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The Rational Software Conference

11th and 12th of October

Let's **build** a smarter planet.



Transforming a Development Organization

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Chief Architect (IT), IBM Rational Worldwide Solution Delivery



Agenda

→ Introduction

Best Practices

Case Study

Summary



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The Target of Transformation – a Development Environment



Solution Context (functionality, qualities, constraints)	
Method	Roles, work products, tasks, processes Standards, guidelines, checklists etc. Method deployment topology
Tools	Development tools and integrations Development tool configurations and install scripts Development tool deployment topology
Enablement	Training curriculum and courses Mentoring materials Enablement deployment topology
Organization	Organizational roles and units Organization deployment topology
Infrastructure	Locations, nodes and connectivity Supporting software (such as operating systems)
Adoption	Adoption plan Techniques for driving organizational change Environment metrics

Hot off the Press!

<http://www.ibm.com/developerworks/rational/library/define-scope-development-environment/index.html>



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Define the scope of your development environment

Ensure comprehensive consideration of all elements

[Peter Eeles](#) (peter.eeles@uk.ibm.com), Executive IT Architect and Chief Architect for IT, Rational Services, IBM

Date: 24 May 2011
Level: Intermediate
PDF: [A4 and Letter](#) (120KB | 17 pages) [Get Adobe® Reader®](#)

Summary: Applying a consistent and comprehensive definition of a development environment ensures that nothing is overlooked, whether you're planning, defining, deploying, or managing such an environment.

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Why a definition matters

A development environment contains everything required by a team to build and deploy software-intensive systems (where software is an essential and indispensable element). So why is having a consistent definition of a development environment important? Put simply, many organizations want to reduce time-to-market, reduce cost, and improve quality, and all of these business goals are directly influenced by the quality of the environment used to produce these systems. Having a consistent and comprehensive definition of a development environment at hand ensures that nothing is overlooked when you're planning an initiative to improve the current environment, defining requirements for the environment, defining the architecture of the environment, assessing the environment, ensuring an appropriate return-on-investment when changing the environment, and so on. A development environment definition is a critical input to all of these tasks.

Putting the development environment in context

Before looking at the specific elements that comprise a development environment, it really helps to first understand where this

Table of contents

- Why a definition matters
- Elements of a development environment
- Define, deploy, manage
- Interdependencies
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Summary of Best Practices



Rational

- Consider all elements of a development environment
- Implement a center of excellence
- Plan improvements around capabilities
- Adopt capabilities incrementally
- Embrace principles of organizational change

Kotter

- Establish a sense of urgency
- Create the guiding coalition
- Develop a vision and strategy
- Communicate the change vision
- Empower employees for broad-based action
- Generate short-term wins
- Consolidate gains and produce more change
- Anchor new approaches in the culture



Consider all Elements of a Development Environment



	Solution Definition	Solution Deployment	Solution Management
Method	Roles, work products, tasks, processes Standards, guidelines, checklists etc. Method deployment topology	Define local configuration Deploy method	Gather feedback on method
Tools	Development tools and integrations Development tool config., install scripts Development tool deployment topology	Perform local configuration Install tools Migrate local data	Backup / archive / restore data Gather feedback on tools
Enablement	Training curriculum and courses Mentoring materials Enablement deployment topology	Perform local configuration Deploy enablement materials Train practitioners	Mentor practitioners Gather feedback on enablement
Organization	Organizational roles and units Organization deployment topology	Define local configuration Reorganize	Gather feedback on organization
Infrastructure	Locations, nodes and connectivity Supporting software (such as OS)	Define local infrastructure Provision locations, nodes, connectivity Provision supporting software	Onboard / retire infra. as required Gather feedback on infrastructure
Adoption	Adoption plan Techniques for driving org. change Environment metrics	Define local adoption plan Validate the environment	Measure environment effectiveness Gather feedback on adoption

