

Microsoft Solutions Framework and the Microsoft Operations Framework



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Conn***

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Goals and Desired Outcomes

- **This session will teach the attendee the basic concepts behind the Microsoft Solutions Framework (MSF) and the Microsoft Operations Framework (MOF)**
- **This session will teach the user about some of the artifacts associated with the integrated process guidance, MSF, in Visual Studio Team System 2005**
- **The attendee will leave the session with a set of website links and resources on CD and DVD to continue exploring MSF, MOF, and the Visual Studio Team System 2005**

announcing...

An Introduction

Complexity

Driving Business Value

- Automate business processes
- Cut time to market
- Customer and supplier self service
- Improve ROI of IT
- Lower operating costs
- Value chains with partners

Technology

- Service oriented architecture
- Web Services, messaging, contracts
- Security
- Caching and state management
- Deployment policies & constraints
- Heterogeneous platforms

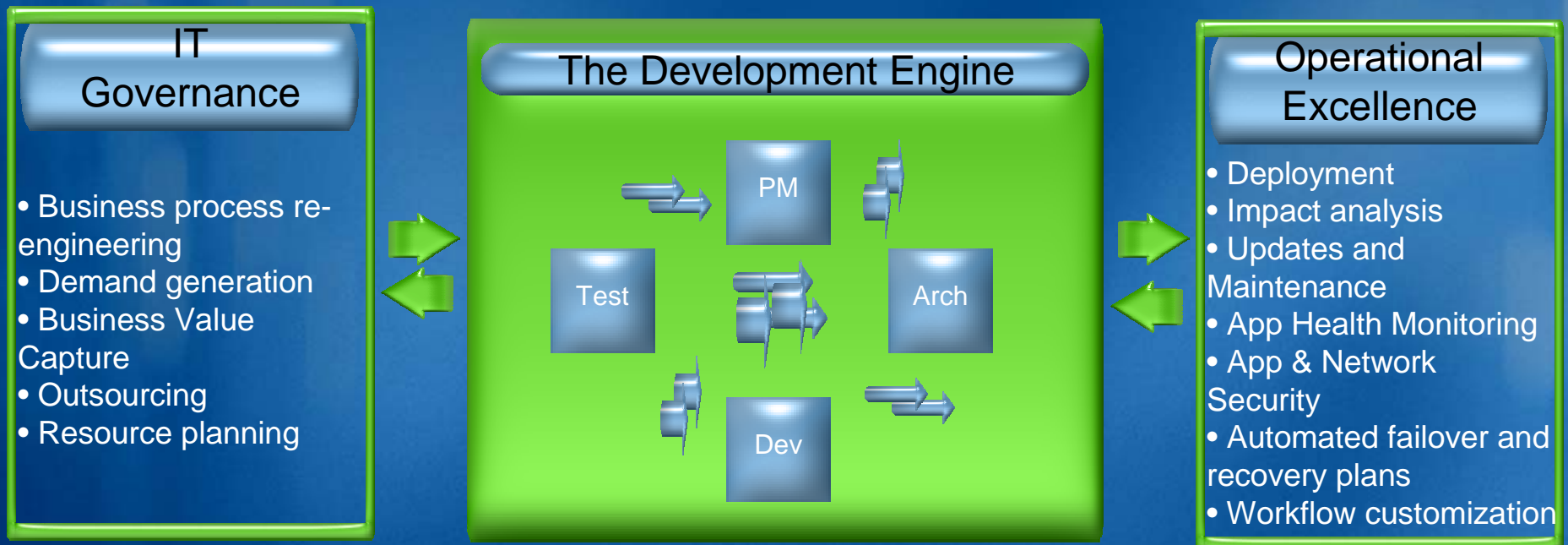
Managing the Process

- Predictable, successful results
- Quality & Uptime
- Performance
- Distributed teams
- Organization and role boundaries
- Process guidance and policies



IT Solution Lifecycle

Value through "Better Together" integration across the Solution Lifecycle



The Problem with Process

Productive

Predictable
Repeatable



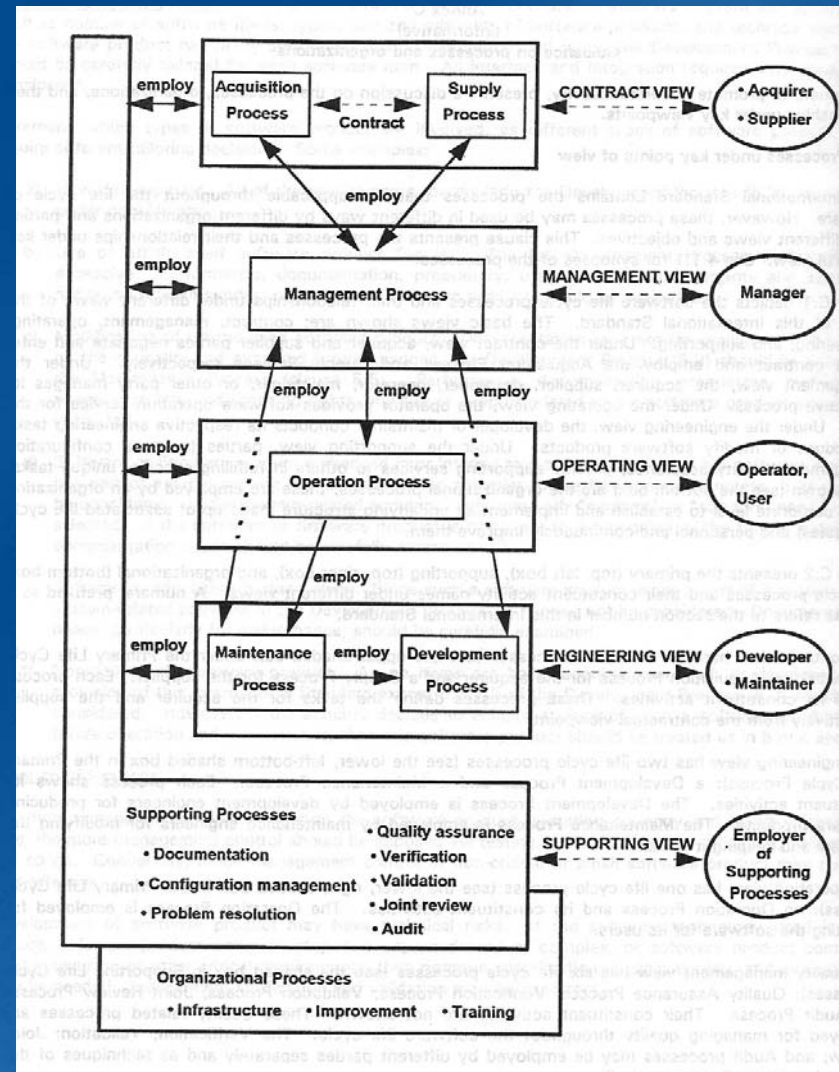
Challenges

- Getting people to know about it
- Getting people to use it

Adaptive Organizations

IEEE 12207

- 12207.0-1996 - IEEE/EIA Standard Industry Implementation of International Standard ISO/IEC 12207: 1995 (ISO/IEC 12207) Standard for Information Technology Software Life Cycle Processes
- 12207.1-1997 - Industry Implementation of International Standard ISO/IEC 12207: 1995. (ISO/IEC 12207) Standard for Information Technology - Software Life Cycle Processes - Life Cycle Data
- 12207.2-1997 - Industry Implementation of International Standard ISO/IEC 12207: 1995. (ISO/IEC 12207) Standard for Information Technology - Software Life Cycle Processes - Implementation Considerations



The following slides are slightly modified excerpts from the following talk at the *Marketing and Sales Executive Summit*, Microsoft Executive Briefing Center, 25 March 2002

Digital Relationships And The Agile Business

Steve Ballmer
CEO
Microsoft Corporation

Digital Relationships



Customers

Moving from acquaintance to trusted relationship



Partners

Moving from functional relationships to strategic



Employees

Moving from knowledge workers to decision makers

Business Potential – *The Agile Business*

- **Get connected**
 - Customers, partners, employees
- **Build for change**
 - Create flexibility to adapt, evolve in future
 - Streamline business processes
- **Capture business value at all levels**
 - Bottom line: do more, do it faster, do it with less
 - Top line: new value from new and existing assets

Agility is an
ROI Equation



Computing Business Agility

Ability to maximize relationships:
Customers, partners, employees

Ability to change and adapt

Ability to drive better quality decisions



Agility =

Productivity x Flexibility x Connections³

Total Cost



Ability to reliably and cost effectively create, adapt, maintain

Return on the dynamic of business

Business Imperatives

Return on People



- Unlock data for better decisions
- Drive productivity - anytime, anywhere, any device
- Build on existing skills, familiarity

Return on Process



- Intrinsic integration, open standards
- Faster time & lower cost to benefit
- Brokered web services
- Reinvigorate existing systems, processes

Return on Relationships



- Deeper engagement
- Visibility for innovation at all levels of org
- Flexibility to act on opportunity
- Respond quickly & well
- New revenue, venues

