

Roles based approach

Enterprise Architecture Modeling

Rational software



Agenda

- Why Model?
 - ▶ Business trends that impact software and systems delivery
 - ▶ Different Modeling Techniques
- Evolving software and systems delivery
 - ▶ Business driven development
 - ▶ Applying governance to development
 - ▶ Benefits and IBM Rational software
- Business Driven Development
 - ▶ In action
- Taking action, today



Enterprise Architecture: How are they developed and delivered?

A construction analogy....



Little/No Process

- ▶ “Artist” / Single Person Effort



Some Process

- ▶ Small/Mid-sized Teams
- ▶ Blueprints and Inspections



Established Processes

- ▶ Large Teams, Teams of Teams or, Decision Boards
- ▶ Mission, Life, or IT Critical Projects



The Role of Modeling in Business

What kinds of Compelling Reasons To Act can you find?



Describe it this way:

- It's how companies reach their customers
- It's how you manage your sales pipeline
- It's how you buy products
- It's how companies go after new markets
- It powers your car's computer systems
- It monitors safety systems
- It connects people across the globe, or around the corner

**Software & Systems
Are Everywhere!**

Modeling techniques

The new norm

- **Unified Modeling Language (UML)**
- **Model-Driven Architecture (MDA)**
- **Zachman Framework (ZF)**
- **Roles based approach (RUP)**



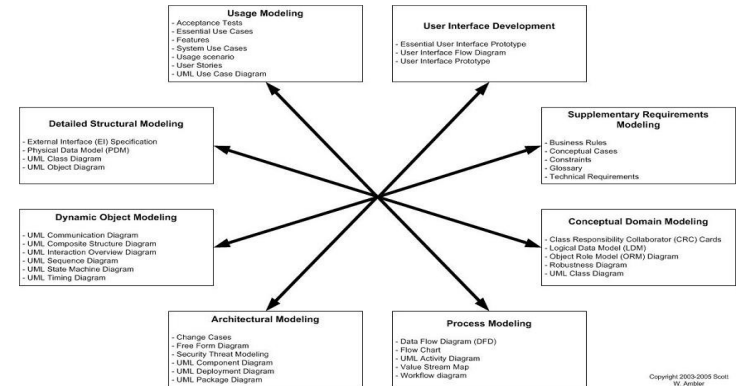
UML

Pros

- Well defined
- continues to evolve (albeit slowly)
- well accepted within the IT industry by both practitioners and tool vendors

Cons

- UML is overly complex, defining far more notation than what the average developer wants or needs
- UML is not sufficient for business system development



ZF

Pros

- Tabular representation..easy to understand
- collection of perspectives pertinent to enterprise architecture

Cons

- Documentation-heavy approach
- Process-heavy approach
- Top-down approach to development

	Structure (What)	Activities (How)	Locations (Where)	People (Who)	Time (When)	Motivation (Why)
Objectives/ Scope (Planner's View)	Most significant business concepts	Mission	International view of where organization operates	Human resource philosophies and strategies	Annual planning	Enterprise vision
Enterprise Model (Business Owner's View)	Business language used	Strategies and high-level business processes	Offices and relationships between them	Positions and relationships between positions	Business events	Goals, objectives, business policies
Model of Fundamental Concepts (Architect's View)	Specific entities and relationships between them	Business functions and tactics	Roles played in each location and relationships between roles	Actual and potential interactions between people	System events	Detailed business rules
Technology Model (Designer's View)	System representation of entities and relationships	Program functions/ operations	Hardware, network, middleware	User interface design	System triggers	Business rule design
Detailed Representation (Builder's View)	Implementation strategy for entities and relationships	Implementation design of functions/ operations	Protocols, hardware components, deployed software items	Implementation of user interface	Implementation of system triggers	Implementation of business rules
Functioning System	Classes, components, tables, ...	Deployed functions/ operations	Deployed hardware, middleware, and software	Deployed user interface (including documentation)	Deployed systems	Deployed software

↑
Computation Independent Models

↑
Platform Independent Models (PIMs)

↓
Platform Specific Models (PSMs)

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Scott W. Ambler



MDA

Pros

- Defines a coarse separation of views
- Defines a viable strategy for system integration
- May support tool integration

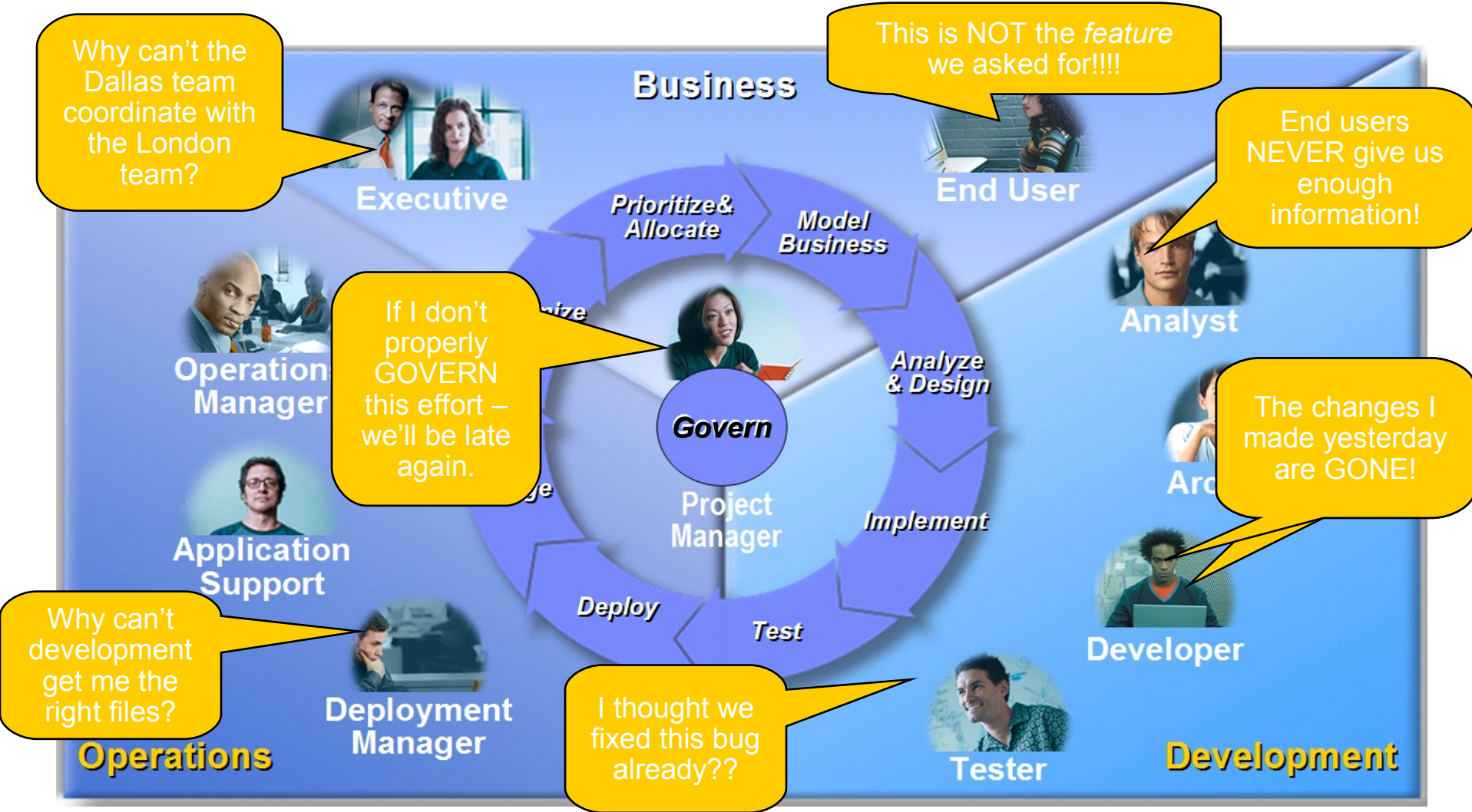
Cons

- How will MDA-based models be tested?
- How will MDA-based models handle the inherent complexities of legacy system integration?

