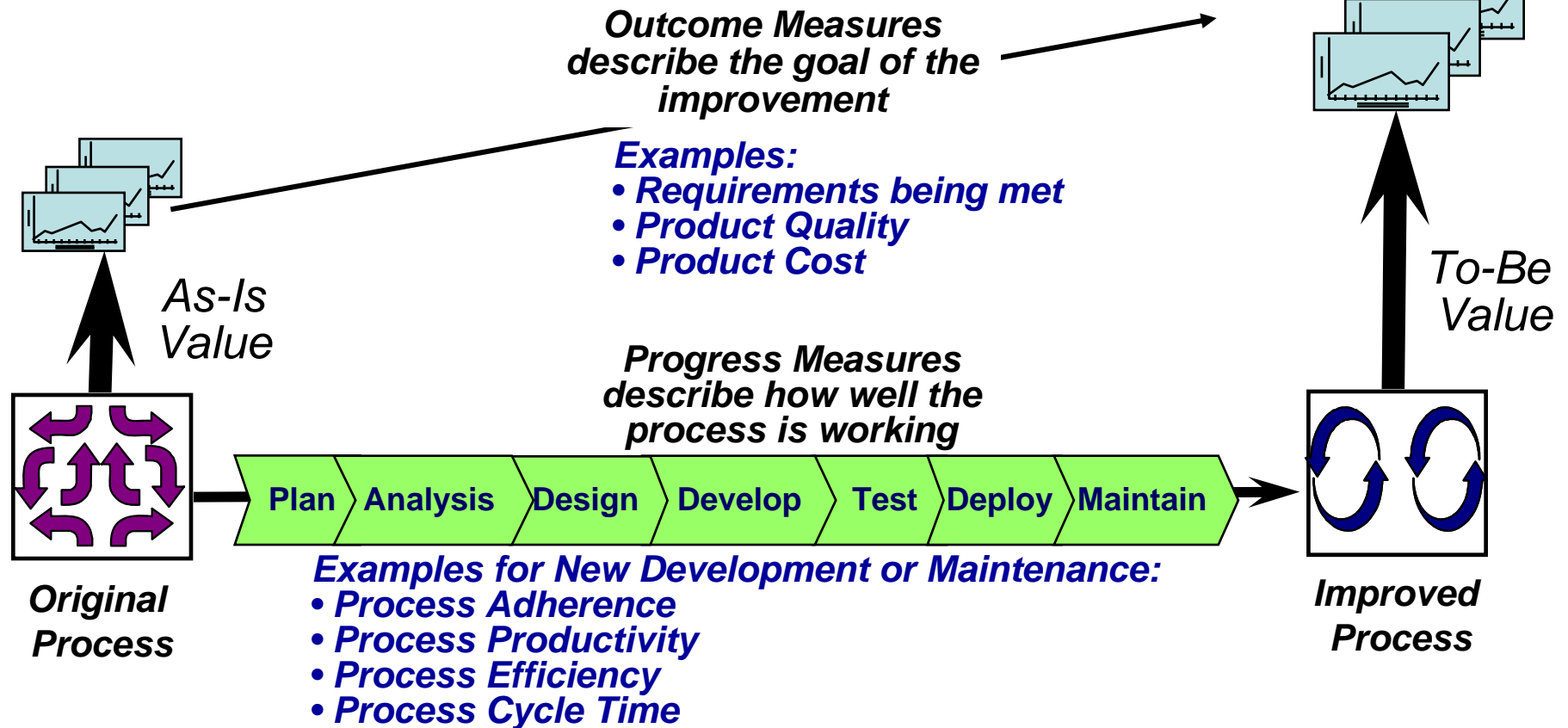
Develop and deploy the “To-Be” process solution.

Control

Monitor “To-Be” process measures and refine as needed.

DMAIC should be integrated with an organizational change management approach that focuses on the people aspects of improvement initiatives.

7. Measure Progress & Produce More Change



In order for process improvements to be institutionalized, process progress and output measures must be captured and reported.

8. Anchor the Change in the Culture

Culture is complex phenomenon that is the result of formal & informal rules, behavior norms, stories, examples & shared values that shape behavior.