Return on IT Infrastructure

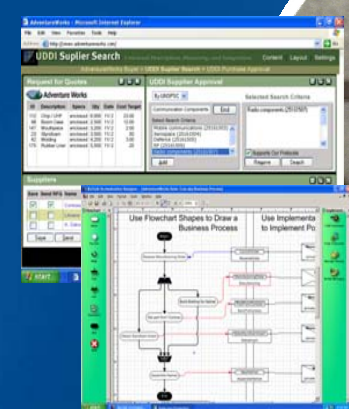
- Flexible interoperability
- Lower total cost of ownership
- Embrace, maximize mobility
- Support heterogeneous environ

- Market leading manageability, performance, integrity

Connections³

Agile Business Process

Employees Connected to Customer



 Adventure Works

XML Web Services

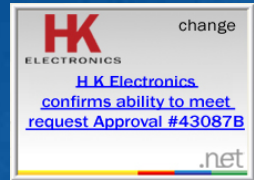
Integrated Partners

Better Product; Faster Delivery



SKU	Description	Quantity
12400	Solar Com (sm)	800
12401	Solar Com (med)	950
12402	Solar Com (lg)	1000
12405	Solar Com BL (med)	500
12406	Solar Com BL (lg)	550

Place Order



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**MICROSOFT SOLUTIONS
Framework Version 3**

Today's Business Environment

- **Places increasing demands on IT organizations**
 - Rapid change
 - Financial constraints
 - Global interconnectivity
 - Expanding needs
 - Greater variety of stakeholders
- **MSF 3 is:**
 - An adaptable approach
 - For successfully delivering technology solutions faster
 - With fewer people
 - With less risk
 - While producing higher quality results

MSF 3

● MSF is:

- A deliberate and disciplined approach to technology projects
- Based on:
 - Microsoft internal practices
 - Experiences of Microsoft Services working with customers and partners
 - Industry best practices

● Objectives

- Address the most common causes of technology project failure
- Improve success rates
- Improve solution quality
- Improve the business impact

● MSF Describes

- How to align business and technology goals
- How to establish clear project goals, roles, and responsibilities
- How to implement an iterative, milestone-driven process
- How to manage risk proactively
- How to respond to change effectively

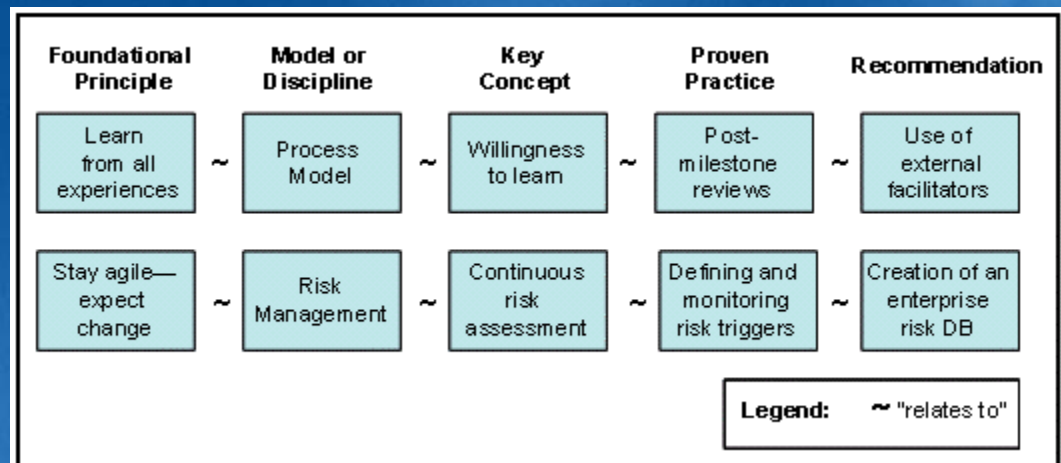
● 5 Primary Topic Areas

- Team Model
- Process Model
- Project Management Discipline
- Risk Management
- Readiness Management Discipline

Microsoft Solutions Framework and Trustworthy Computing

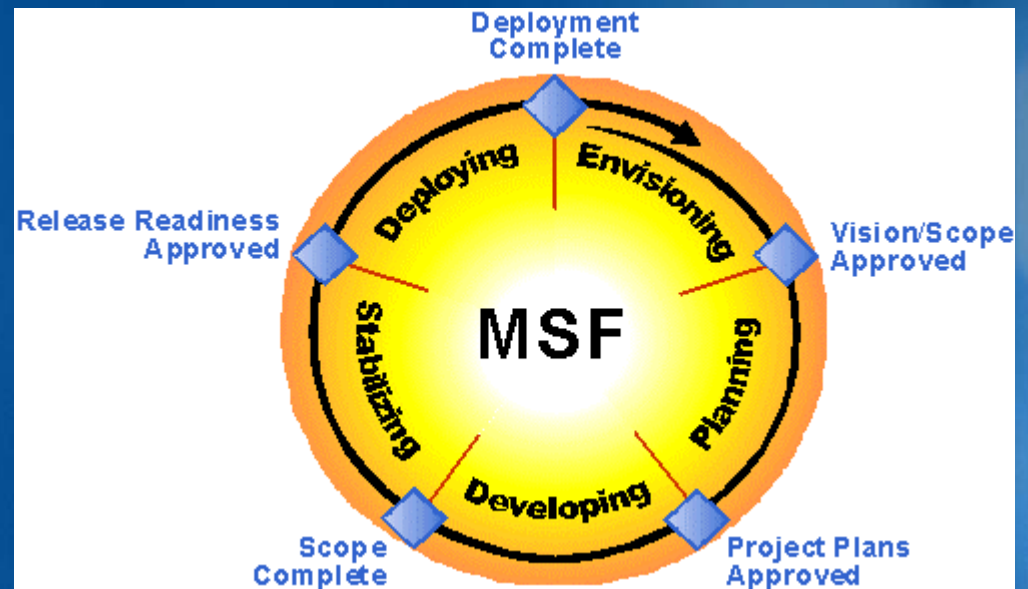
- Disciplined approach to creating products based on Microsoft technologies involving:
 - Defined set of principles
 - Models
 - Guidelines
 - Proven best practices
- MSF is a Framework
 - Flexible and scalable – not a prescriptive methodology or process
 - Provides guidance
 - Oriented to the IT domain

- MSF Foundation
 - Open communication
 - Concise, shared vision
 - Empower team members
 - Clear accountability, shared responsibility
 - Focus on delivering business value
 - Stay agile, expect change



MSF (continued)

- **MSF Process Model**
 - Flexible, based on phases and milestones
 - Phases – periods of time in which certain activities produce deliverables
 - Milestones – review and synchronization points
 - Allows response to customer requests and changes to a product in midcourse
 - Allows delivery of key portions of a product faster, moving less critical functions to later releases



MSF (continued)

- **MSF Team Model**
 - Program Management – deliver within project constraints
 - Development – deliver to product specifications
 - Test – Release after addressing all issues
 - Release Management – Smooth deployment and Ongoing Management
 - User Experience – Enhance user performance
 - Product Management – See to customer satisfaction



MSF (concluded)

● MSF Disciplines

- Project Management - Aligned with the major project management bodies of knowledge with the domain of technology-oriented projects
 - Project Management Institute
 - International Project Management Association
 - Prince2 (Projects in Controlled Environments)
- Risk Management – 6-step risk management process integrated into both the Team and Process Models
- Readiness Management – Measures the current versus the desired state of knowledge, skills, and abilities of the people in an organization

● MSF integrates with Microsoft's Trustworthy Computing Initiative

- A collaboration between Microsoft, its customers, its business partners, its suppliers, and government agencies, such as the NSA
- Includes, but is not limited to:
 - A proactive security-oriented development process
 - Several best practices in writing secure code
 - Threat modeling
 - Testing with security in mind
 - Reviewing code with security in mind
 - Addressing privacy concerns in coding

Trustworthy Computing

Security

- Resilient to attack
- Protects confidentiality, integrity, and availability of data and system

Privacy

- Individuals control personal data
- Products and online services adhere to fair information principles