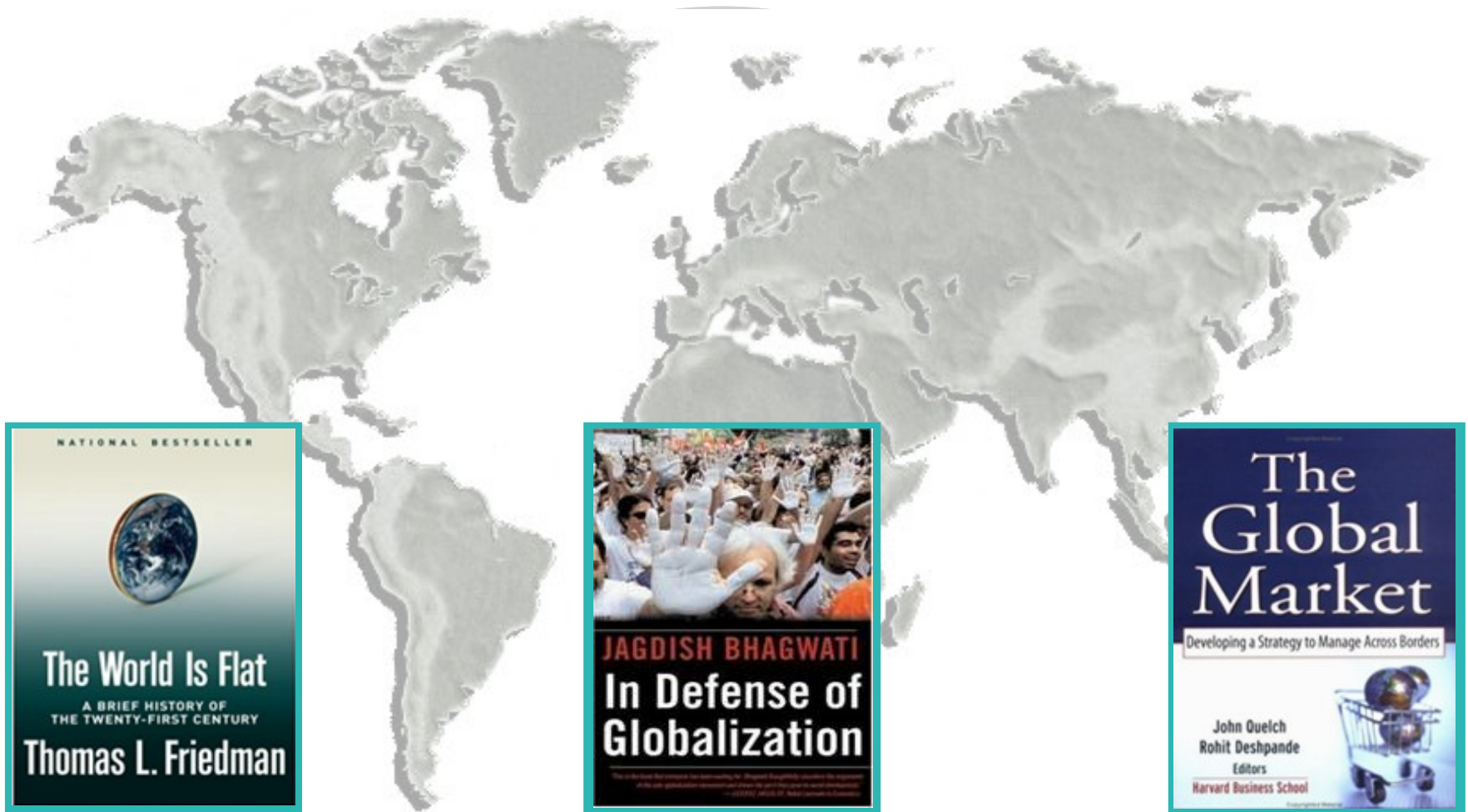


Roles based approach (aka RUP): How are they developed and delivered?

Organizations who depend on software use an integrated team of disciplines



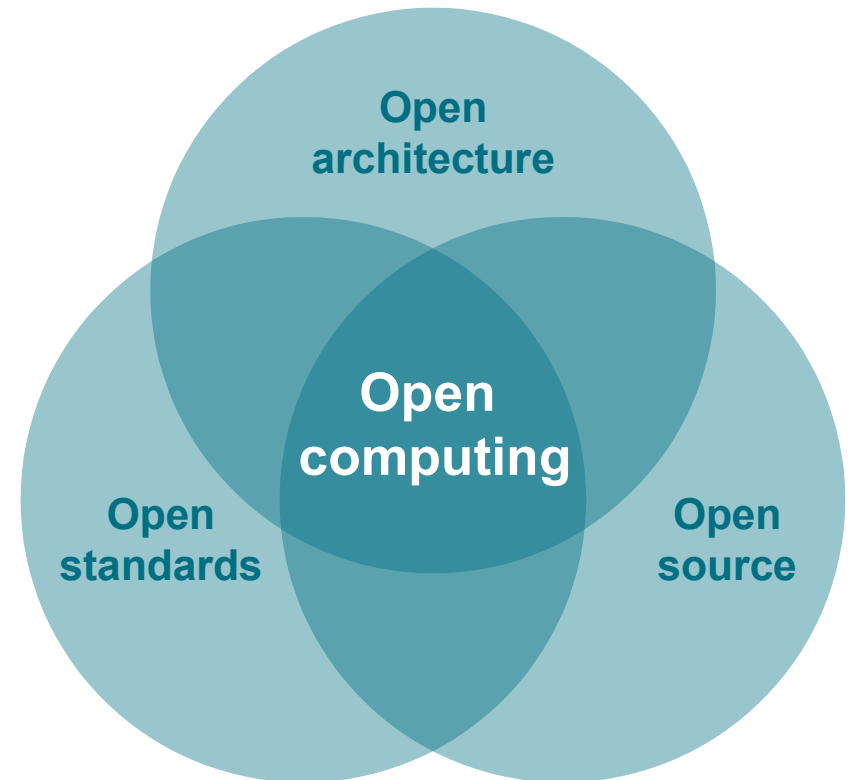
Leveling the global playing field



Open computing

A new route to collaboration and innovation

- **Open standards**
 - ▶ Improve data sharing by simplifying integration of disparate technologies
- **Open architecture**
 - ▶ Increase collaboration by easily extending business processes
- **Open source**
 - ▶ Promote innovation by leveraging community development



Modular systems

Greater flexibility

- **Maximize investments: *Reuse components***
 - ▶ Leverage existing assets and investments
 - ▶ Avoid rip and replace
- **Increase flexibility: *Interoperable systems***
 - ▶ Connect and share business components
 - ▶ Easily distribute business processes
- **Accelerate initiatives: *Scalable and agile***
 - ▶ Add capacity or functionality quickly
 - ▶ Scale technology based on business demands
 - ▶ Increase business process efficiency—globally



*Today, service-oriented architecture (SOA)
takes business process automation to the next level*