Culture change occurs when individuals adapt new behaviors defined by new processes that:

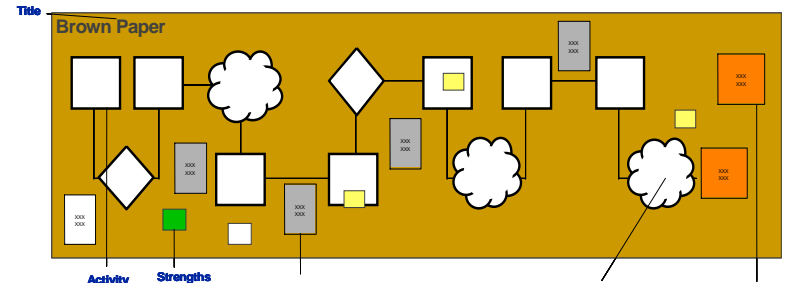
- Produce good results**
- Are recognized, rewarded and reinforced**
- Are rooted in both the formal and the informal processes**
- Are constantly communicated to all levels of the organization & to new and current members**

Often the underlying organizational culture often must change to support the improvements.

Organizational Change Management Toolkit

Brown Paper

- ◆ **Readiness for Change Survey**
- ◆ **Combine:**
 - Low Tech – Brown Paper
 - High Tech – Process Simulation
- ◆ **Facilitation Skills**
- ◆ **Problem Solving Workshops**
- ◆ **Roles & Responsibilities**
- ◆ **Meeting Rules**
- ◆ **Buy-In**
- ◆ **Measurement**
- ◆ **WIIFM – What's In It For Me?**



RACI Chart

No	Activity	Change Management Team	Change Requestor	Business Analyst	Project Manager	Business Owner	Project Team
1	Submit Requirements Change Request		AR		R	R	
2	Log Change Request	I			AR		
3	Review Request	R			AR		
4	Approve Requirements Change Request for Analysis	AR			R		
5	Assign analyst to analyze	AR		I	I		
6	Analyze Request and Estimate Impact	I	C	AR	C		
7	Review Impact & Estimate				AR		
8	Change Request Valid / Complete			I	AR		
9	Business Owner Approval Required				AR		
10	Review Request by Business Owner		R		AR	C	
11	Decide on Request		C		AR	AR	

These organizational change management techniques can help anchor the process change into the culture.

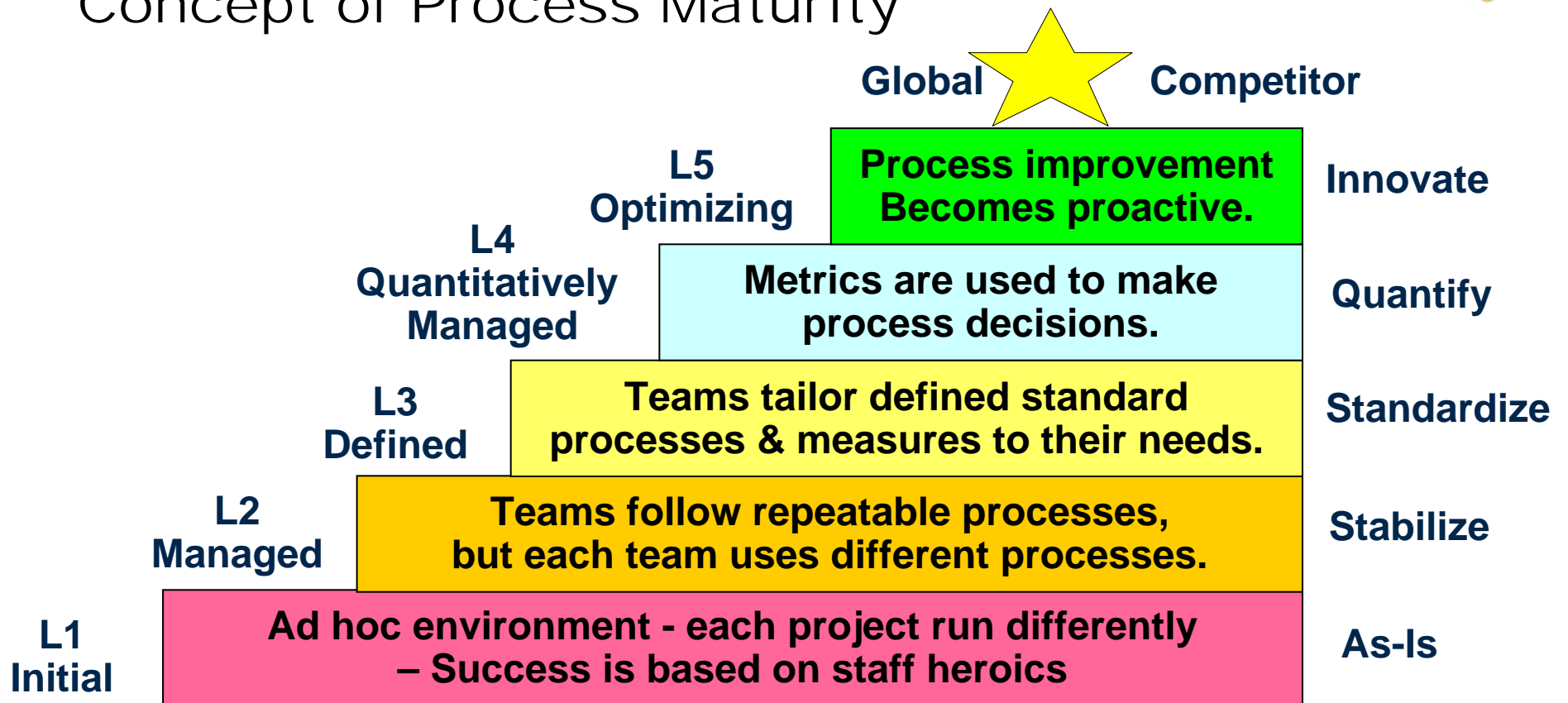
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Process Maturity