Reliability

- Dependable
- Available when needed and performs at expected levels

Business Integrity

- Responsive and responsible handling of customer product and service issues

demo

Discussing MSF

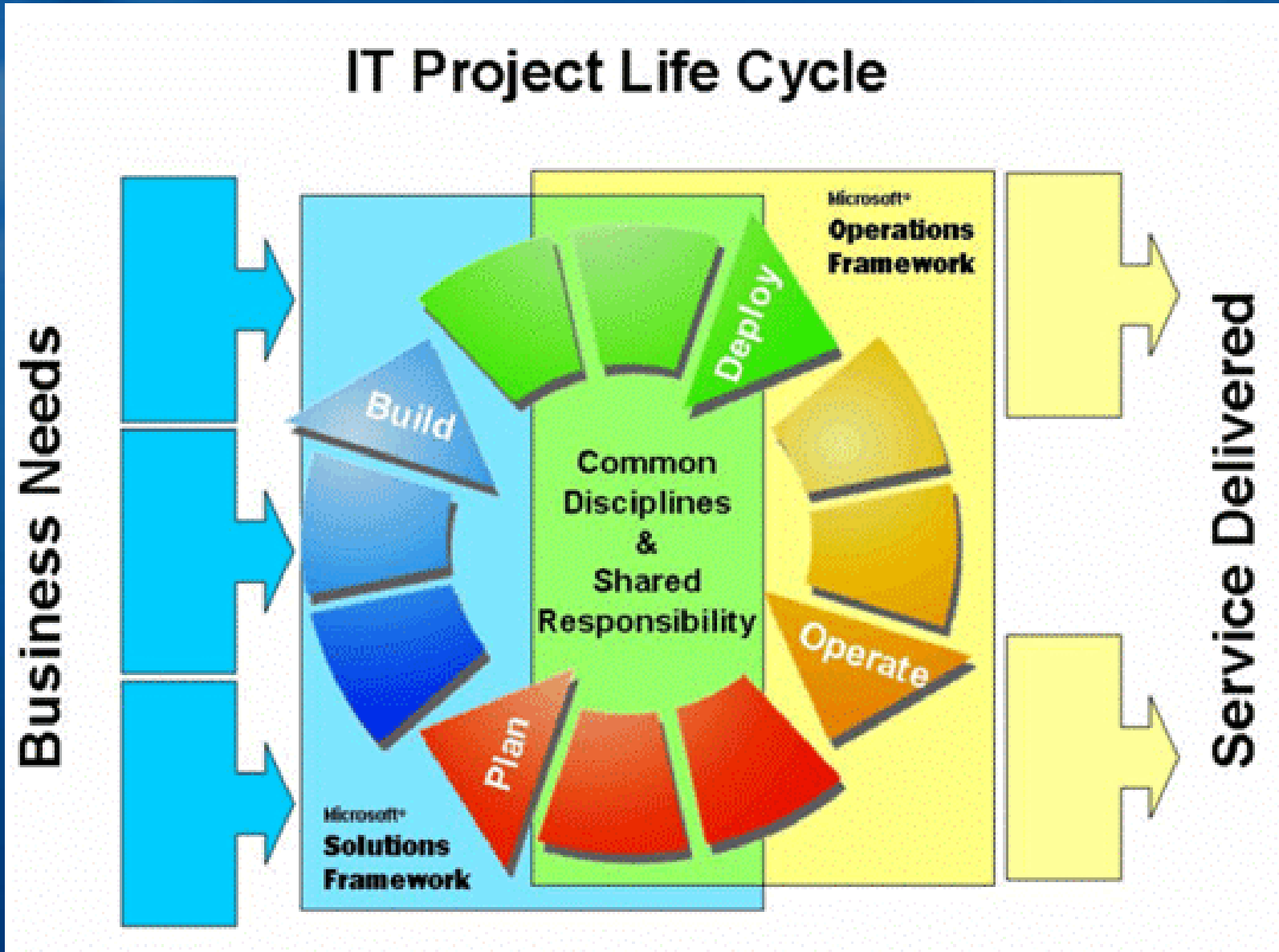
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Microsoft Operations Framework Version 3

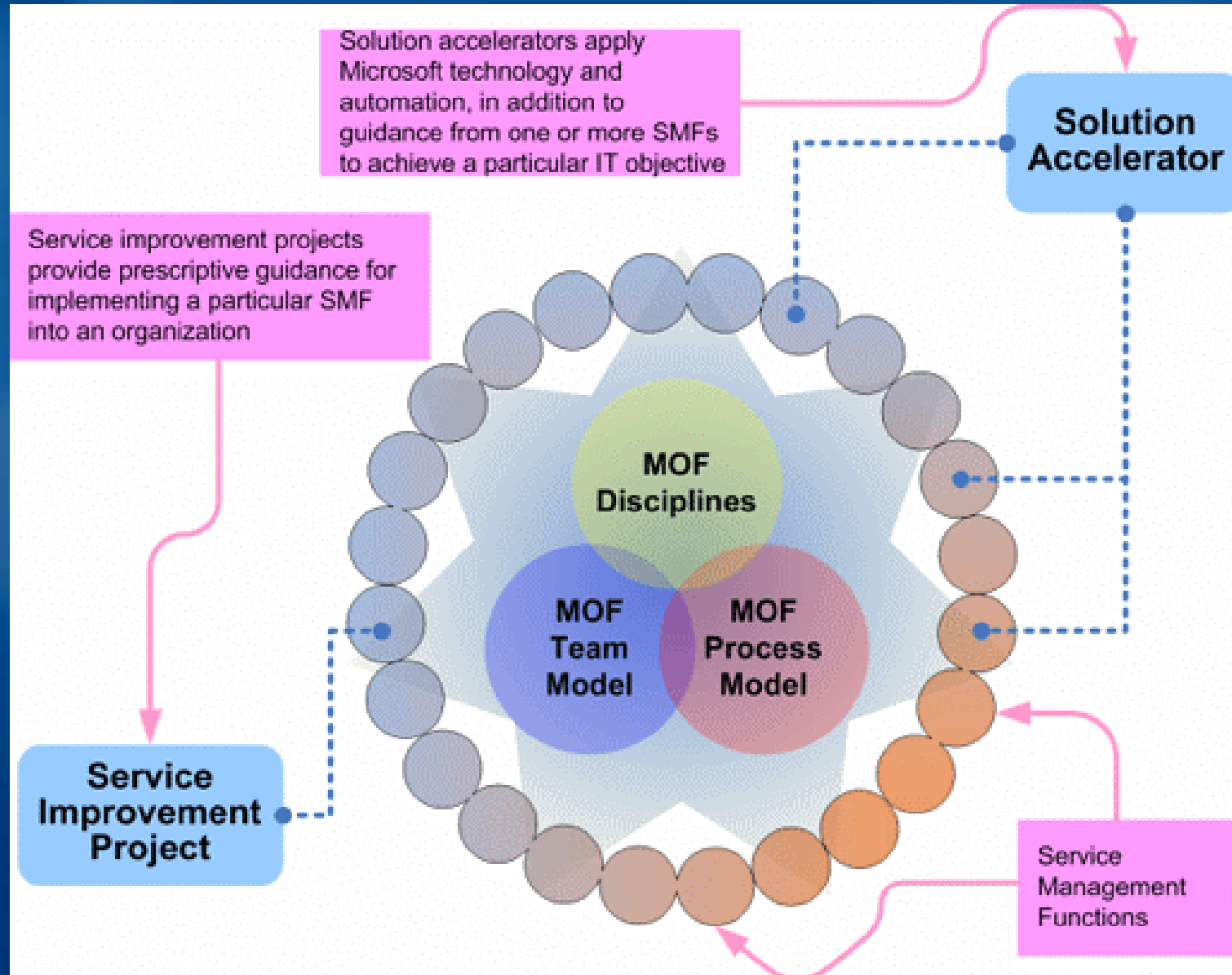
What is the MOF?

- **The Microsoft Operations Framework (MOF) defines ...**
 - Proven team structures
 - Operational processes
 - Best IT practices
- **Goals are to Improve ...**
 - Efficiency of IT organizations
 - Quality of IT operations
- **Core Components**
 - Team Model
 - Process Model
 - Risk Management Discipline