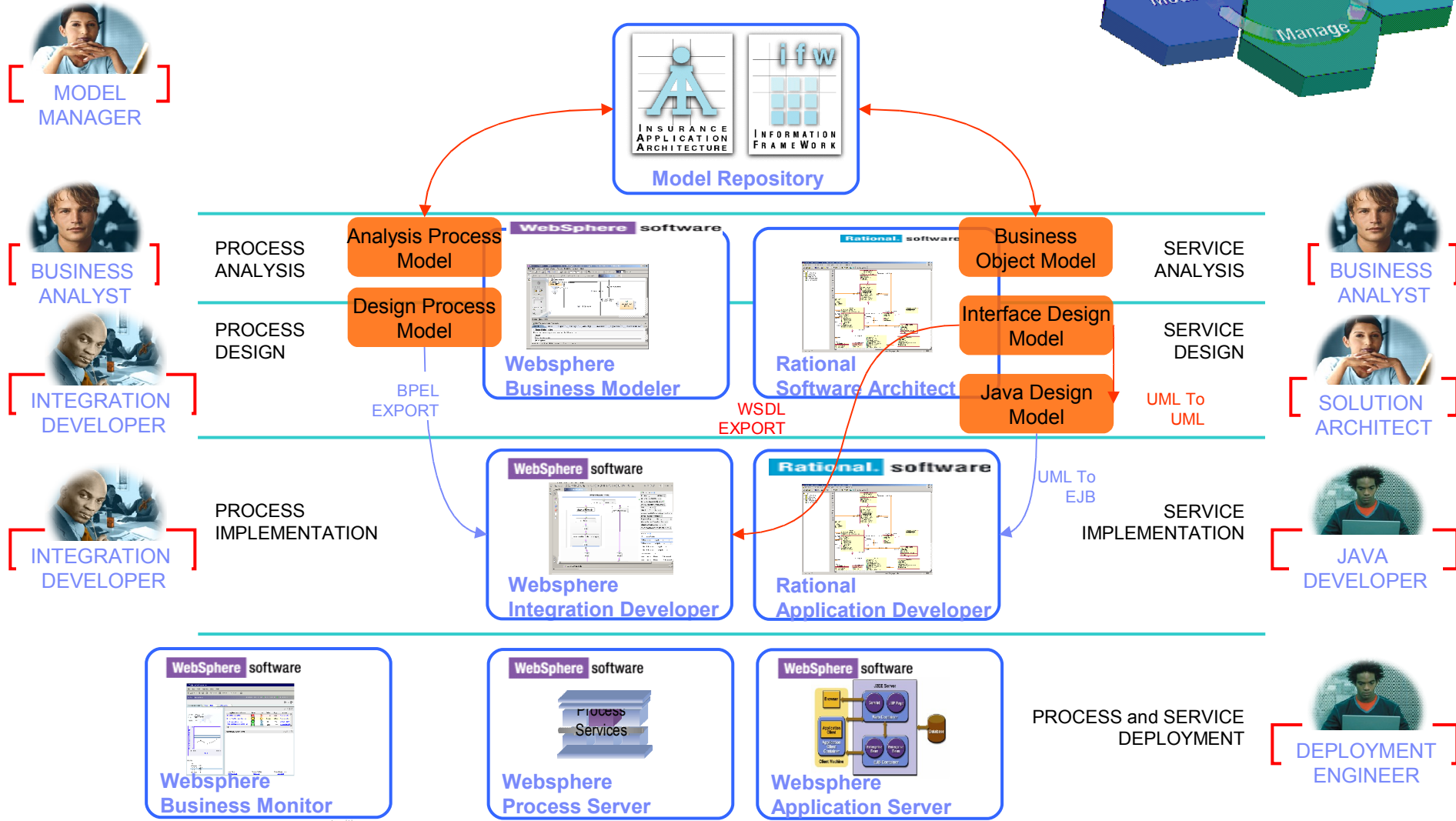
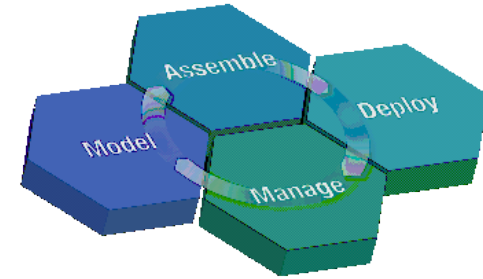


Agenda

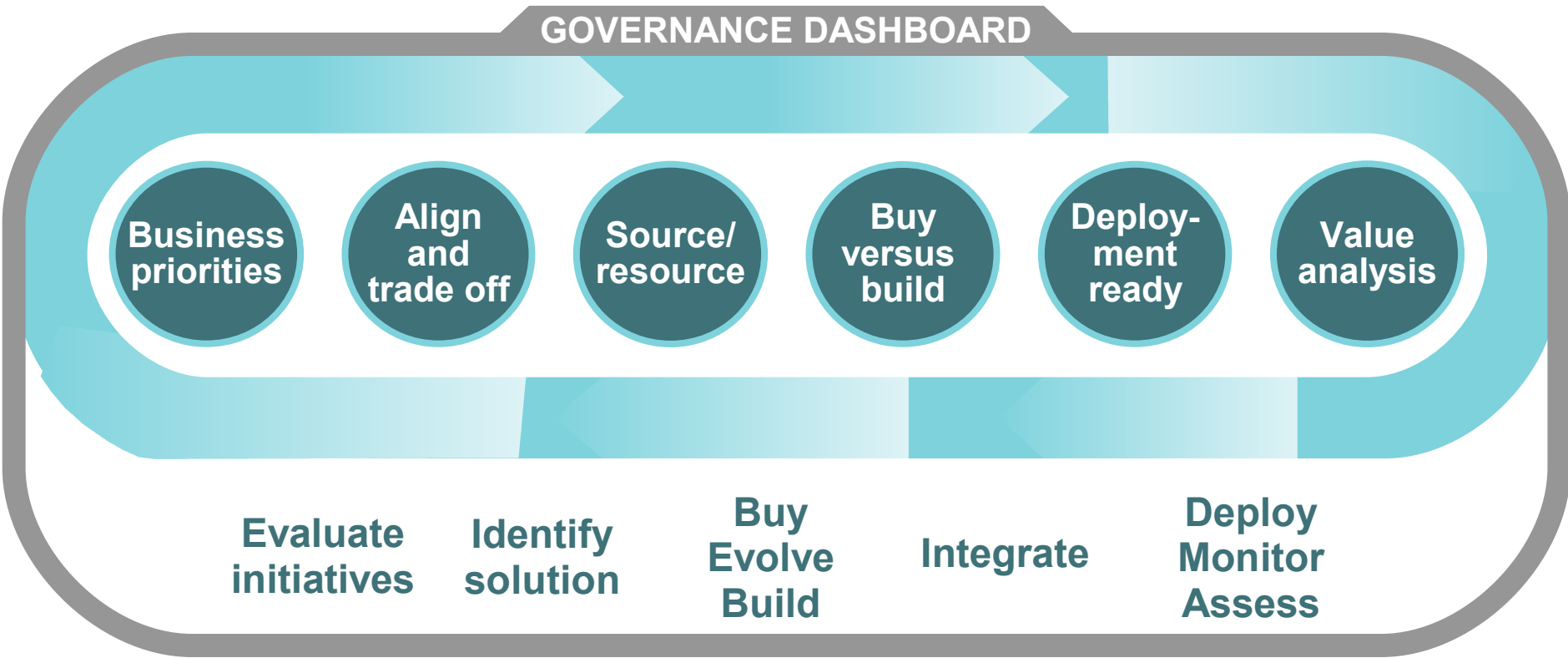
- Business trends that impact software and systems delivery
 - ▶ Challenges and opportunities
- Evolving software and systems delivery
 - ▶ Business driven development
 - ▶ Benefits and IBM Rational software
- Business Driven Development
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- Taking action, today



Overall environment



Business Driven Development



Informed decisions drive development activities



Benefits of Business Driven Development



Manage value

- Align business and software
- Balance risk and return
- Provide clarity and accountability

Develop flexibly

- Leverage resources anywhere
- Enable agile sourcing choices
- Adopt easily extended architectures

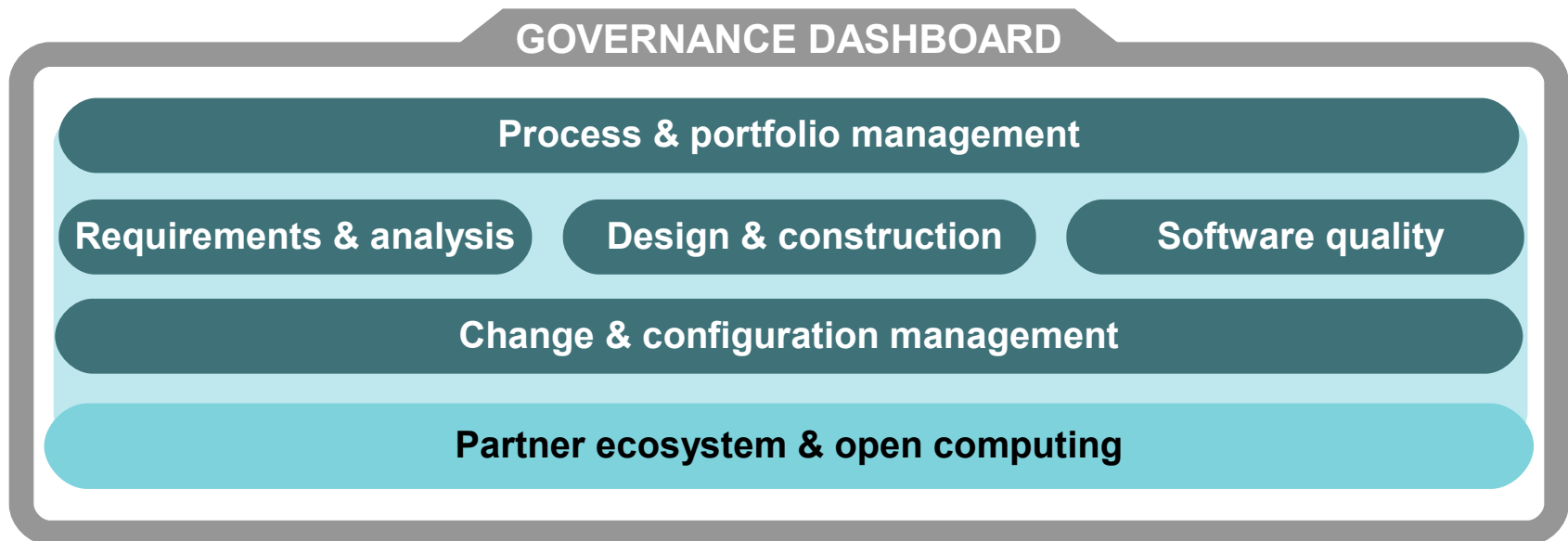
Control risk and change

- Continuously measure to reduce risk
- Enable lifecycle change management
- Meet compliance needs



The IBM Rational Software Development Platform

Governing the business process of software and systems development



How does IBM Rational® software make this possible?