Summary of Best Practices



Rational

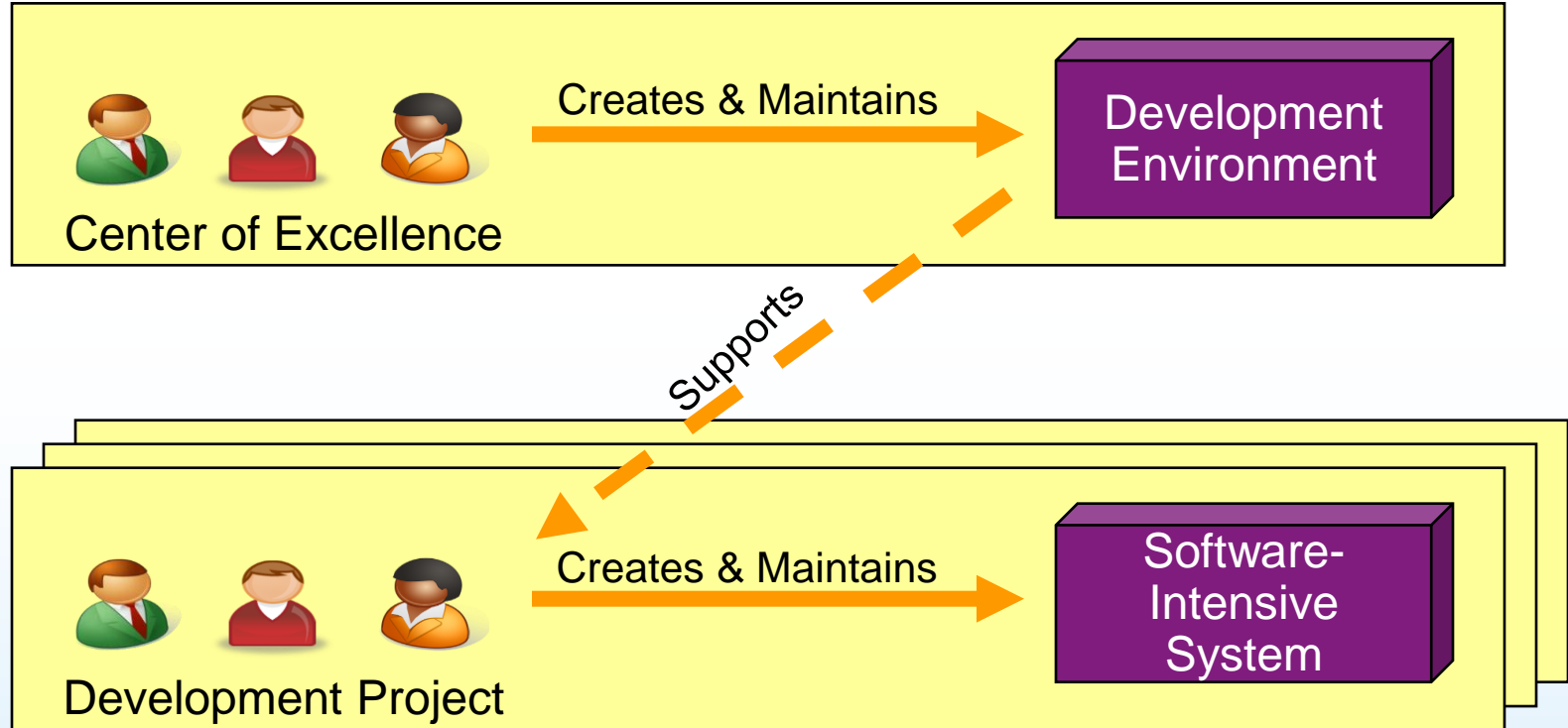
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Implement a Center of Excellence



Summary of Best Practices



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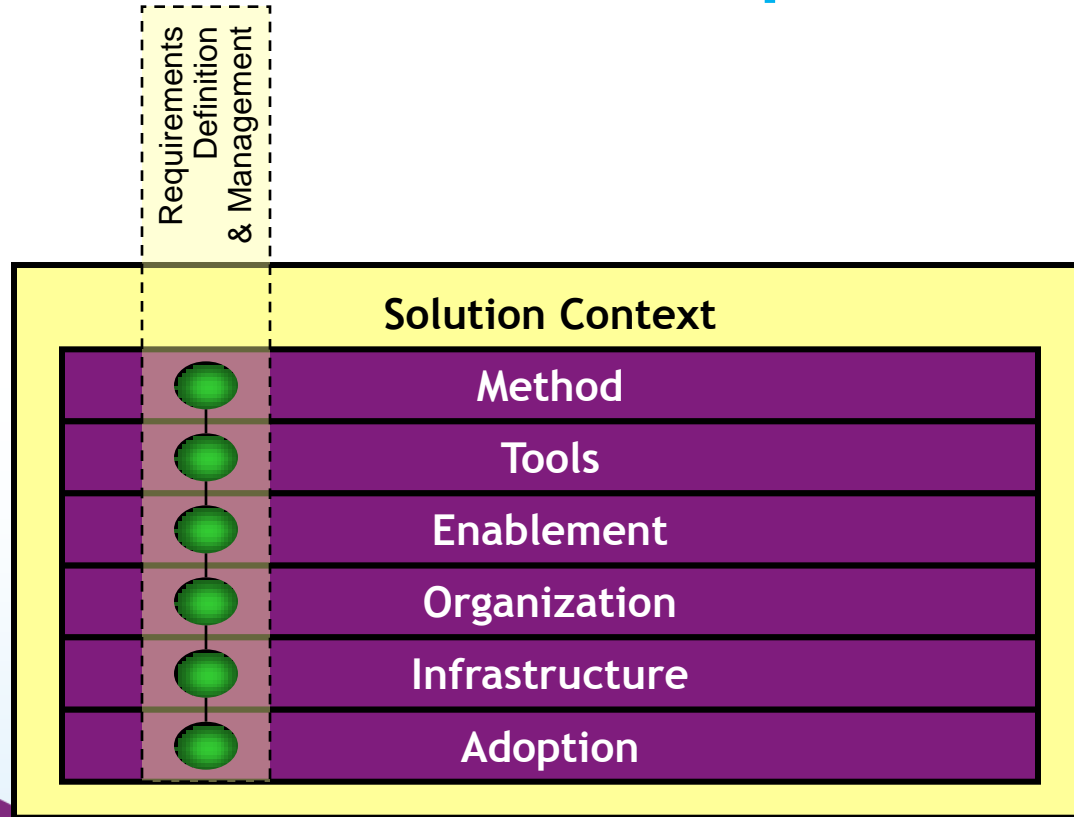
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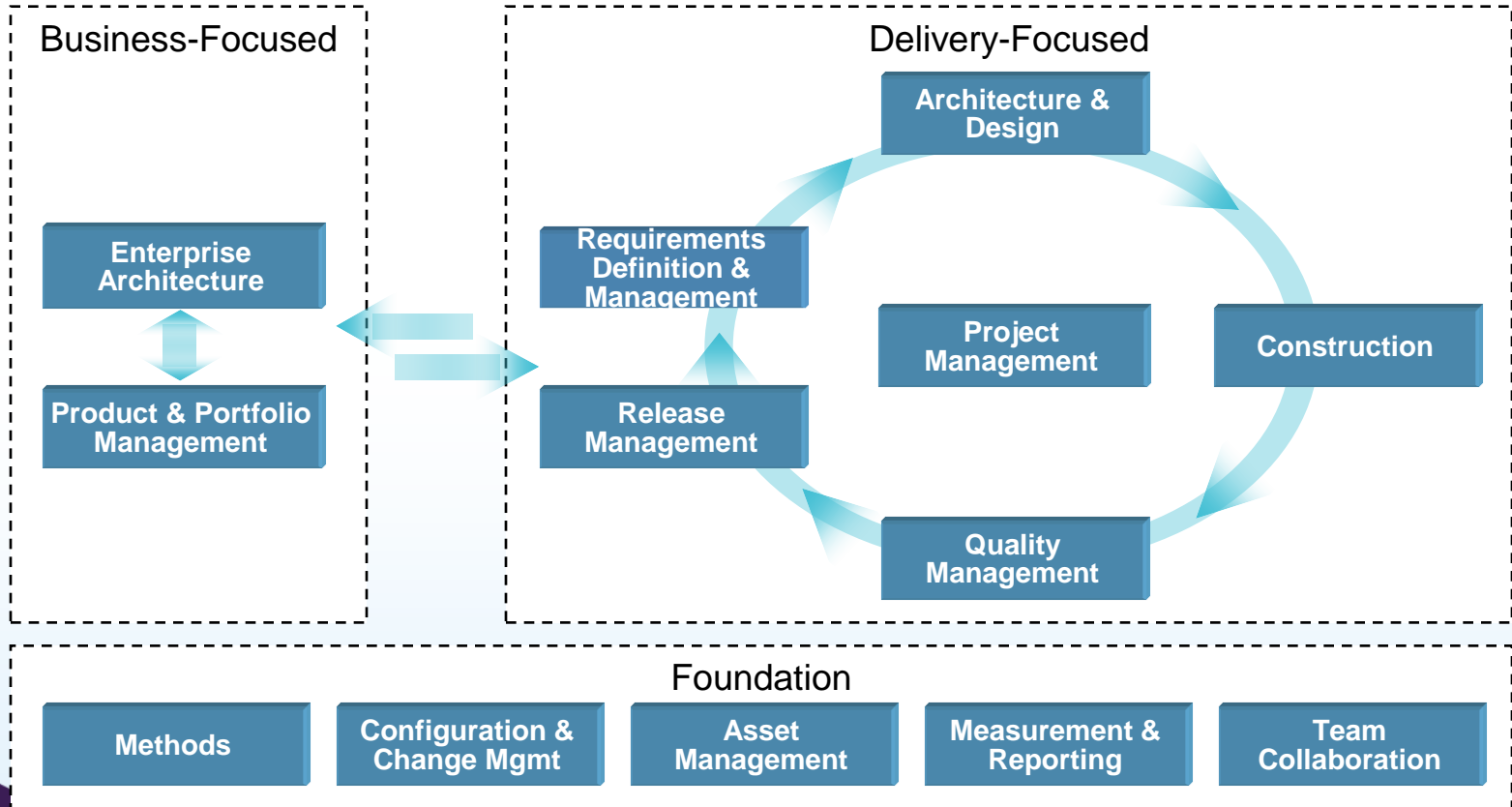
Plan Improvements around Capabilities