- ◆ **Process Maturity is a key organizational development concept**
- ◆ **The Software Engineering Institute (SEI) developed a five level Process Maturity Model used in the CMMI**
- ◆ **The SEI's Process Maturity Model can be applied to other Best Practice Frameworks such as ITIL**
- ◆ **The Process Maturity Model adds organizational change management capabilities to these frameworks to make them more useful**

Concept of Process Maturity



CMMI process maturity concepts can be applied to other Best Practice Framework, such as ITIL with great success.

The Importance of Level 5

An organization operating at Process Maturity Level 5

- Is innovative and constantly looking for ways to optimize and improve its capabilities**
- Has processes in place to introduce and rapidly speed the deployment and adoption of new technologies and practices**
- Is constantly measuring its performance and uses that information to help manage the business**

The Process Maturity Level 5 organization is best able to compete on a global basis. It is constantly striving to be excellent and the best that it can be.

Why Not Stop at Level 1, 2, 3 or 4?

- ♦ **Level 1 – High costs, low productivity & high production defects (This is where most US software development organizations are today!)**
- ♦ **Level 2 – not sustainable, many organizations assessed at Level 2 quickly revert back to Level 1**
- ♦ **Level 3 – has been shown to be sustainable; however, due to contracting situations many Level 3 organizations are content to remain at Level 3 instead of going on to Level 4**
- ♦ **Level 4 – Most organizations that attain Level 4 typically go on to attain Level 5 – to become better global competitors**
- ♦ **Almost every foreign outsourcer is at Level 5**

Note: As long as the ROI is positive the organization should continue to improve levels

In order to survive as global competitors, the US Software Industry can no longer be satisfied with Level 1, 2, 3 or 4 – we need to get to Process Level 5.

Agenda

- ◆ Introduction
- ◆ Practices, Processes & Best Practice Frameworks
- ◆ Process Improvement
- ◆ Process Design
- ◆ Process Maturity
- ◆ Summary

Summary

Process Improvement Steps

1. Establish an Urgent Need to Change
2. Build Coalition of Change Champions
3. Develop Vision, Strategy & Plan
4. Communicate Vision & Mobilize the Organization
5. Establish Process Improvement Foundation to Empower Change
6. Improve Processes to Generate Quick Wins
7. Consolidate Gains, Measure Progress & Produce More Change
8. Anchor the Changes in the Organization's Culture

***Improvement is not a destination,
but a journey that never ends!
But the journey is worth it!***

The Benefits are Worth it!

Companies have seen the following benefits from successfully implementing process improvement programs

Measure	Median Results
Return on Investment*	7:1 Return (700% ROI)
Productivity gain per year*	35% increase
Reduction in Time-to-Market*	20% time reduction
Pre-test defect detection*	22% increase per year
Employee Satisfaction**	Increase from 5.7 to 8.3 out of 10
Customer Satisfaction**	Increase from 86% to 99+%
Initial investment for process improvement activities	4% of budget (minimum 2% - maximum 8%)

Source: * SEI Study
** Boeing Study

**Results: Agile...Better...Faster...Cheaper...
You Can Do it to!**

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