Manage value

- Real-time analytics linking financial and software information
- Real-time resource management
- Comprehensive dashboard reporting and drilldown

Develop flexibly

- Proven best practices
- Integrated requirements management
- SOA design and construction capabilities
- Open, role-based team environment

Control risk and change

- Lifecycle change and asset management
- Built-in audit and status information on projects and assets
- Performance testing
- Service-level monitoring



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IBM Software Group

Business Driven Development in Action

***Examples: Financial Services, Aerospace & Defense,
Supply Chain, and multi-solution***

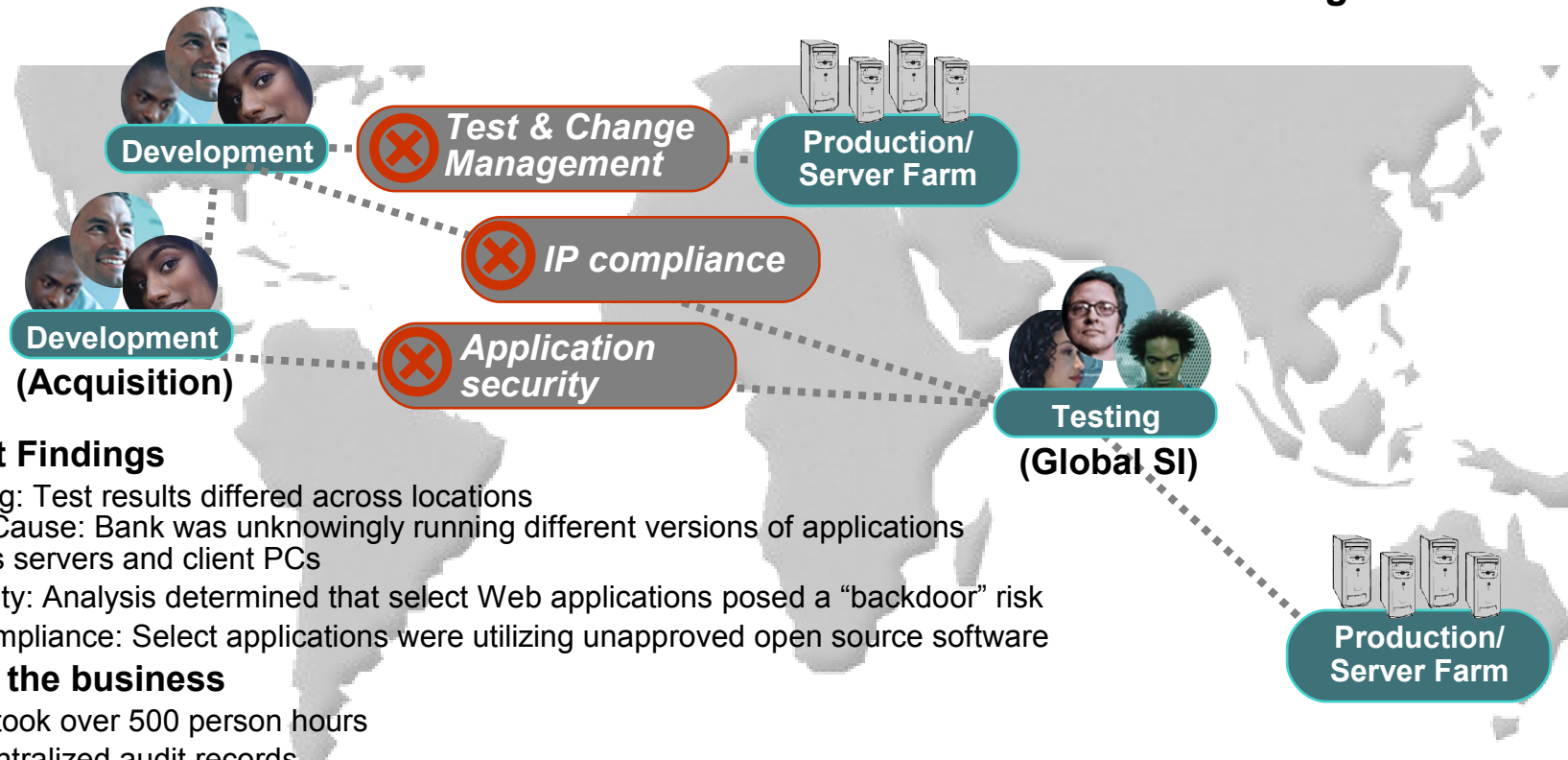
Rational. software



Scenario: International Consumer Bank

Challenge: Gaining worldwide market share while ensuring quality

**Managing Worldwide Branches
Maintaining ATM Network**



IT Audit Findings

- ▶ Testing: Test results differed across locations
Root Cause: Bank was unknowingly running different versions of applications across servers and client PCs
- ▶ Security: Analysis determined that select Web applications posed a “backdoor” risk
- ▶ IP Compliance: Select applications were utilizing unapproved open source software

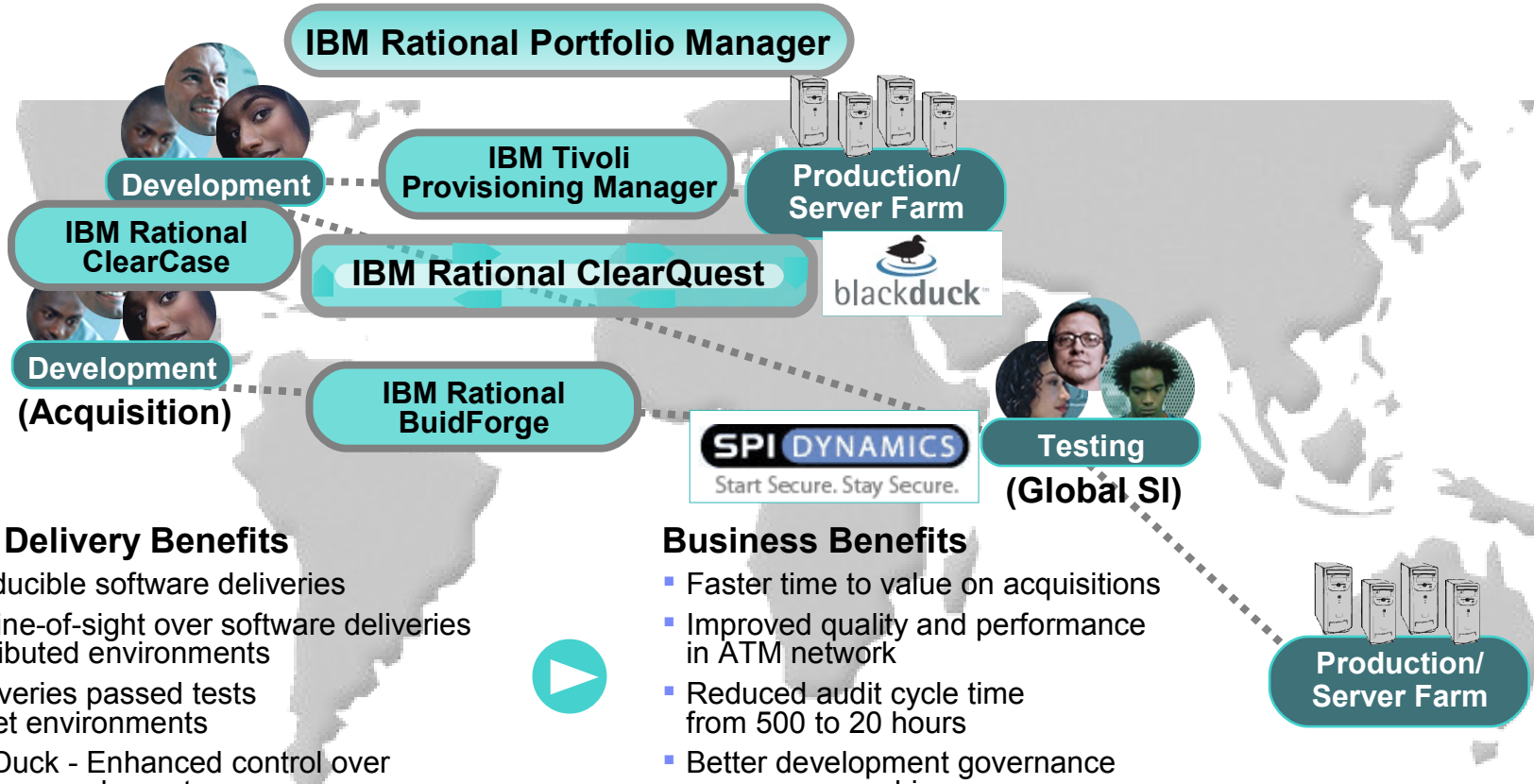
Cost to the business

- ▶ Audit took over 500 person hours
- ▶ No centralized audit records
- ▶ Difficult to do forensic analysis – what, who, when, where
- ▶ Inconsistent approvals/checkpoints