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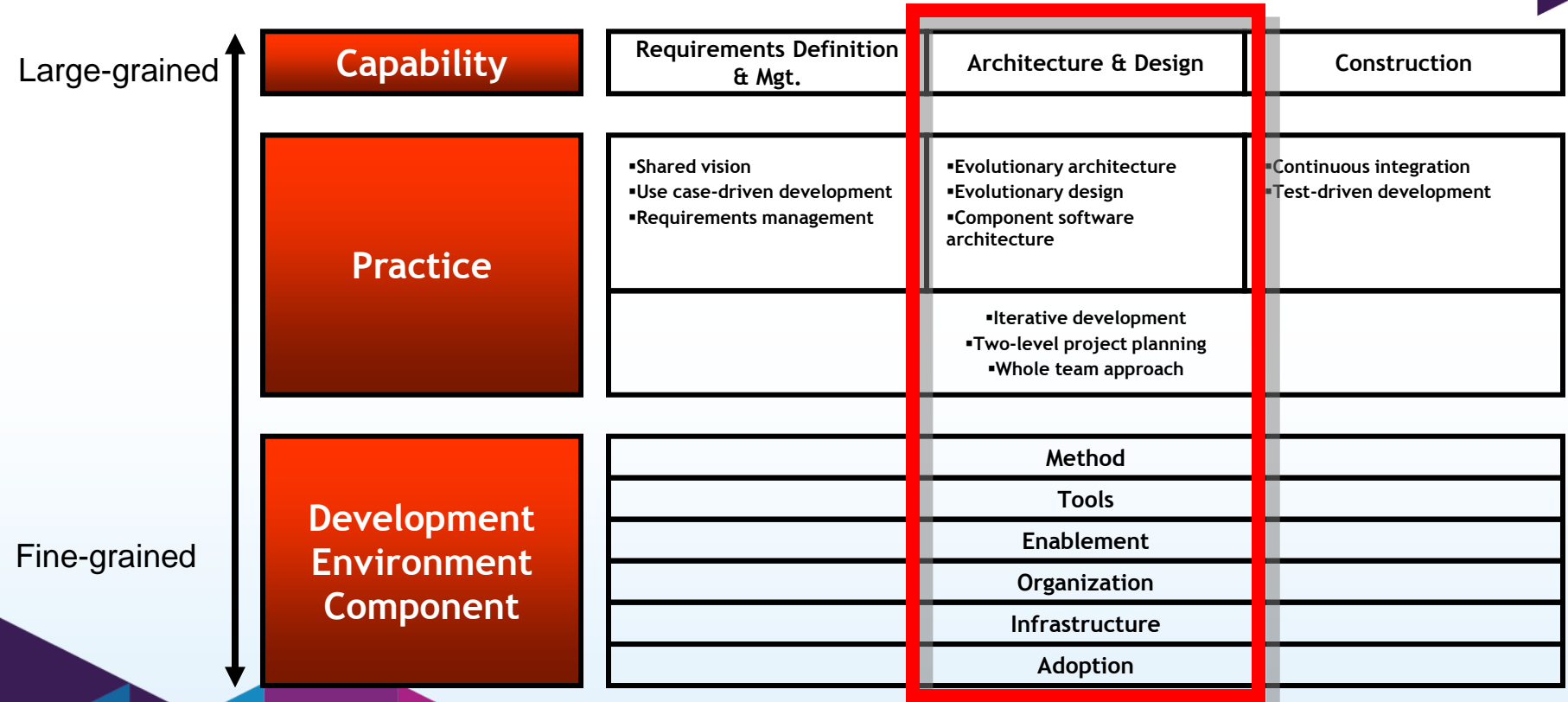
A Summary of Potential Capabilities