The MSF and the MOF



MOF Core Guidance



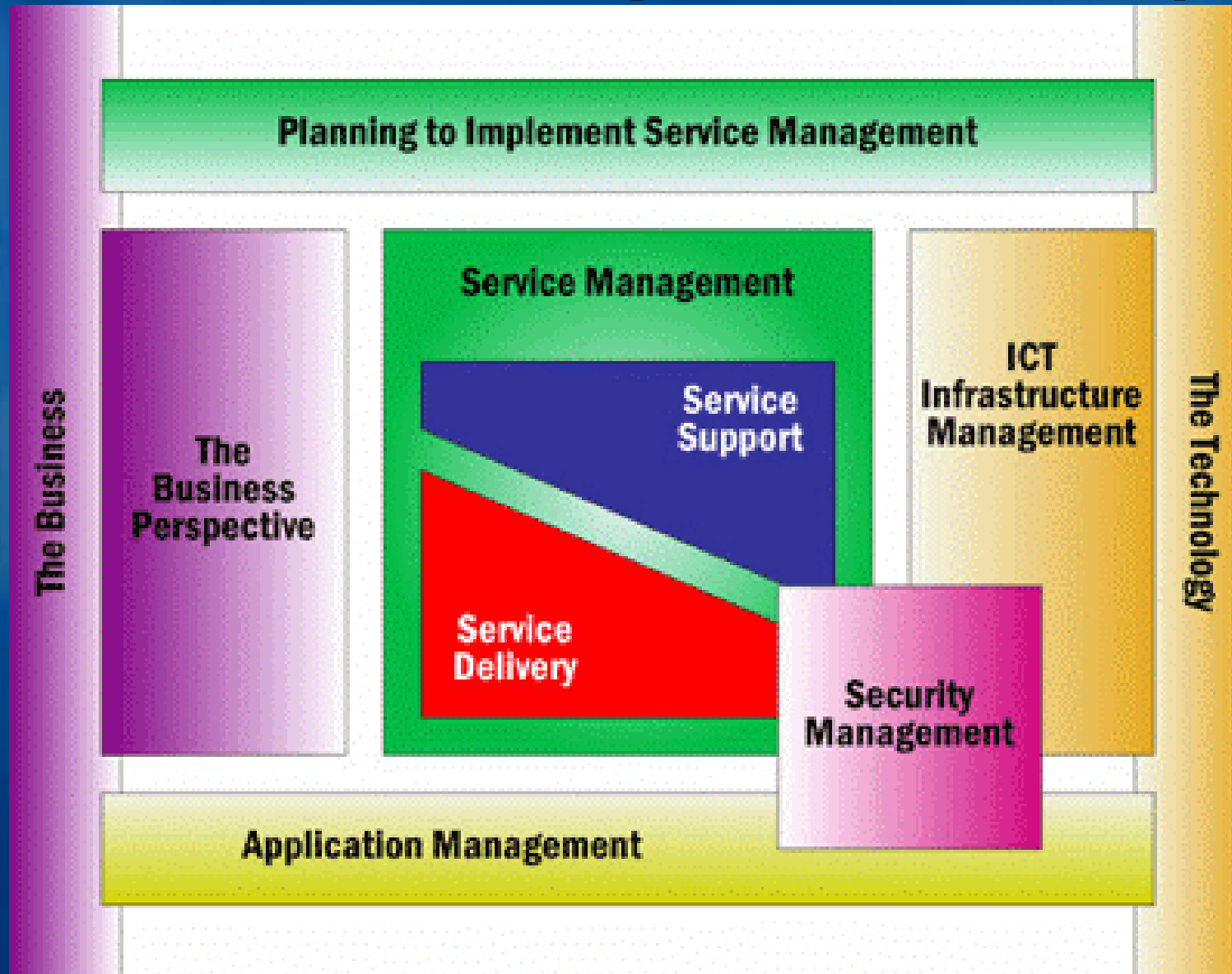
Some Available Solution Accelerators

- **Business Desktop Deployment**
- **Enterprise Messaging**
- **Internet Data Center**
- **Service Monitoring and Control**
- **Domain Server Consolidation and Migration**
- **Patch Management (several versions)**
- **Windows Server Deployment**

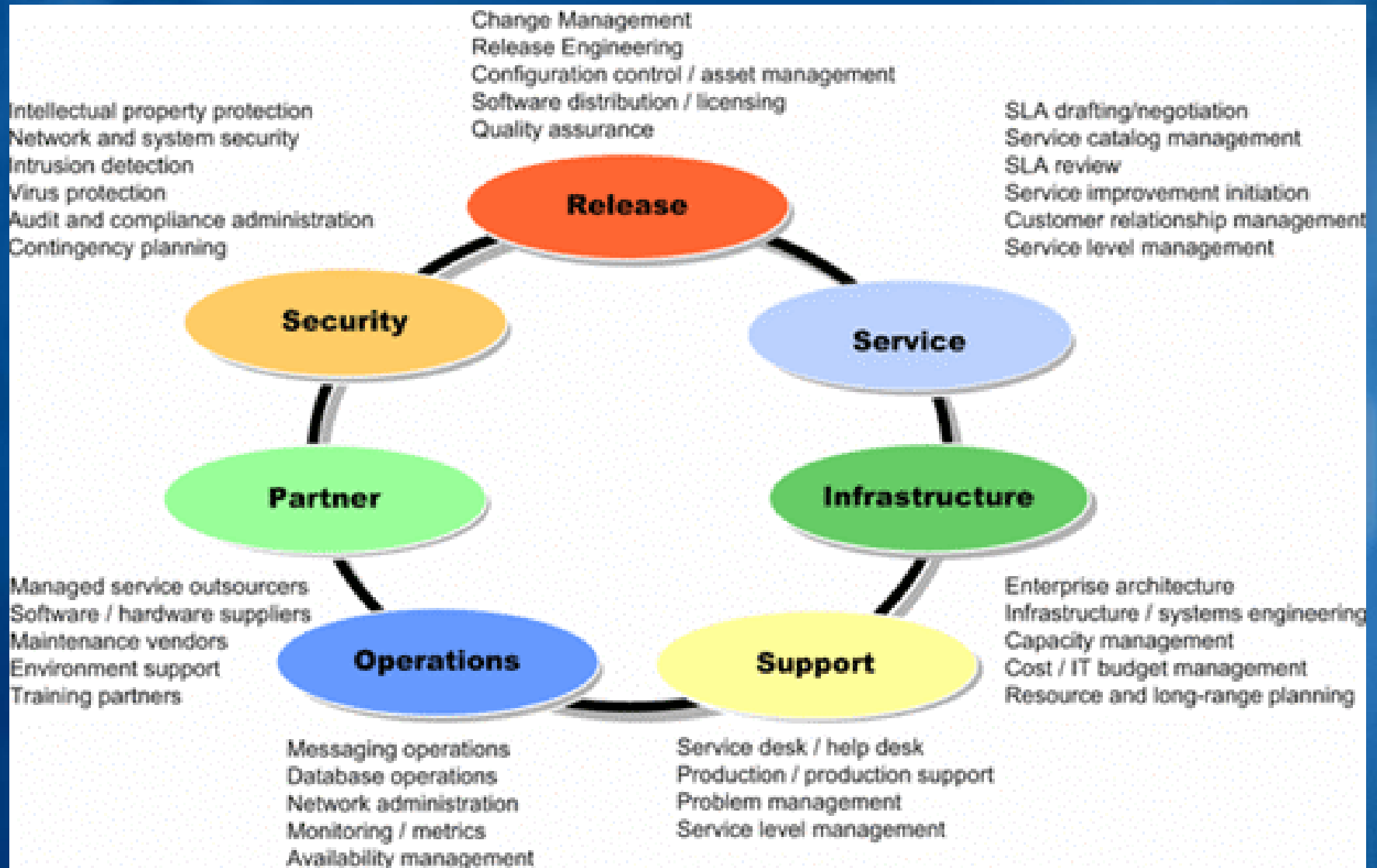
MOF and ITIL

- **MOF aligns and builds on the IT service management practices documented in the IT Infrastructure Library (ITIL) maintained by the United Kingdom's Office of Government Commerce (OGC)**
 - **OGC is a U.K. government executive agency**
 - **Charter: develop best-practice advice and guidance on the use of IT in service management and operations**
 - **Microsoft has been involved in the ITIL community since 1999**

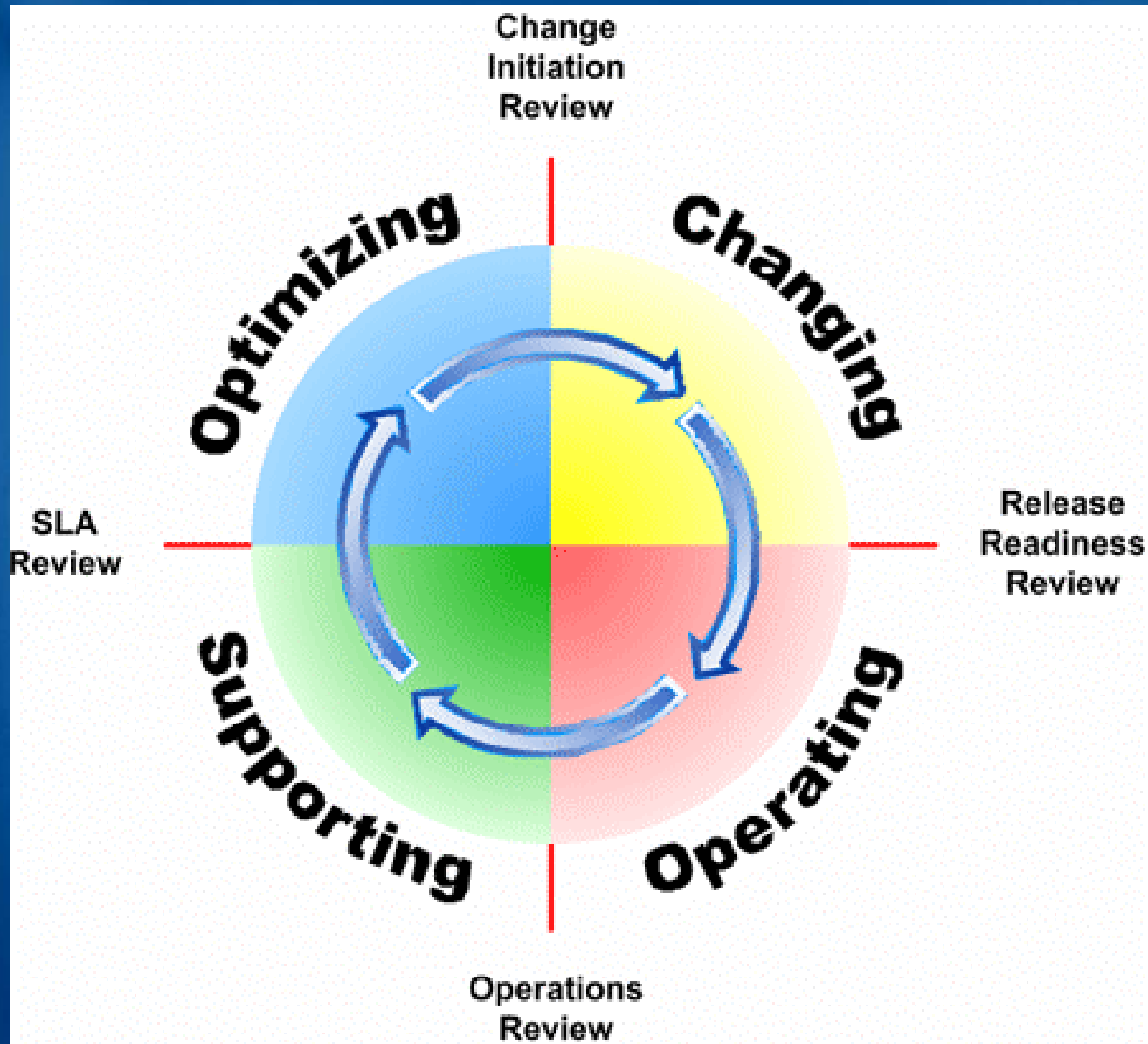
MOF and ITIL (concluded)