Scenario: International Consumer Bank

Solution: Accelerating global software delivery with the IBM Rational Software Development Platform



Global Delivery Benefits

- Reproducible software deliveries
- Clear line-of-sight over software deliveries in distributed environments
- All deliveries passed tests in target environments
- Black Duck - Enhanced control over open source elements
- SPI Dynamics - Improved application security



Business Benefits

- Faster time to value on acquisitions
- Improved quality and performance in ATM network
- Reduced audit cycle time from 500 to 20 hours
- Better development governance across geographies
- Increased security



Business Driven Development in action

Financial services: Banking industry cost-efficiency

Initiative

Consolidate operations of a new acquisition

- Ensure new acquisition meets regulatory compliance requirements
- Integrate acquired development staff into the worldwide development team
- Integrate core banking capabilities into existing applications



GOVERNANCE DASHBOARD

Business driven process



Business Driven Development in action

Financial services: Banking industry cost-efficiency

Initiative

Consolidate operations of a new acquisition

- ✓ Ensure new acquisition meets regulatory compliance requirements

GOVERNANCE DASHBOARD

Business driven process

Development challenges

- Establish an auditable, yet low overhead, development process
- Manage business control and regulatory requirements of operating a bank in Spain

IBM Rational solution

- Auditable workflow and change management
- Lifecycle traceability of compliance requirements

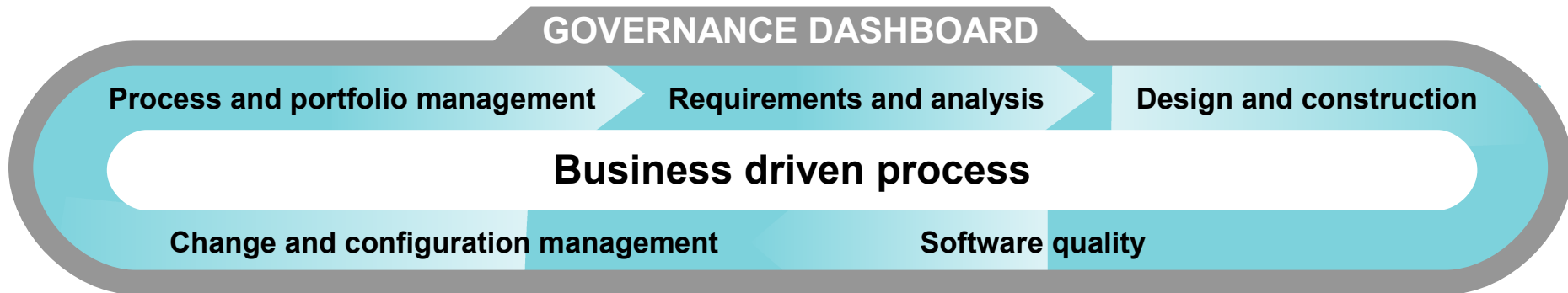
Business value

- Established compliance policy guidelines, controls and processes
- Ability to track and certify software remediation projects



Business Driven Development in action

Financial services: IBM Rational solutions for compliance



Manage value

- Rational Portfolio Manager
- Rational Method Composer and Best Practices Content

Develop flexibly

- Rational RequisitePro
- Rational Software Architect

Control risk & change

- Rational Portfolio Manager
- Rational ClearQuest
- Rational Performance Tester for zSeries
- Rational Performance Tester for Siebel

Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)



Business Driven Development in action

Aerospace & Defense: Mission effectiveness

Initiative

Mission systems optimization

- Integrate satellite, ground and ship control systems
- Manage certification and accreditation



GOVERNANCE DASHBOARD

Business driven process




Business Driven Development in action

Aerospace & Defense: Mission effectiveness

Initiative

Mission systems optimization

-  Integrate satellite, ground and ship control systems

GOVERNANCE DASHBOARD

Business driven process

Development challenges

- Connect multiple teams in a secure, distributed environment

IBM Rational solution

- Support for geographically distributed development, enforcing access rights and audit trails

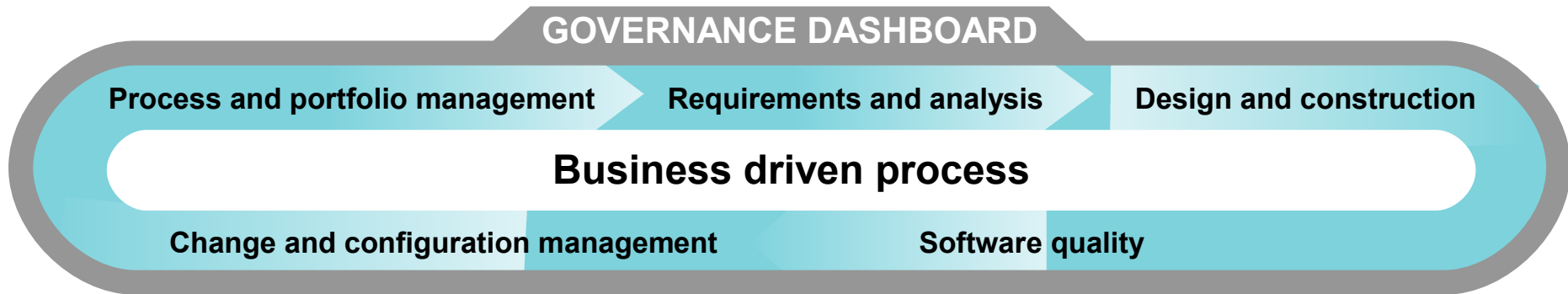
Business value

- Faster time to value without reducing program targets
- Greater visibility into development status throughout life of the project



Business Driven Development in action

Aerospace & Defense: IBM Rational solutions



Manage value

- Rational Portfolio Manager

Develop flexibly

- Rational Unified Process
- Rational RequisitePro
- Rational System Developer
- Rational Functional Tester
- Rational Manual Tester

Control risk & change

- Rational Portfolio Manager
- Rational ClearCase
- Rational ClearQuest

Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)



Business Driven Development in action

Supply chain scenario

Initiative

Open a new market in India

- Distributor expansion project to link new partners
- Export management project to comply with regulations
- Order entry optimization to ramp new retail stores



GOVERNANCE DASHBOARD

Business driven process




Business Driven Development in action

Supply chain scenario

Initiative

Open a new market in India

- 
 Distributor expansion project to link new partners

GOVERNANCE DASHBOARD

Business driven process

Development challenges

- Distributed software teams
- Newly acquired businesses
- Differing partner infrastructures

IBM Rational solution

- Business process modeling and iterative development
- SOA construction to abstract, componentize and expose services
- Distributed change management

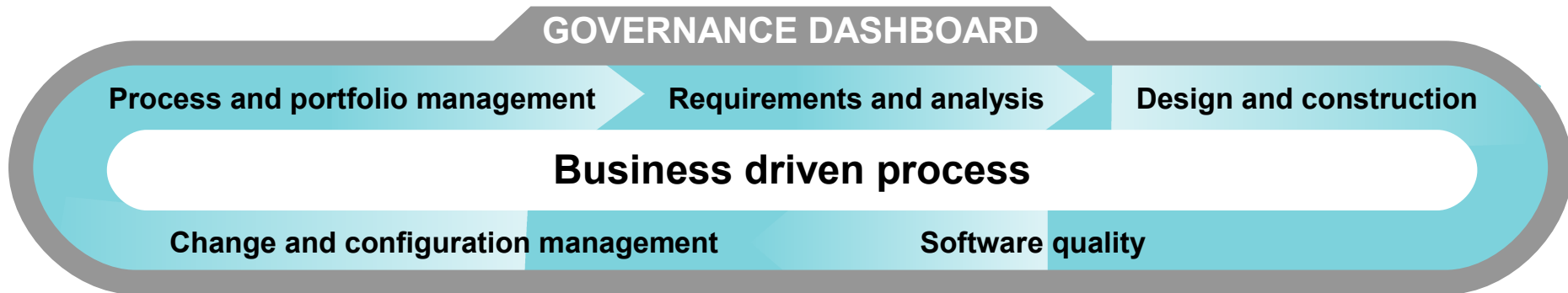
Business value

- Ability to bring new distributors online in days versus weeks
- Ability to modify to local country needs