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Capabilities may be too Large-Grained to Plan Against



Summary of Best Practices



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Key Considerations



Solution Context

- The requirements on the development environment

Solution Definition

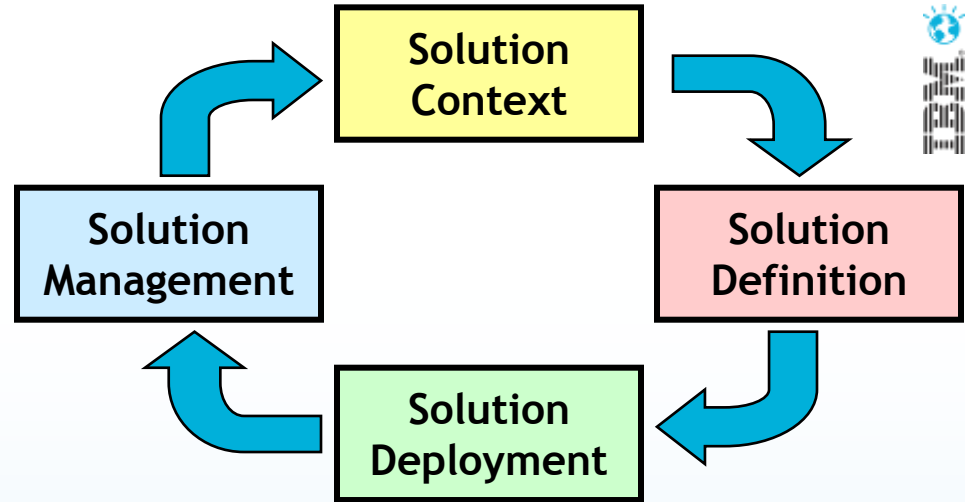
- The solution elements that comprise the development environment

Solution Deployment

- Concerns when deploying the environment (e.g. on projects)