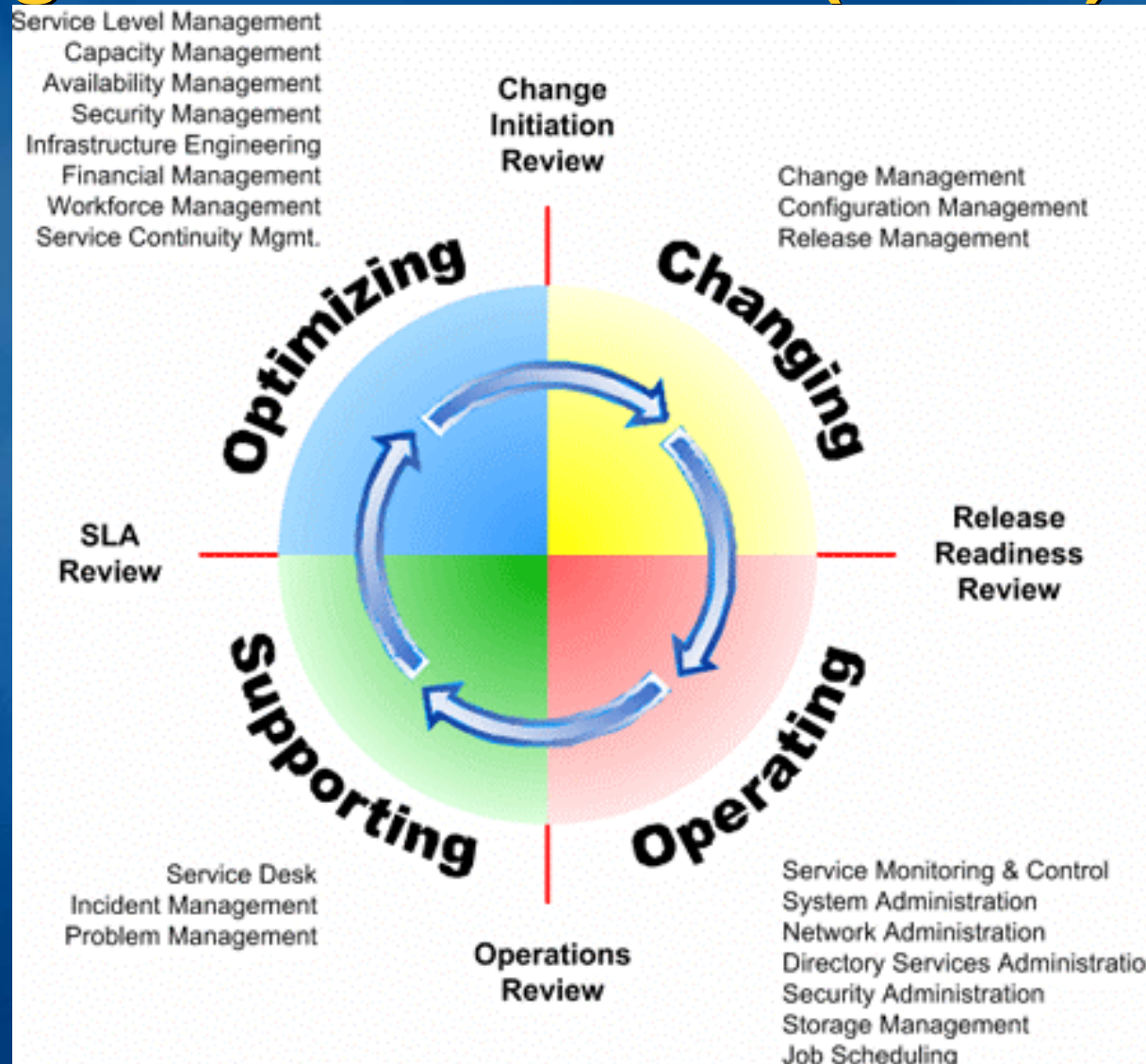
MOF Models – Team Model with Role Clusters