Business Driven Development in action

Supply chain scenario: IBM Rational solutions



Manage value

- Rational Portfolio Manager
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Develop flexibly

- Rational RequisitePro
- Rational Software Architect

Control risk & change

- Rational Portfolio Manager
- Rational ClearQuest
- Rational Performance Tester for zSeries
- Rational Performance Tester for Siebel and SAP

Partner Ecosystem & Open Computing (Eclipse, Linux, Windows, UNIX, zOS)



Business Driven Development in action

Compliance scenario: Evaluating risk and reward of competing initiatives

Project proposal submitted for planning and assessment

Consistent criteria used to assess and prioritize proposals

Auditable project approval authorizes effort

The screenshot displays a software interface for managing project proposals. On the left, a 'Portfolio' tree shows various project categories like 'Commercial Operations', 'IT Portfolio', and 'Proposals'. The main area shows details for a proposal named 'Update Credit Approval Component'. The 'Identification' section includes fields for Rank (500), Reference #, Project ID (1041), Assignment type (Work), Calendar, Currency (US dollars), Published status, and dates. The 'Financials' section contains a table with columns for Name, Estimate, and Actual.

Name	Estimate	Actual
Expense & Capital Costs		
Labor Costs	105,000.00	
Non-Labor Expense		
Non-Labor Capital		
Contingency		



The 'Approve Project Proposal' dialog box provides a structured workflow for approval. It includes a 'Step' section with a 'Cross Functional Team Review and Accept' button. Below this is a 'Suggested Participants' list: Business Sponsor, Project Reviewer, Project Manager, Business Process Analyst, Architect, Test Manager. A 'Checklist' section contains three items: '1. Review overall project proposal for coherence.', '2. Review impact to your organization.', and '3. Indicate approval or rejection of proposal.' There is also a 'Participants' field with the text 'Richard, James; Tony, Rick;'. A 'Subject' field contains 'Cross Functional Team Review and Accept'. A 'Comments' section has a text area with the placeholder 'Please review this proposal and accept/reject. Add estimates as appropriate.' At the bottom, there is a 'Respond By' field set to '2005-11-02' and a 'State' dropdown set to '1. Value Proposition'.

Customer success

- Volkswagen AG**
 - 20% productivity increase
- TTI Telecom**
 - Improved time-to-market by 50%
 - Estimated savings of \$2 million per year
- Unisys**
 - 25-40% improvement in cycle time
 - 75-100% improvement in productivity
 - 25-60% cost savings
- Acuity**
 - 15% higher profitability
 - 46% higher employee productivity
- Viveo ToolObject**
 - 60% reduction in development cycles
- Assurant Health**
 - Projects delivered on-time
 - 30% under budget
- Ludwig Gortz**
 - 25% increase in employee satisfaction
- Thomson Financial**
 - Pilot project costs reduced 50%



Business Driven Development

Balancing the interests of developers and management



- Visibility to real-time information about risks and issues
- Traceability and predictability
- Fact based decision making for greater accountability and agility



- Collaboration context, enhancing team interactions and ease of use
- Ability to focus on the task at hand
- Increased productivity

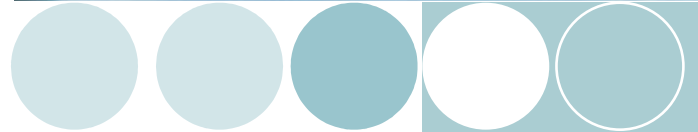
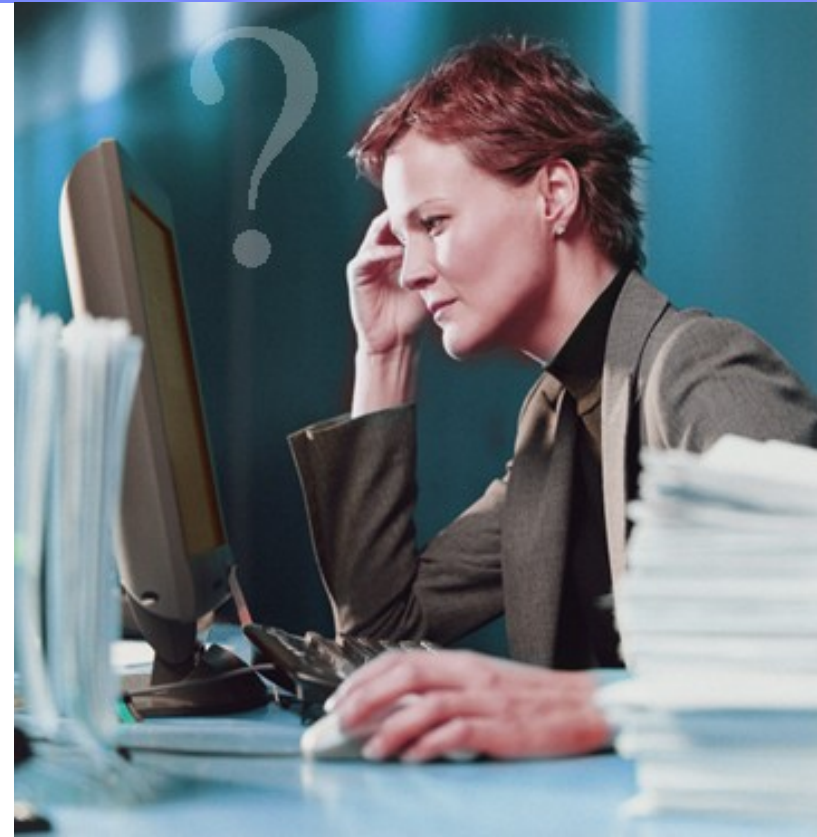
Practitioners need productivity, collaboration and tools that help them focus, while managers need the information and process to govern the business of development



Ask yourself

Today, am I able to...

- Consistently align software investments with business goals?
- Leverage geographically distributed development resources?
- Comply with regulatory standards?
- Quickly extend business processes to third parties and partners?
- Gain real-time visibility into projects without creating overhead?
- Enable software teams to innovate, yet be accountable?



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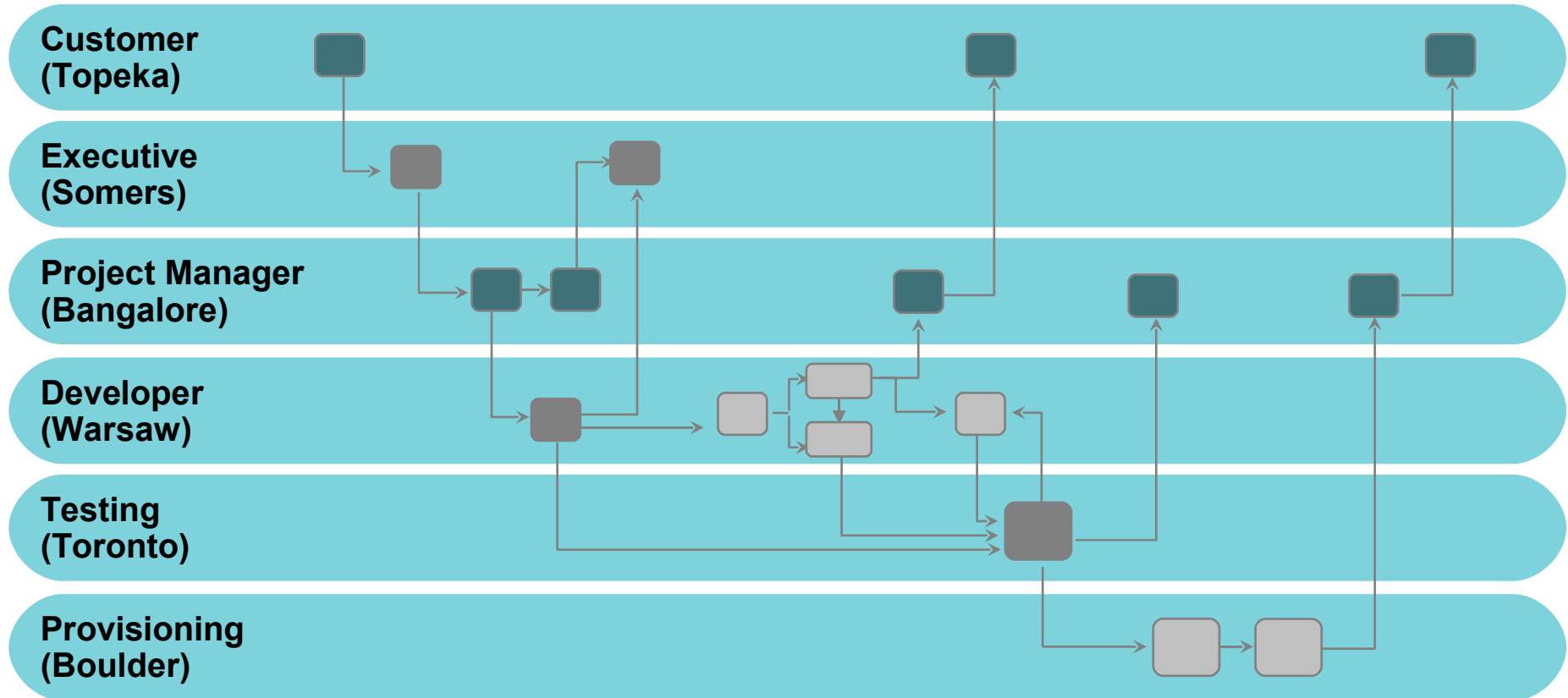
Optional Summary Slides