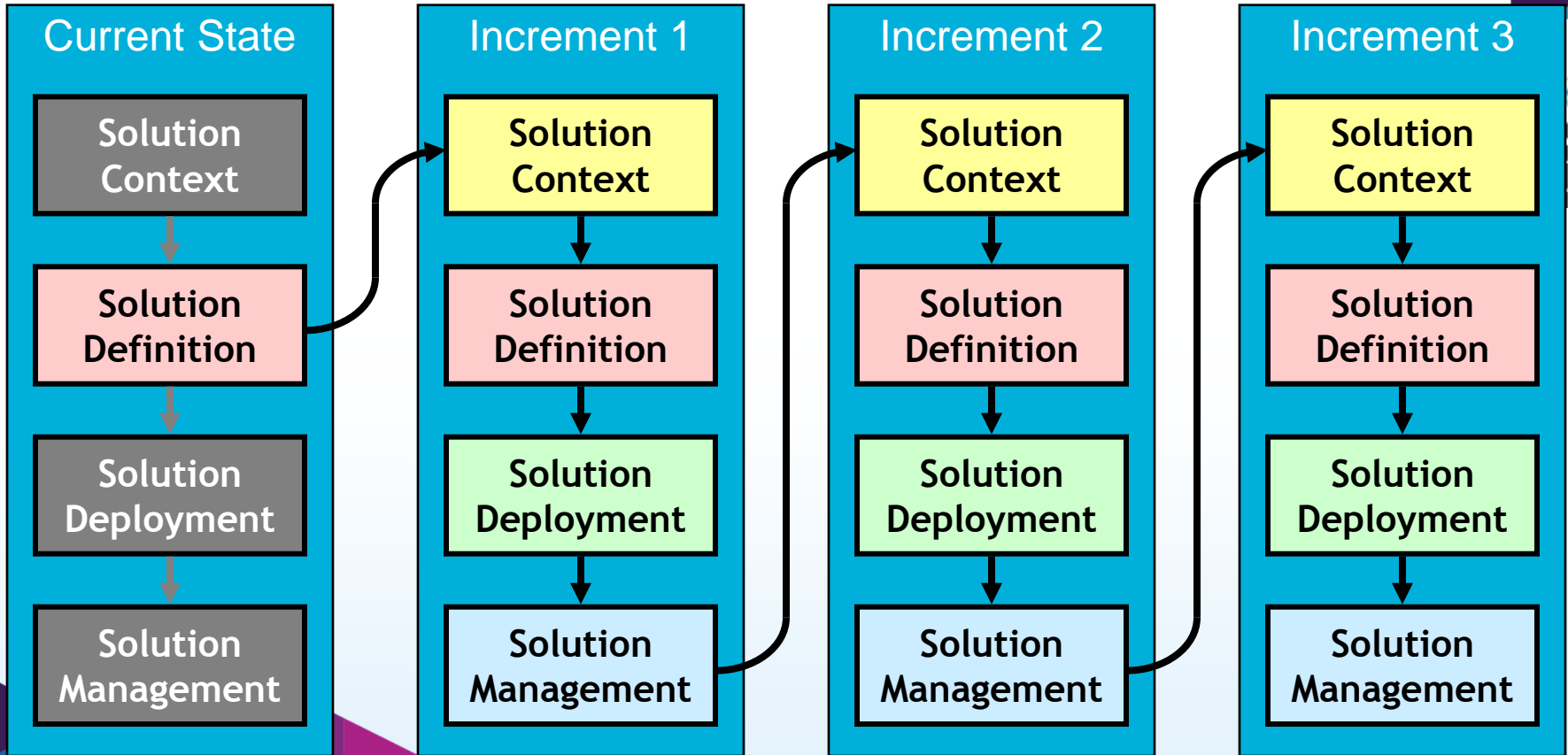
Solution Management

- Concerns when supporting the operational environment



Each increment changes the context for the next increment

Adopt Capabilities Incrementally



Adopt Capabilities Incrementally

Themes provide a high-level perspective of incremental adoption

Each increment represents capability available in the Center of Excellence

Year 1					Year 2					
Inc 0	Increment 1	Increment 2		Increment 3	Increment 4					
Startup	Foundation	Enterprise Planning		Agile Core	Strategic Reuse					
	Methods	Enterprise Architecture		Requirements Definition & Management	Architecture & Design					
	Team Collaboration	Product & Portfolio Management		Construction	Asset Management					
	Configuration & Change Mgmt			Release Management						
	Project Management			Quality Management						
	Measurement & Reporting									



Content of Increments

What business drivers will each increment contribute to?

What is the potential to deliver short-term wins?

- Some capabilities will take longer to deploy than others

What is a sensible sequence?

- Are there dependencies between capabilities?

Will projects be available to pilot the new capability?

Do capabilities need to be subdivided?

- E.g. requirements definition and requirements management
- E.g. into practices such as Shared Vision, Whole Team



Summary of Best Practices

Rational

Consider all elements of a development environment

Implement a center of excellence

Plan improvements around capabilities

Adopt capabilities incrementally

Embrace principles of organizational change

Kotter

Establish a sense of urgency

Create the guiding coalition

Develop a vision and strategy

Communicate the change vision

Empower employees for broad-based action

Generate short-term wins

Consolidate gains and produce more change

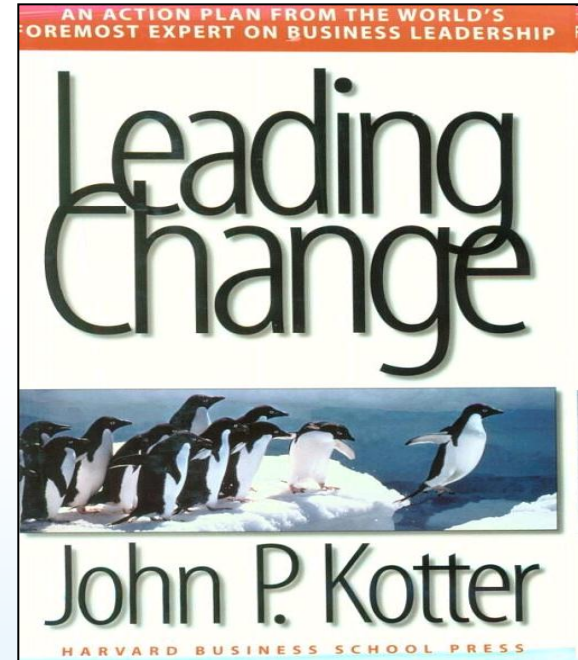
Anchor new approaches in the culture

Embrace Principles of Organizational Change



Kotter 8-step framework

1. Establish a Sense of Urgency
2. Creating the Guiding Coalition
3. Developing a Vision and Strategy
4. Communicating the Change Vision
5. Empowering Employees for Broad-Based Action
6. Generating Short-Term Wins
7. Consolidating Gains and Producing More Change
8. Anchoring New Approaches on the Culture



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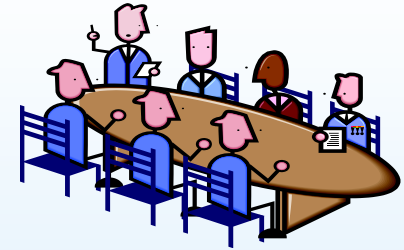
Establish a Sense of Urgency

- Individuals must have a good reason for doing something different
- The sense of urgency often comes about as the result of a crisis, potential crisis or significant opportunity
- Business drivers are a good source of inspiration – such as a need to deliver faster, cheaper, better
- Most change initiatives fail at this step



Create the Guiding Coalition

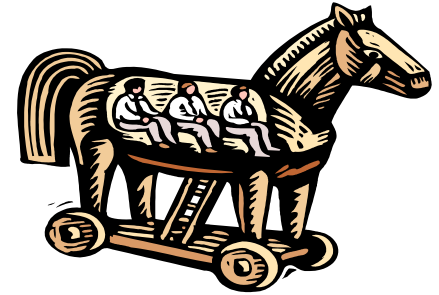
- Change initiatives require sufficient sponsorship
- Must have enough influence to ensure that the change will be successful, even in the face of opposition



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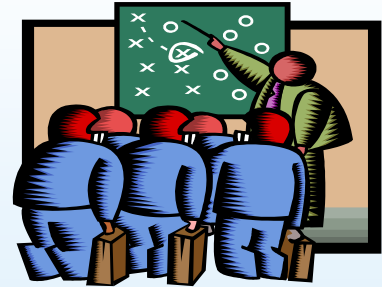
Develop a Vision and Strategy