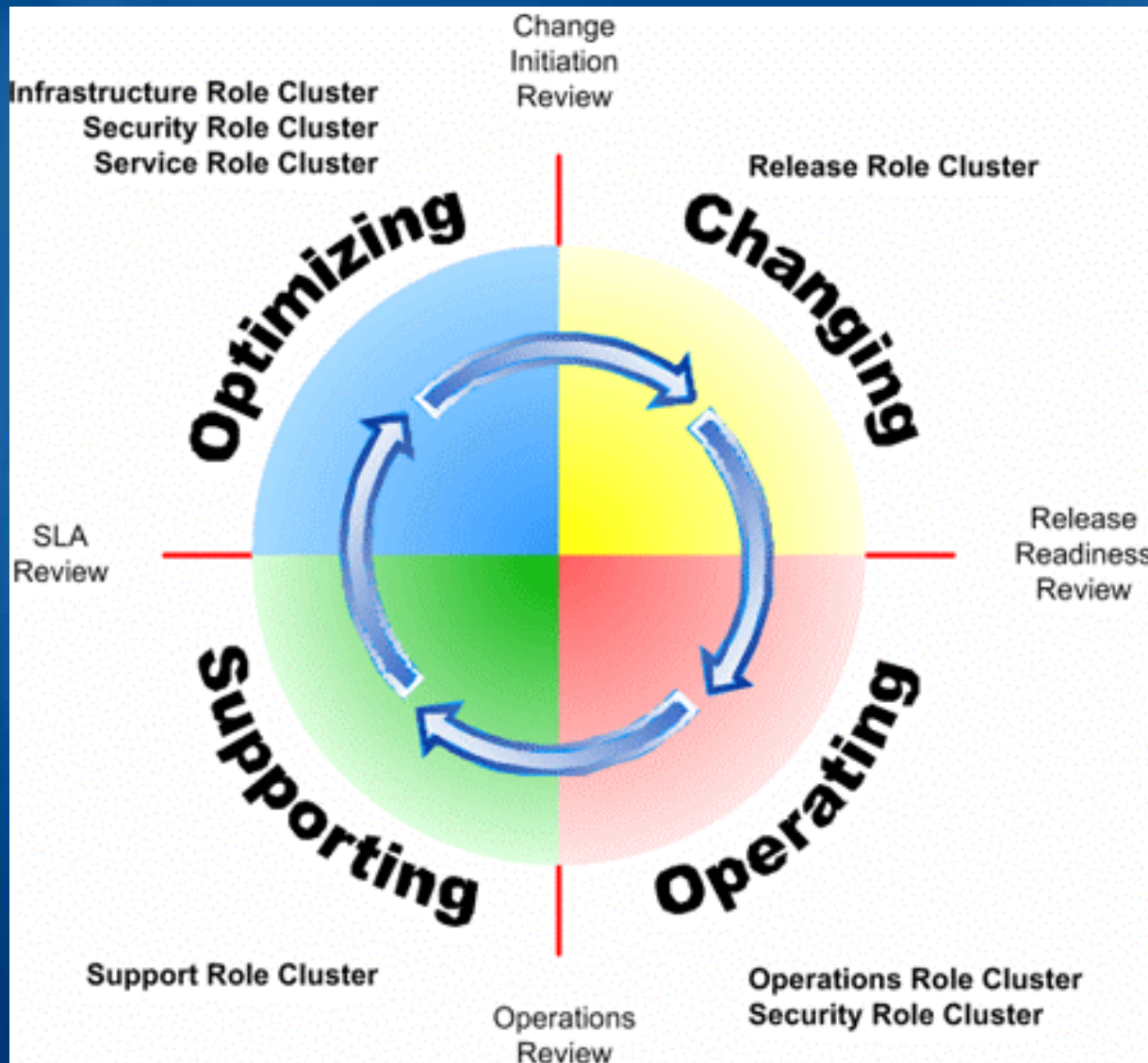
MOF Process Model



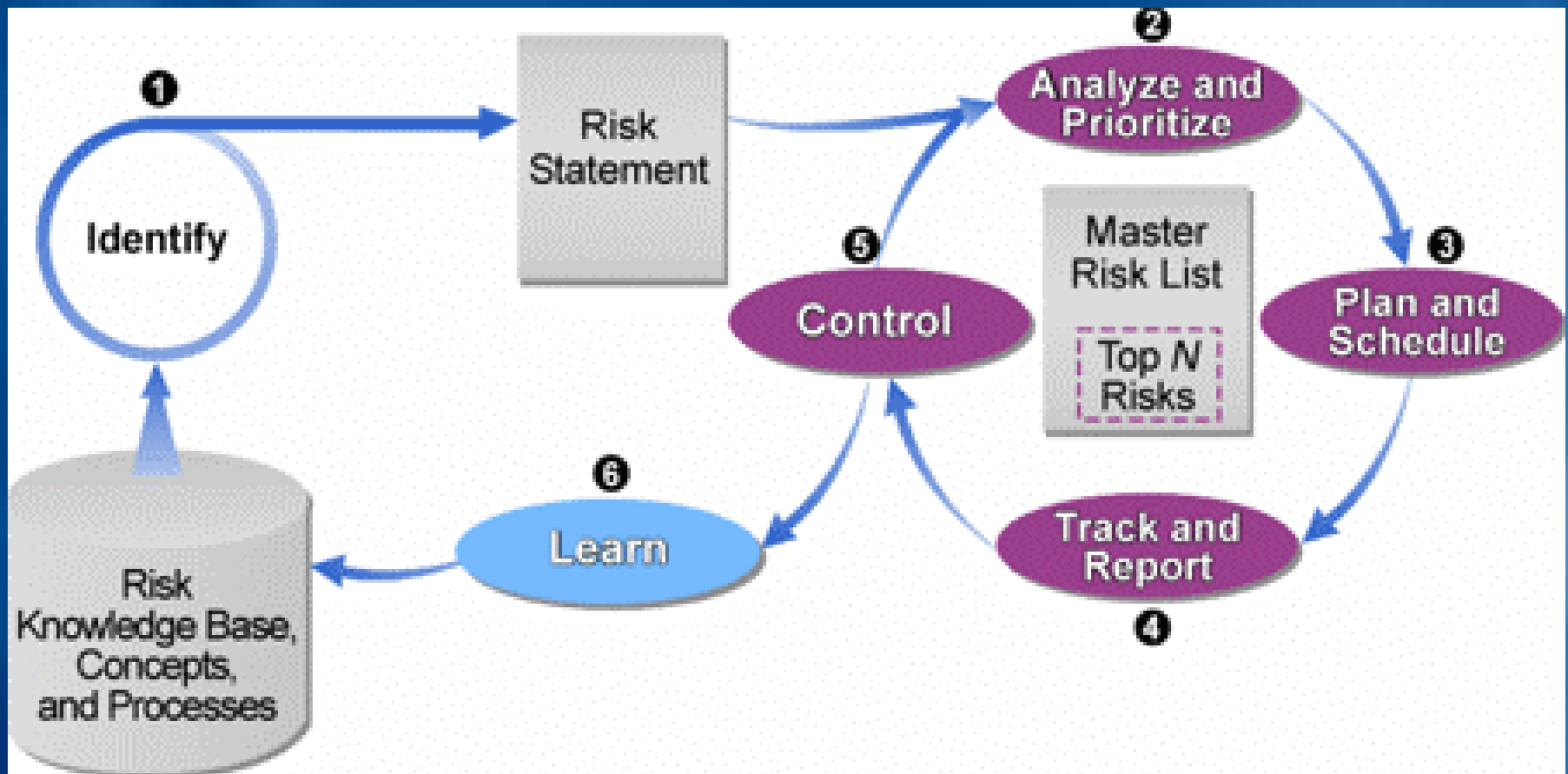
MOF Process Model with Service Management Functions (SMFs)



Aligning Team Model Role Clusters with the Process Model



Risk Management Process



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Discussing MOF

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**MICROSOFT SOLUTIONS
Framework Version 4.0**

Microsoft Solutions Framework

MSF offers guidance in how to organize people and projects to plan, build, and deploy technology solutions successfully and effectively

MSF (v4) is...

*The right content for the right person
at the right time*

- 1. An agile software development process**
- 2. A formal software development process**
- 3. Framework for customers and partners to implement custom software development process**

MSF Delivered

- **Accessible/Embedded**
 - Exposed within Help
- **Centralized**
 - Delivered via Team Foundation Server
- **Current**
 - Updated from MSDN
- **Customizable**
 - Extended by Customers and Partners

AdventureWorks Project Team



Jacqui Ackerman
Project Manager



Mort Gaines
Developer



Larry Sykes
Product Manager



Art Benson
Architect



Renee Davis
Tester



Define Personas

Apply for Loan: Fill out Application
Book Loan: Create Loan Agreement
Evaluate Request: Find Credit Score

Create Scenario List



Prioritize Scenario List



Write Scenarios



Review Scenarios

Create a Scenario



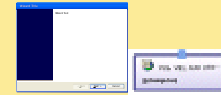
Storyboard a Scenario



Divide Scenario into Tasks



Decompose System



Determine Interfaces



Create Architectural Prototype

Create Solution Architecture



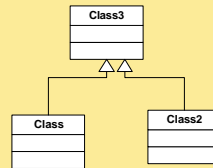
Estimate Scenario

April 04						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

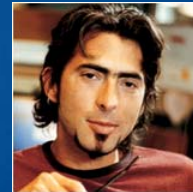
Schedule Scenario



Cost a Development Task



Write Code



Implement a Development Task

From Team Collaboration to Team Partnership

Plan a Scenario



Write and Perform Unit Tests

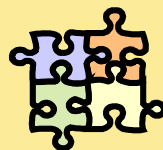


Review Code

Run a Test Case



Write Validation Tests



Integrate



Run Test



Identify a Bug



MSF

Key goals for MSF:

- Drive business success through business & technology alignment
- Ensure high quality solutions; handling the many facets of quality as defined by multiple stakeholders
- Accelerate delivery, reduce costs, minimize risks
- Improve team effectiveness

Methods of Adoption

- **Organizational/Team** – The team has decided as a unit to adopt some flavor of MSF (or your process)
- **Grassroots** – Individuals on the team find the practices useful and the process spreads by providing value

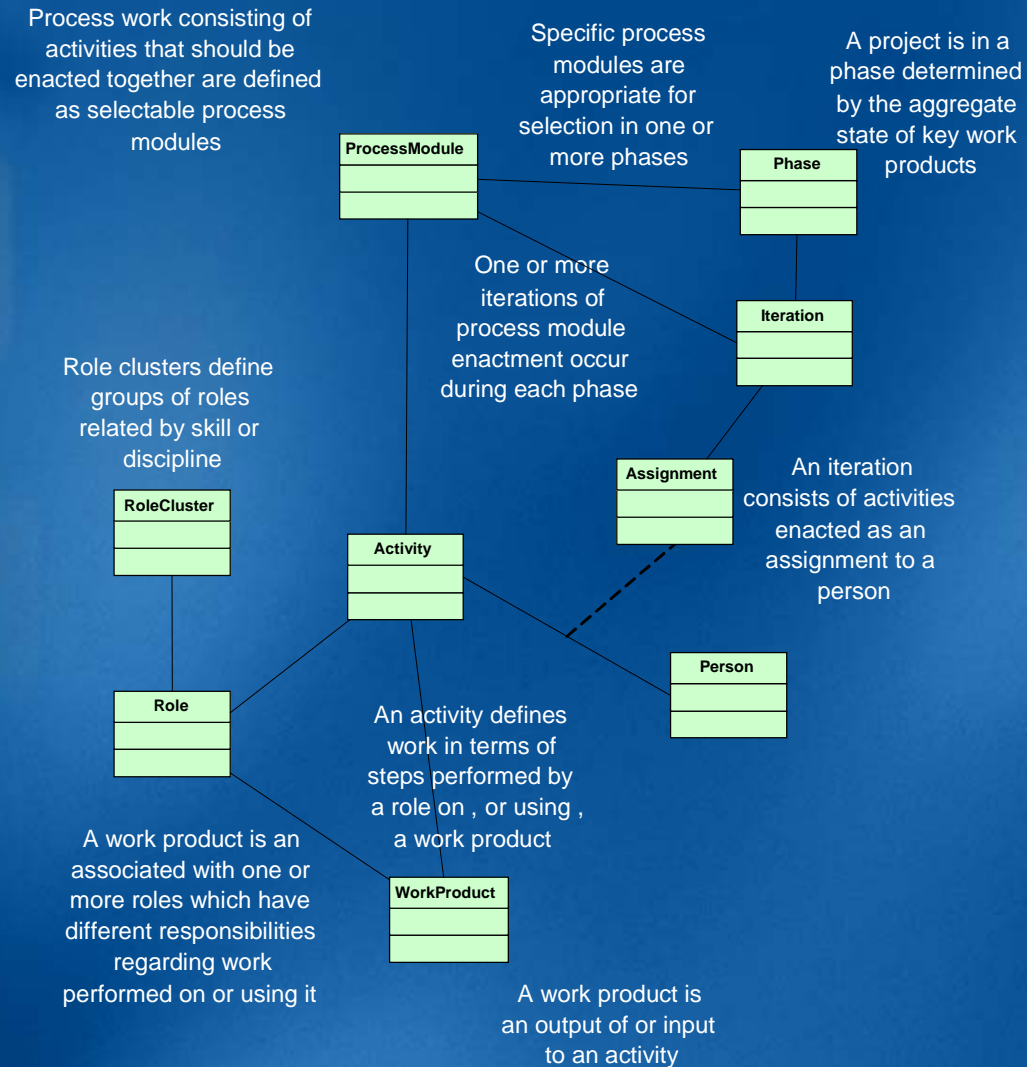
MSF provides friction-free usage that doesn't get in the way