Rational software



Managing distributed processes and projects

Governing development



IBM Rational Software Development Platform

GOVERNANCE DASHBOARD

Solutions for geographically distributed development, compliance, SOA

Process & portfolio management

- IBM Rational® Portfolio Manager
- IBM Rational Method Composer
- Best practices content (IBM Rational Unified Process®, IBM Tivoli Unified Process®, Portfolio Management)
- IBM Rational Team Unifying Platform™

Requirements & analysis

- IBM WebSphere® Business Modeler
- IBM Rational RequisitePro®
- IBM Rational Software Architect
- IBM Rational Software Modeler
- IBM Rational Rose® Data Modeler

Design & construction

- IBM Rational Application Developer
- IBM Rational Systems Developer
- IBM WebSphere Integration Developer
- IBM Rational Data Architect
- IBM WebSphere Developer for zSeries

Software quality

- IBM Rational Performance Tester
- IBM Rational Functional Tester
- IBM Rational Manual Tester
- IBM Rational PurifyPlus

Change & configuration management

- IBM Rational ClearCase®
- IBM Rational Build Forge®
- IBM Rational ClearQuest®
- IBM Tivoli Provisioning Manager
- IBM Tivoli Intelligent Orchestrator

Partner ecosystem & open computing

Eclipse™, Linux®, Microsoft® Windows®, UNIX®, IBM z/OS®



Business Driven Development Solutions

GOVERNANCE DASHBOARD

Geographically Distributed Development

Solution capabilities

- Comprehensive insight into distributed projects
- Consistent portfolio management practices
- Resource management across geographical boundaries
- Provide "next door" access to distributed assets for reuse
- Enable faster response through 7x24 change management
- Consistent development analytics across projects

Enabling products

- Rational Portfolio Manager
- Rational Method Composer
- Rational Portfolio Manager
- Rational Change Management Solutions
- Rational ClearQuest
- Rational ProjectConsole
- Rational Software Quality Products

Regulatory Compliance

Solution capabilities

- Enterprise-wide visibility into compliance remediation projects
- Line-of-sight from compliance requirements through delivery
- Create and enforce compliant development processes
- Automate workflow and approval cycles
- Enforce ITIL and COBIT requirements for change and release management

Enabling products

- Rational RequisitePro
- Rational Portfolio Manager
- Rational ClearQuest
- Rational ClearCase
- Rational Testing Tools
- Tivoli Provisioning Manager
- Tivoli Configuration Manager

SOA Governance

Solution capabilities

- Resource allocation and management
- SOA governance guidance
- Comprehensive management view
- Customizable SOA development and governance best practices
- Integrated architecture and development platform
- Closed loop services management
- Consistent change management
- Business level monitoring

Enabling products

- Rational Portfolio Manager
- Rational Method Composer
- Tivoli Composite Application Manager
- Rational Unified Process for SOA
- Rational Software Architect
- WebSphere Business Modeler
- Rational ClearQuest
- Rational ClearCase
- IBM Tivoli Unified Process
- WebSphere Business Monitor



Today's Rational solutions enable governance

GOVERNANCE DASHBOARD

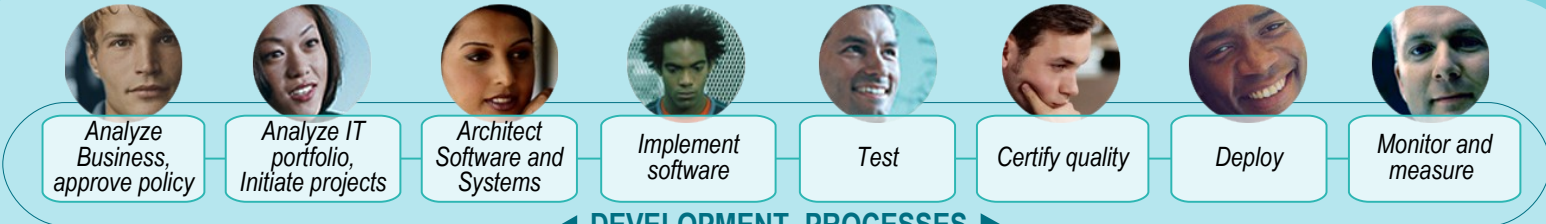
Change & configuration management

Best Practices and Process Management

Design and construction

Process and portfolio management

Requirements and analysis

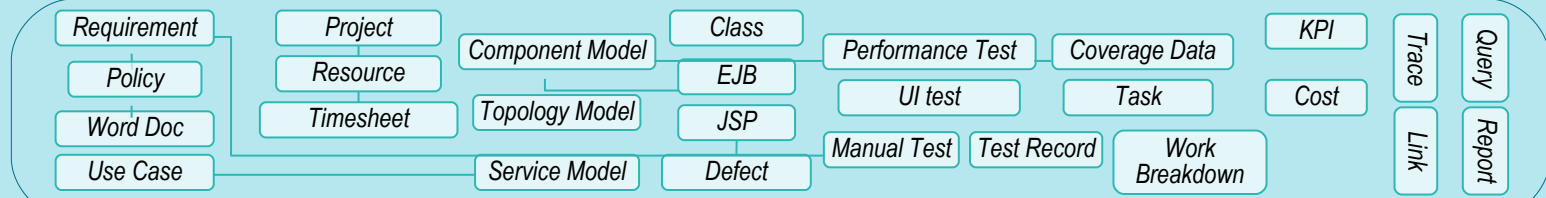


DEVELOPMENT PROCESSES



DEVELOPMENT SERVICES

- Rational RequisitePro
- Rational Portfolio Manager
- WebSphere Business Modeler
- Rational Data Architect
- Component Business Modeling
- Rational Software Architect
- Rational Application Developer
- WebSphere Integration Developer
- Rational Functional Tester
- Rational Manual Tester
- Rational ClearCase
- IBM Rational Build Forge
- Rational ClearQuest
- Rational Portfolio Manager
- Rational Performance Tester

