Emerging Trends in Software and Systems Delivery supply chain

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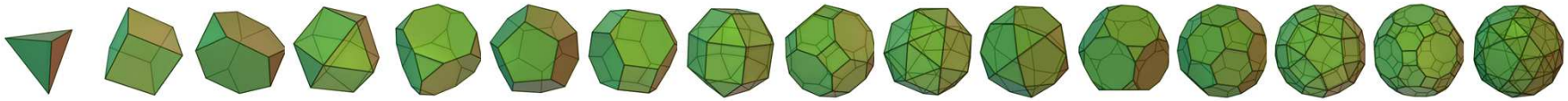
IBM Software
Innovate2012
The Premier Event for Software and Systems Innovation

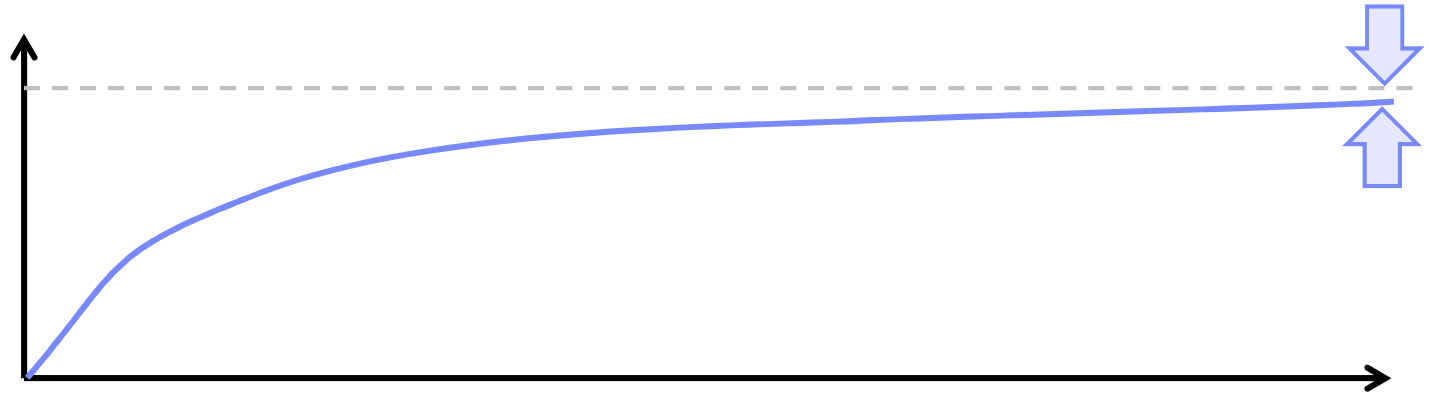
Next NOW!

Agenda

- Innovation Olympics
- (Application) Life Cycle Management
- Agility@Scale
- The Global Software Supply Chain View

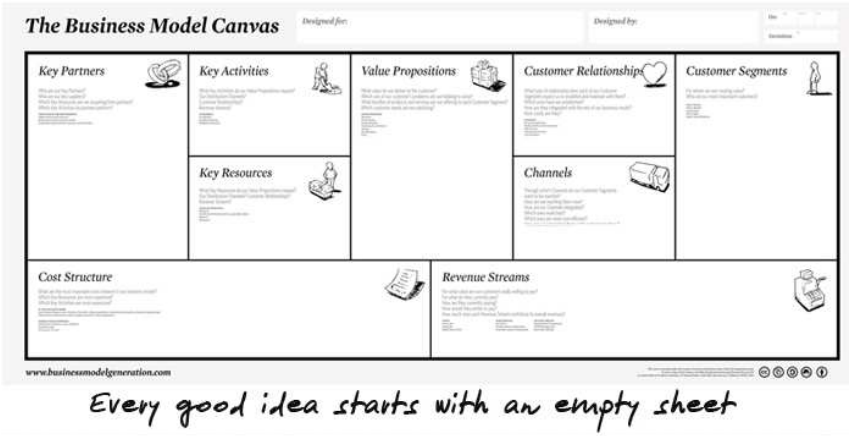
…in search of the “perfection”…we are becoming more accurate…