Methods of Extension

- **Framework – Build a process within the MSF meta-model, adopting pieces or all of MSF Agile or Formal**
- **Prototype – Using pieces or all of MSF Agile or Formal as a base to build your own process without the meta-model**

MSF Process Model Structure

MSF Metamodel Essentials



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**A Comparison to Other
Approaches**

Systems and Software Engineering – SEI Capability Maturity Models

● 2 Main Models

- Software Capability Maturity Model (CMM)
- Capability Maturity Model Integration (CMMI) effort for:
 - Systems Engineering
 - Software Engineering
 - Integrated Product Development
 - Supplier Sourcing

- Models are collections of best practices – may be used to perform audits

- Domain – measured projects with teams of 50 or more

● CMM Key Process Areas

- Repeatabe (Level 2)
 - Requirements Management
 - Software Project Planning
 - Software Project Tracking and Oversight
 - Software Subcontract Management
 - Software Quality Assurance
 - Software Configuration Management

● CMM Key Process Areas

● Defined (Level 3)

- Organization Process Focus
- Organization Process Definition
- Training Program
- Integrated Software Management
- Software Product Engineering
- Inter-group Coordination
- Peer Reviews

● Managed (Level 4)

- Quantitative Process Management
- Software Quality Management

● Optimizing (Level 5)

- Defect Prevention
- Technology Change Management
- Process Change Management

Systems and Software Engineering (concluded)

● CMMI Key Process Areas

● Process Management

- Organizational Process Definition (Level 3)
- Organizational Process Focus (Level 3)
- Organizational Training (Level 3)
- Organizational Process Performance (Level 4)
- Organizational Innovation and Deployment (Level 5)

● Project Management

- Project Planning (Level 2)
- Project Monitoring and Control (Level 2)
- Supplier Agreement Management (Level 2)
- Integrated Project Management (Level 3)
- Risk Management (Level 3)
- Integrated Teaming (Level 3)
- Quantitative Project Management (Level 4)

● CMMI Key Process Areas

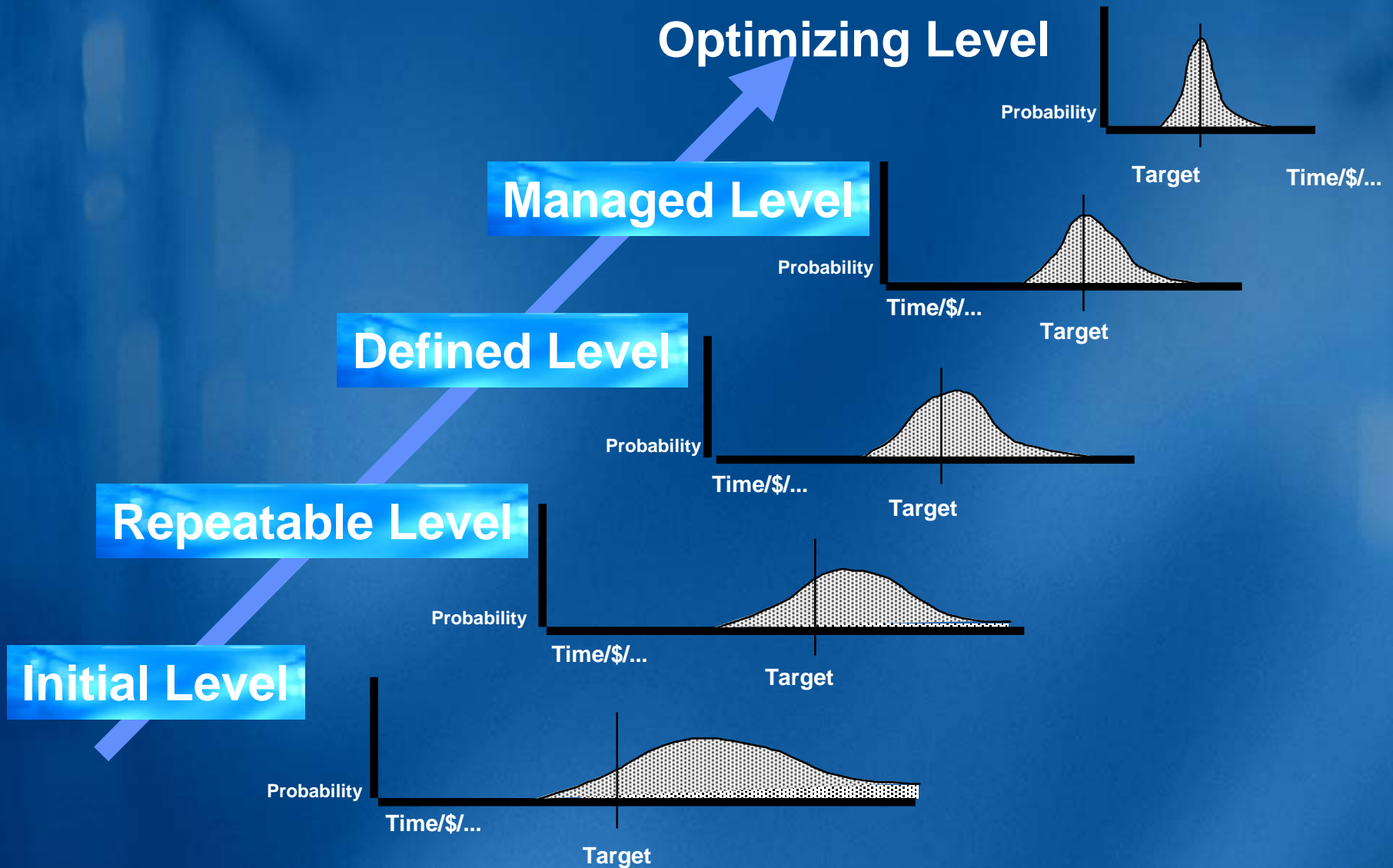
● Engineering

- Requirements Management (Level 2)
- Requirements Development (Level 3)
- Technical Solution (Level 3)
- Product Integration (Level 3)
- Verification (Level 3)
- Validation (Level 3)

● Support

- Configuration Management (Level 2)
- Process and Product Quality Management (Level 2)
- Measurement and Analysis (Level 2)
- Decision Analysis and Resolution (Level 3)
- Organizational Environment for Integration (Level 3)
- Causal Analysis and Resolution (Level 5)

Capability Maturity



MSF and the CMM/CMMI

- **MSF Process Model**

- Provides guidance and proven practices for process improvement
- Has an IT focus

- **MSF itself is not process-centric**

- Non-process elements: envisioning, teaming, leadership
- Does not address organizational improvement or establishing organizational processes

- **MSF and CMM/CMMI share same goals:**

- Continual improvement
- Refine best practices – set of best practices in MSF not exactly the same as CMM/CMMI, but there are overlaps

- **Differences between MSF and CMM/CMMI**

- CMM/CMMI uses a prescribed appraisal method to compare current processes to benchmarked models while
- MSF does not attempt to measure or assess either the capability or maturity of an organization's processes

Extreme Programming

- **Simple, specific, easy-to follow methodology for software development**
 - Non-safety-critical software
 - Small teams of people
- **Basic cycle at the core of XP**
 - Customer defines value (what the product is to do)
 - Programmer estimates the cost of building that value into the product
 - Customer chooses what part of the defined value is going to be built
 - Programmer builds a new version of the product
 - Repeat, learning from the experience
- **XP features many common-sense best practices including, but not limited to:**
 - Incremental planning
 - Adaptability to changing business needs
 - Flexible scheduling of the implementation of various functionalities
 - Short development cycles with feedback between cycles
 - Reliance on automated tests written by both developers and customers
 - Developers working in pairs, preparing tests first and then writing code
 - Development viewed as an activity that proceeds throughout the lifetime of a system