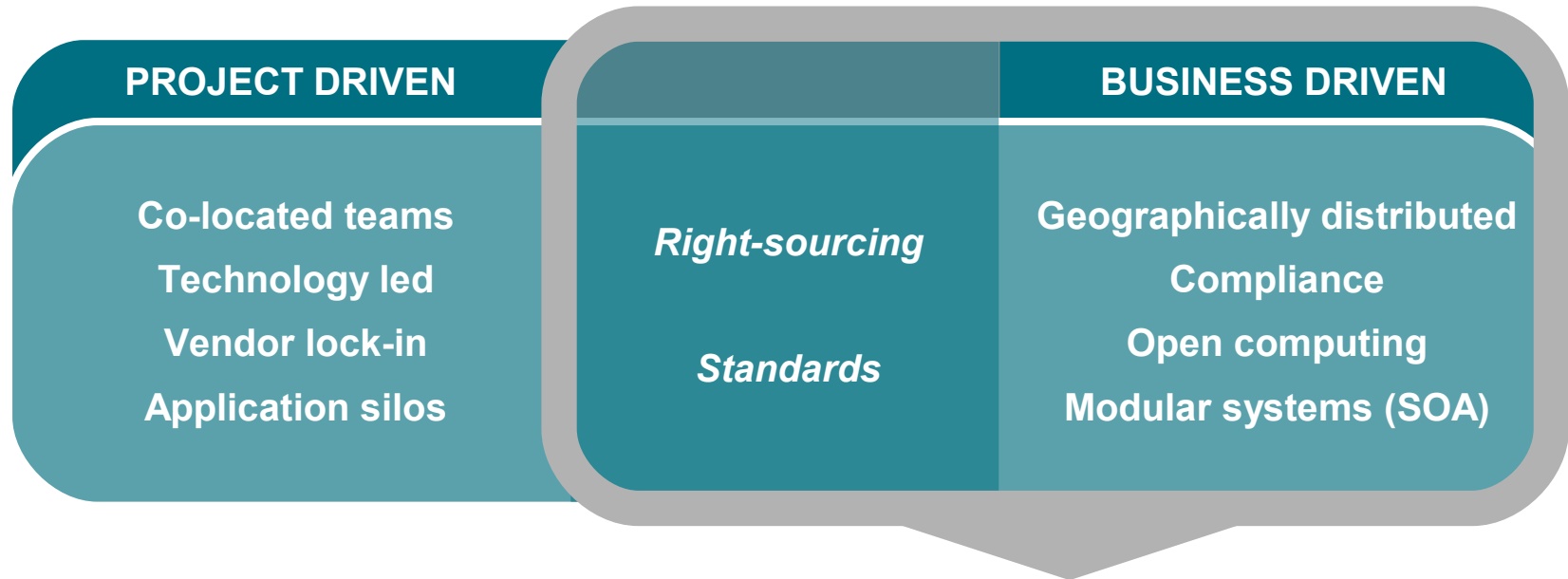


DEVELOPMENT MANAGEMENT

Software quality



Evolving software and systems development



Business Driven Development

Enabling organizations to *govern* the business process of software and systems development



Benefits of Business Driven Development



Improved business performance

- Align technology with business
- Effectively manage risk
- Enforce compliance
- Improve responsiveness
- Increase efficiency

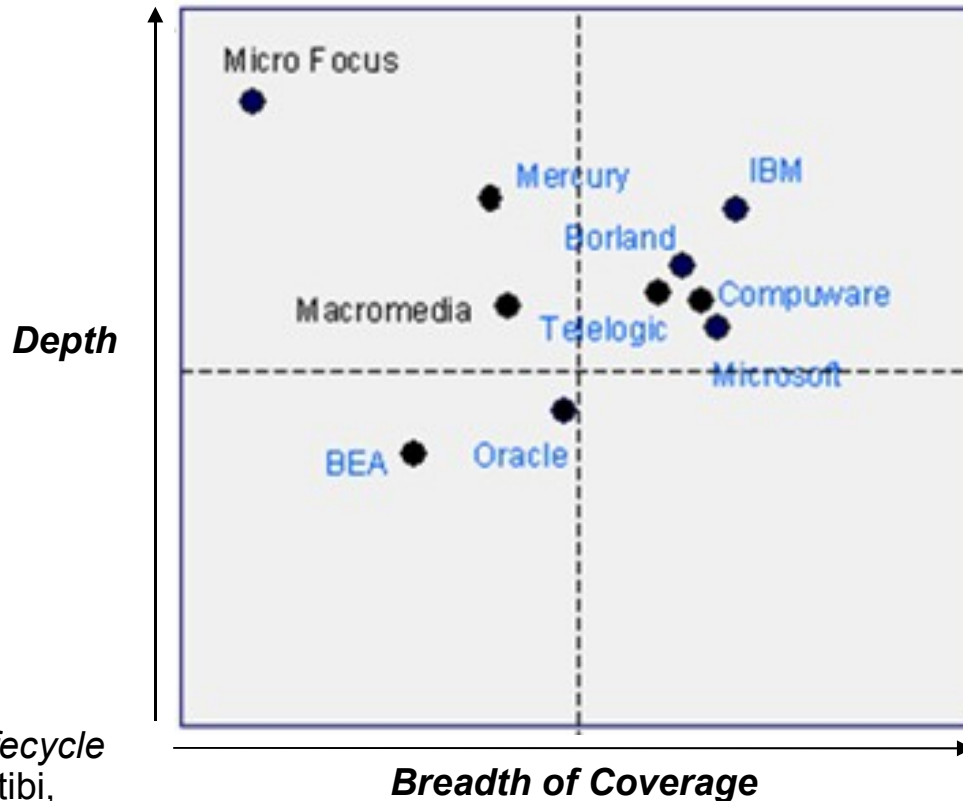


What the analysts are saying

Rational Leads In Application Lifecycle Management



Application Lifecycle Vendor Positioning Grid



Source: *Application Lifecycle Management*, Bola Rotibi, Ovum, 22 September 2005

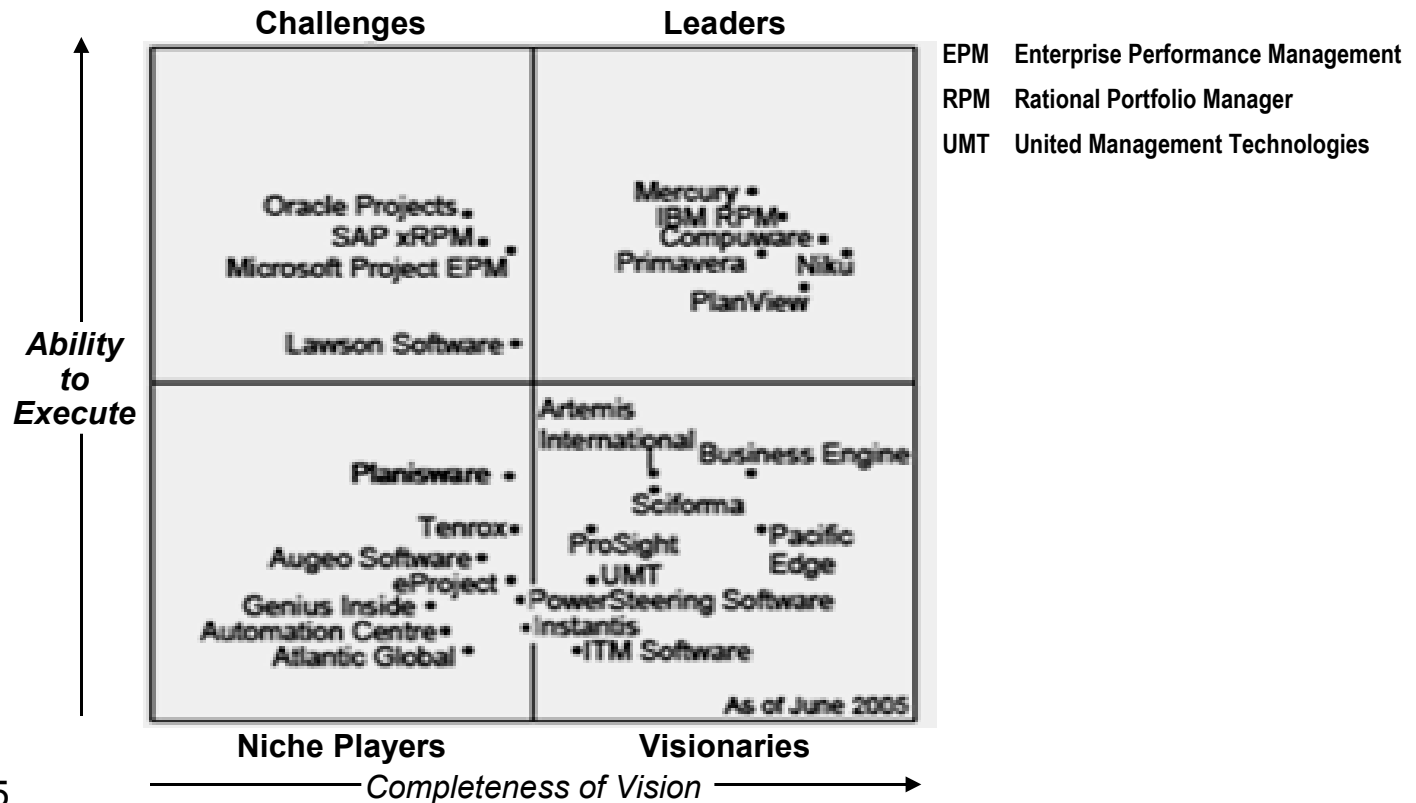


What the analysts are saying

Rational Leads In Project And Portfolio Management

Gartner

Magic Quadrant for IT Project and Portfolio Management, 2005



Source: Gartner, June 2005



What the analysts are saying

Rational Leads In Software Configuration Management



Forrester Wave™: Process-Centric Software Configuration Management, Q4 '05



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