- Contributors need to know where they are headed
- Without this guiding “north star”, a series of change initiatives will be uncoordinated and, at worst, conflicting
- The change vision should be concise and easily understood – something that can be communicated in five minutes or less
- A Return-on-Investment for the change is typically required



Communicate the Change Vision

- The change vision should be communicated to everyone and reinforced where necessary
- It should also be demonstrable through the actions of the leadership team
- If the leadership team says one thing and does another, then the change will fail



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Empower Employees for Broad-based Action

- The vision can only be realised if everyone is able to make decisions, at all levels in the organisation
- Decisions must be in line with the vision
- The leadership team must remove obstacles from their reports so that new approaches are developed and new ideas suggested



Generate Short-term Wins

- Belief in a vision will not last forever
- Evidence that the vision is delivering tangible results will keep people on-board
- Rewarding those directly responsible for any success is important, since this encourages others to follow their lead



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Consolidate Gains and Produce More Change

- Considering a change to be on track based on short-term wins can be fatal, since people naturally fall back to their old ways of working
- Any gains need to be seen as stepping stones to the greater goal articulated in the vision
- The effect of change should be objectively measured

Anchor New Approaches in the Culture

- Valuable changes need to become “the norm”, where the old ways of working are considered “legacy”
- The leadership team needs to promote the continued use of the new ways of working
- Implement appropriate governance to ensure conformance



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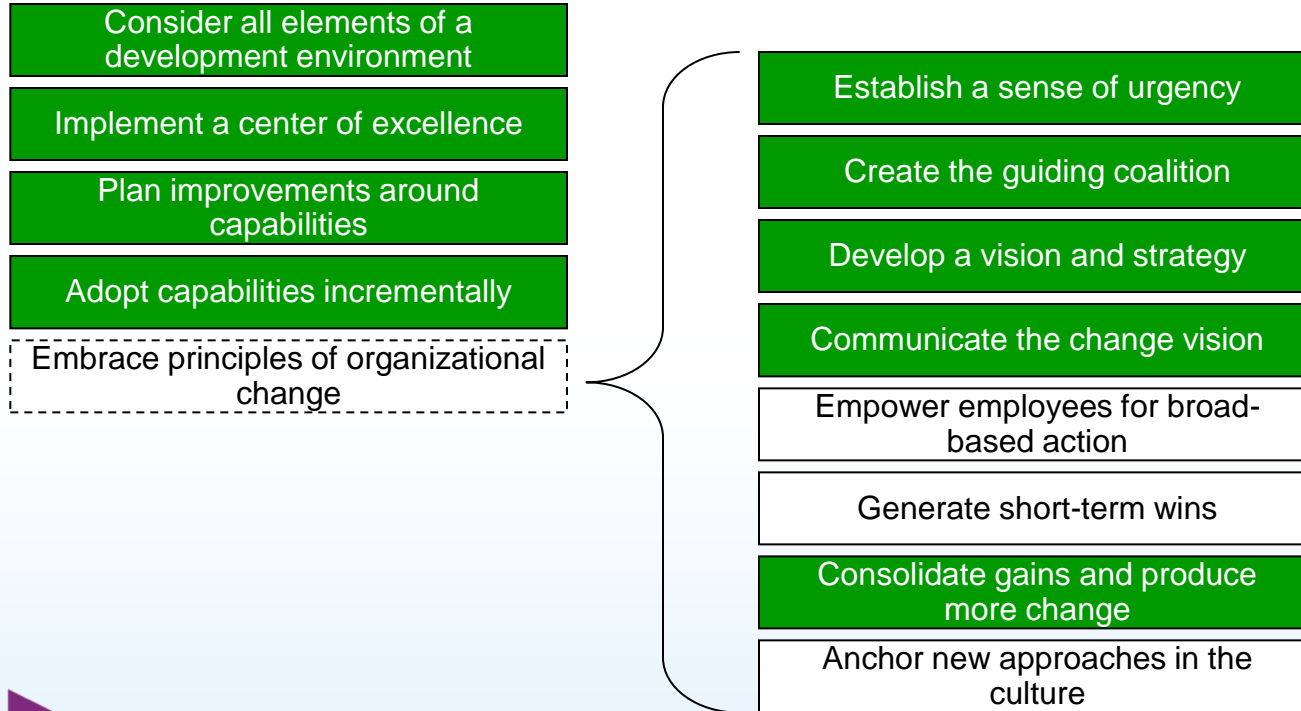
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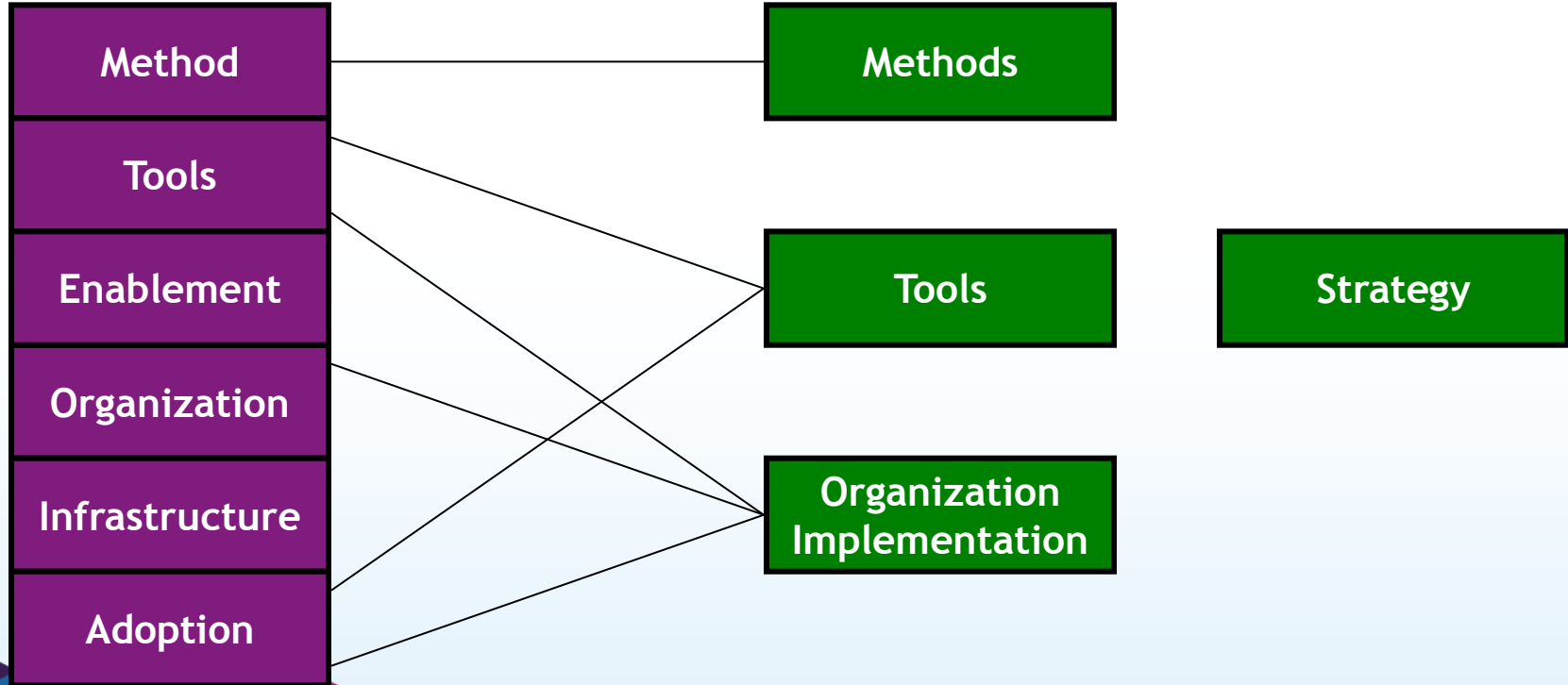
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Best Practices Applied