MSF and Extreme Programming

- **MSF and Extreme Programming**
 - Very much aligned to both principles and practices for software development in environments that require a high degree of adaptability
 - Differ
 - MSF covers a broader field
 - Extreme Programming is optimal on projects where there is enough uncertainty that exploration and progressive understanding of requirements favors this highly adaptive approach
 - MSF can include Extreme Programming where appropriate but can also accommodate higher levels of structure for optimizing processes
 - Extreme Programming focuses on the design and development phases
 - MSF adds phases for defining business value at the front and transitioning software from development to operations in the back

Comparing Best Practices

- **Trends**
 - Each approach based on experiences in
 - Different domains
 - Different sizes of teams
 - Different cultures
 - Each approach shares many best practices – implementation is different
 - Requirements
 - Testing
 - Measurements
 - Estimating based on historical data and experiences
 - Peer and user reviews
 - Management oversight
 - Coding (as a smaller part of the effort)
- **Trends**
 - All approaches are iterative
 - CMM/CMMI is usually implemented by the Spiral or Evolutionary Spiral Model today
 - Waterfalls are in the past unless part of an iterative process
 - Some approaches are more rigorous and controlling than others
 - Such approaches usually provide more analytical data that may be applied via techniques like Statistical Process Control
 - Such approaches have a higher overhead cost
 - Such approaches involve larger teams of people
 - Such approaches involve safety-critical software development

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**A Conclusion and
Resources**

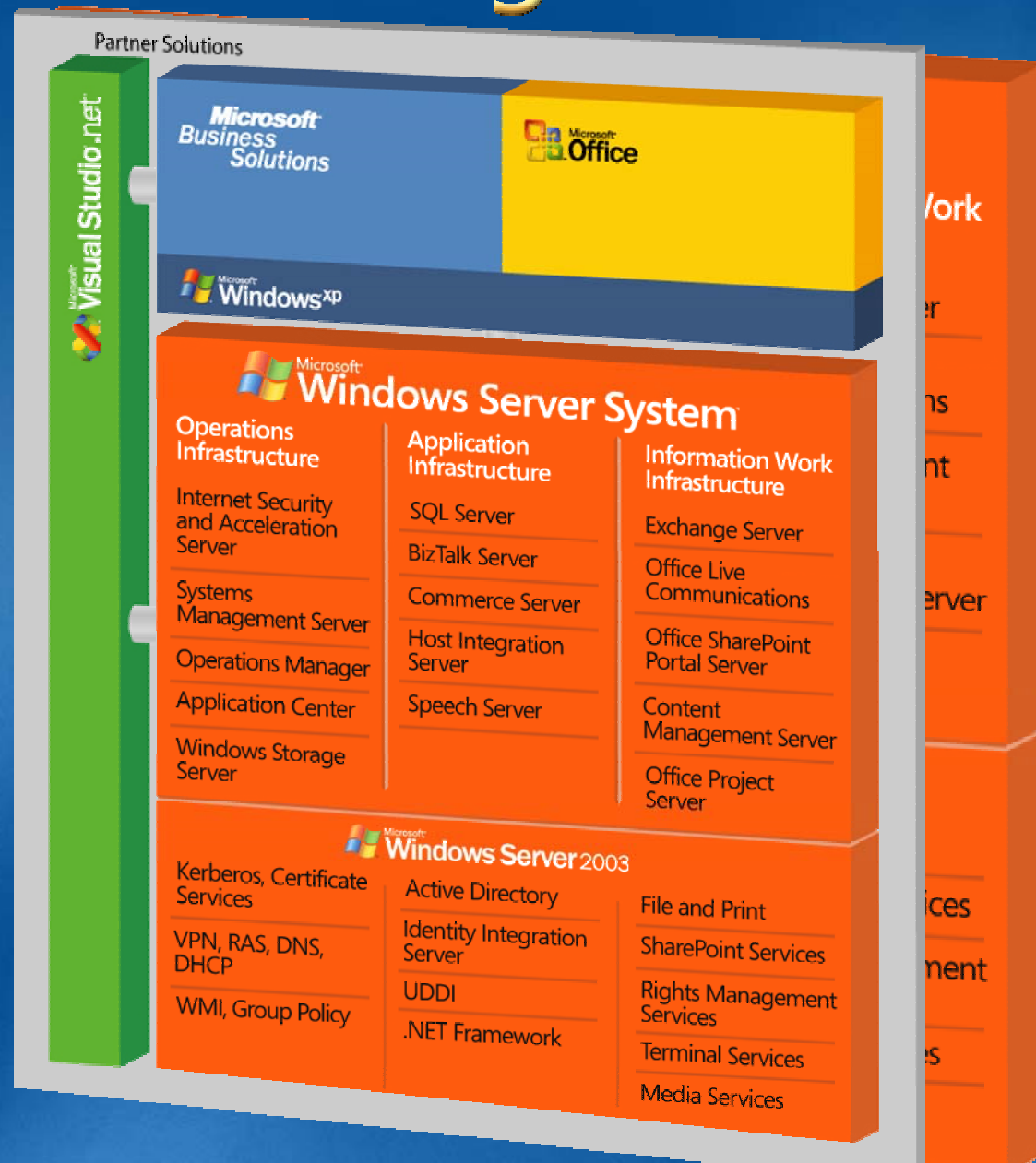
Conclusions

- **MSF version 4.0 comes in two flavors to deliver maximum flexibility**
- **MSF is fully integrated in Visual Studio Team System**
- **MSF updates are delivered via MSDN**
- **MSF can become a basis for your software development process**

Business Value Through Innovation



*Integrated
Innovation*



Community Resources

MSF and MOF

<http://www.microsoft.com/msf>

<http://www.microsoft.com/mof>

Attend a free chat or web cast

<http://www.microsoft.com/communities/chats/default.aspx>

<http://www.microsoft.com/usa/webcasts/default.asp>

List of newsgroups

<http://communities2.microsoft.com/communities/newsgroups/en-us/default.aspx>

MS Community Sites

<http://www.microsoft.com/communities/default.aspx>

Locate Local User Groups

<http://www.microsoft.com/communities/usergroups/default.aspx>

Contacting Me

The screenshot shows a Microsoft Internet Explorer browser window with the title 'Richard Conn ARM Home Page - Microsoft Internet Explorer'. The address bar contains the URL 'http://unicoi.kennesaw.edu/~rconn/ade/index.htm'. The page content is organized into several sections:

- Resources by Topic:**
 - [Main Page](#)
 - [What's an ARM?](#)
 - [How do I Contact Mine?](#)
 - [ARM Seminars](#)
 - [Help with Teaching Visual Studio .NET](#)
 - [Courseware Resources](#)
 - [Microsoft-Related Resources](#)
 - [Other Resources](#)
 - [Microsoft Technology Reports](#)
- Richard Conn:** A portrait of Richard Conn is shown next to his name. To the right is a logo for the IEEE Computer Society, featuring the text 'csdop' and 'Certified Software Development Professional'.
- Revised:** 1 July 2004
- Navigation:** [Contact Information](#) [Biography](#)
- Articles:**
 - [Microsoft Vision for Life Long Learning](#)
 - [Zen and the Art of Being Happy with Microsoft](#)
- Special Sections:**
 - [Special Section - SAIS 2004 Panel Support](#)
 - [Special Section - SIGCSE 2004 Paper Support](#)
 - [Special Section - Understanding CMM Level 4 Metrics](#)
- Microsoft:**
 - [Microsoft](#)
 - [Microsoft Developer's Network \(MSDN\)](#)
 - [Microsoft Developer's Network Academic Alliance \(MSDNAA\)](#)
 - [Microsoft Research \(MSR\)](#)
 - [Main Function \(Microsoft and Universities\)](#)
- Associations:**
 - [Ada and Software Engineering Library Version 2](#)
 - [Association for Computing Machinery](#)
SIGAda, SIGCSE, SIGSOFT, JERIC
 - [Association of Information Systems](#)
Southern USA
 - [Institute of Electrical and Electronics Engineers](#)
Computer Society, Standards
 - [Atlanta NPT User Group](#)

The Windows taskbar at the bottom shows the 'start' button, several open applications (Inbox - Mic..., 2 Internet..., Crosstalk C..., Microsoft P..., untitled - P...), and the system tray with the time '7:10 AM'.

<http://unicoi.kennesaw.edu/~rconn/ade/index.htm>

Session Evaluation

Please fill out a session evaluation form

Q1: Overall satisfaction with the session

Q2: Usefulness of the information

Q3: Presenter's knowledge of the subject

Q4: Presenter's presentation skills

Q5: Effectiveness of the presentation

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