Best Practices Applied:

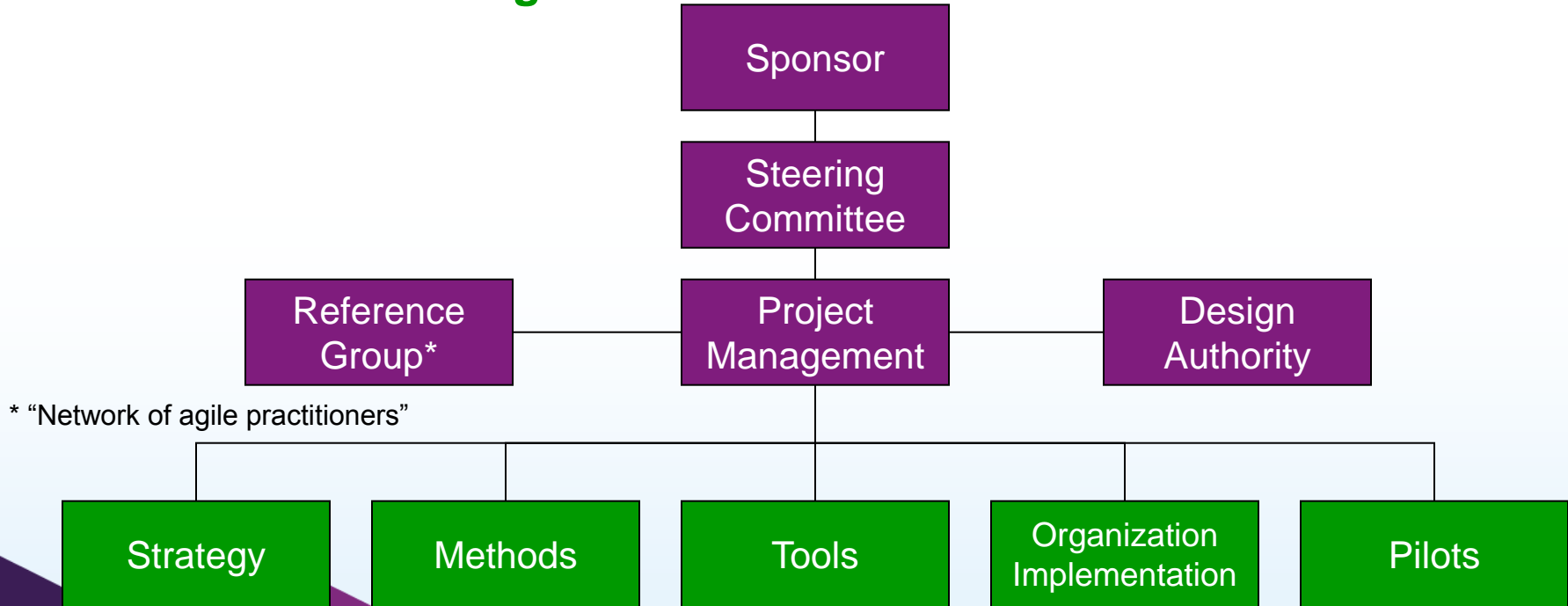
Consider all Elements of a Development Environment



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Best Practices Applied:

Implement a Center of Excellence
Create the Guiding Coalition

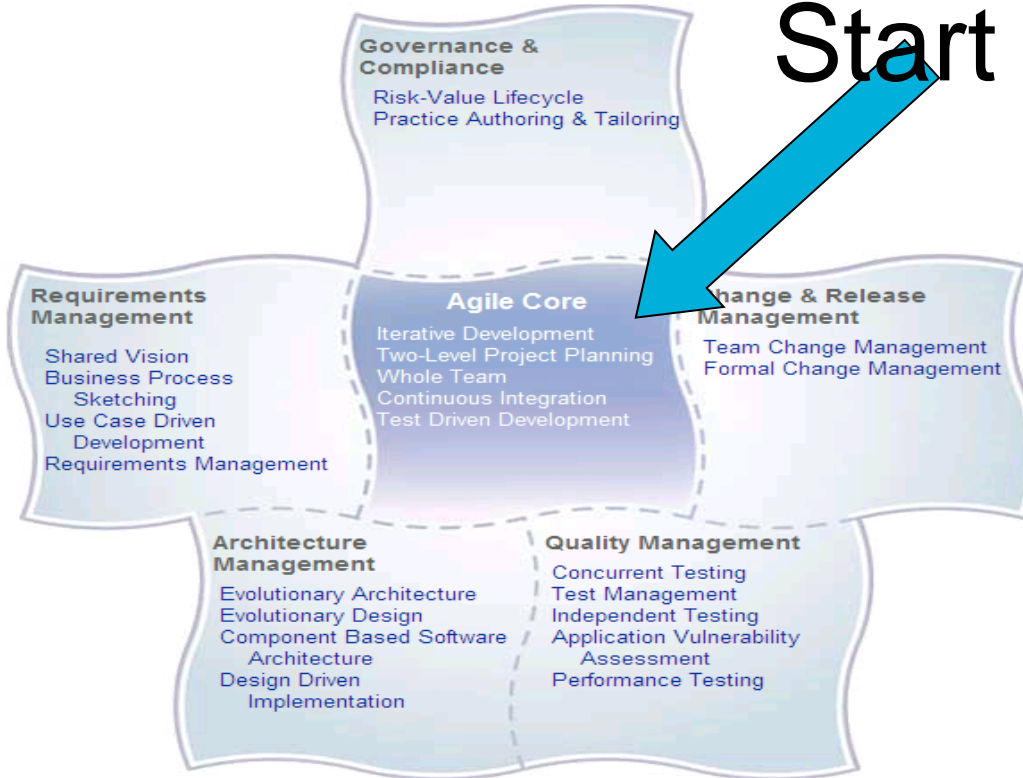


Best Practices Applied:

Plan Improvements around Capabilities



Start here!



Best Practices Applied:

Adopt Capabilities Incrementally

Foundation

- Iterative Development
- Two-Level Planning
- Team Change Management
- Shared Vision
- Continuous Integration
- Whole Team

High

- Risk-Value Lifecycle
- Test-driven development
- Use case-driven development

Medium

- Evolutionary Architecture
- Concurrent Testing

Low

- Business Process Sketching
- Evolutionary Design

Ultra Low

- Process authoring and Tailoring
- Requirements Management
- Formal Change Management
- Component Based Software Architecture
- Design Driven Implementation
- Test Management
- Independent Testing
- Application Vulnerability Assessment
- Performance Testing



Best Practices Applied:

Establish a Sense of Urgency

Develop a Vision and Strategy



Name	Description	Goals
Time to market	Projects deliver faster than today	<ul style="list-style-type: none">• Complete small projects within 7 months (average time to market is currently 14 months)• Deliver a first increment (demo) on projects within 8 weeks from project initiation followed by subsequent increments (demos) at regular intervals of 2-4 weeks
Cost efficiency	Projects deliver with lower overall cost than today	<ul style="list-style-type: none">• Increase the efficiency baseline (function points per FTE) by 10%
Quality	Systems exhibit the agreed level of quality	<ul style="list-style-type: none">• Decrease the error baseline by 10%
Continuous optimisation	The development organisation is a learning organisation using common processes that are continuously updated	<ul style="list-style-type: none">• Knowledge and experience is used to improve processes• Processes are performed in a mature and professional way (i.e. consistently) in order to harvest the benefits of this

Best Practices Applied:

Communicate the Change Vision

3 training sessions will be delivered for each pilot

- Management training (½ day)
- Project team training (2 days)
- Role specific workshops (1 day)

Train the trainer

- Trained local resources to deliver these courses

Coach the coach

- Trained local resources enabled to do coaching in-house

Support framework

- Experienced agile coach from IBM allocated to each pilot for 1-2 days per week
- Support teams will be in place to provide advice, guidance and support for both method content and tools



Best Practices Applied:

Consolidate Gains and Produce More Change



	Business-related	Agile-related
Cycle time reduction	<ul style="list-style-type: none">• Time spent from project initiation to delivery of first increment• Time spent from project initiation to project closure	<ul style="list-style-type: none">• Sprint velocity• Blocking work items
Quality	<ul style="list-style-type: none">• Defects (severity 1 and 2) in production per 100 FPs	<ul style="list-style-type: none">• Defect trend
Continuous optimisation	<ul style="list-style-type: none">• Process maturity level	<ul style="list-style-type: none">• Adoption of agile practices
Productivity	<ul style="list-style-type: none">• Function points per man year	<ul style="list-style-type: none">• Sprint burndown chart• Release burndown chart



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Summary

Transforming a Development Organization considers

- Method
- Tools
- Enablement
- Organization
- Infrastructure
- Adoption

Well-understood principles of organizational change apply

Apply best practices to ensure success!

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