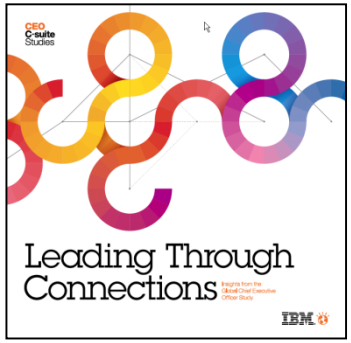


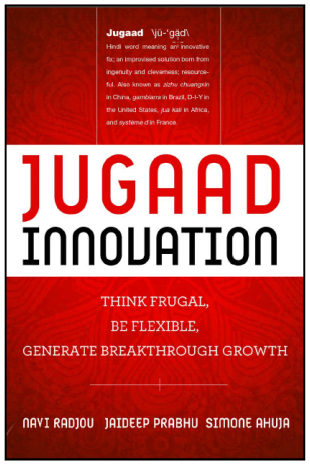


Ten Major Trends Driving How Next-Generation Services are Discovered, Delivered, and Consumed

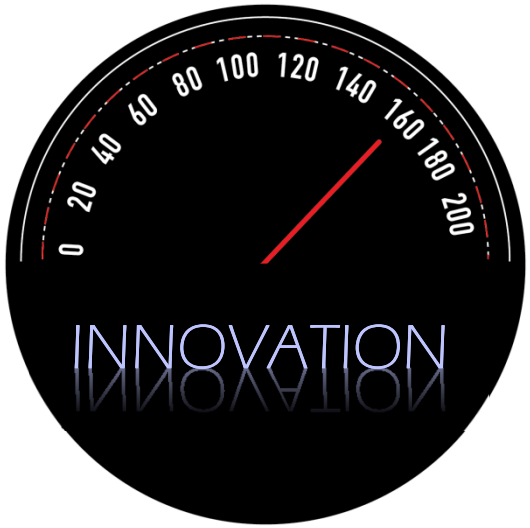
….and many more that may surprise us!!







Innovation Olympics



Software Innovation

is becoming synonymous with

Business Innovation

Application Life-Cycle Management

- Wikipedia Definition:

*"Lifecycle Management (ALM) is a continuous process of managing the life of an application through governance, development and maintenance. ALM is the marriage of business management to software engineering made possible by tools that facilitate and **integrate** requirements management, architecture, coding, testing, tracking, and release management."*

Benefits

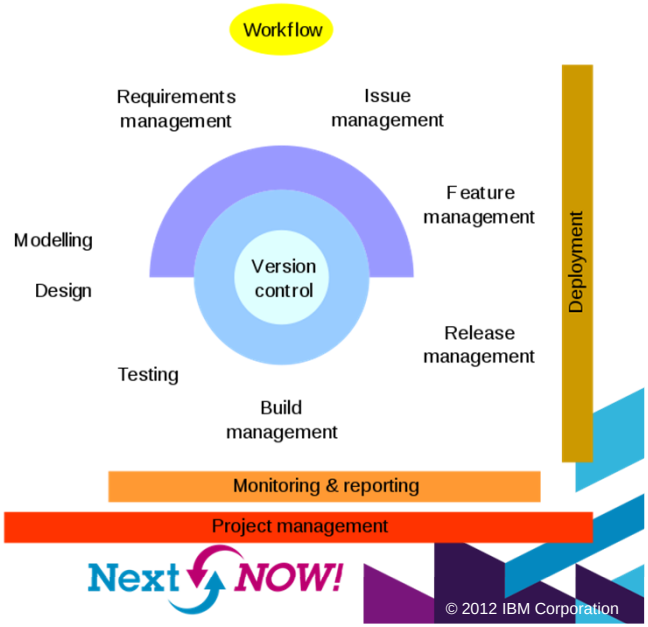
Proponents of application lifecycle management claim that it

- Increases **productivity**, as the team shares **best practices** for development and deployment, and developers need focus only on current business requirements
- Improves **quality**, so the final application meets the needs and expectations of users
- Breaks **boundaries** through **collaboration** and smooth **information flow**
- Accelerates development through **simplified integration**[2]
- Cuts maintenance time by **synchronizing** application and design
- Maximizes **investments** in skills, processes, and technologies
- Increases **flexibility** by **reducing the time** it takes to build and adapt applications that support new business initiatives

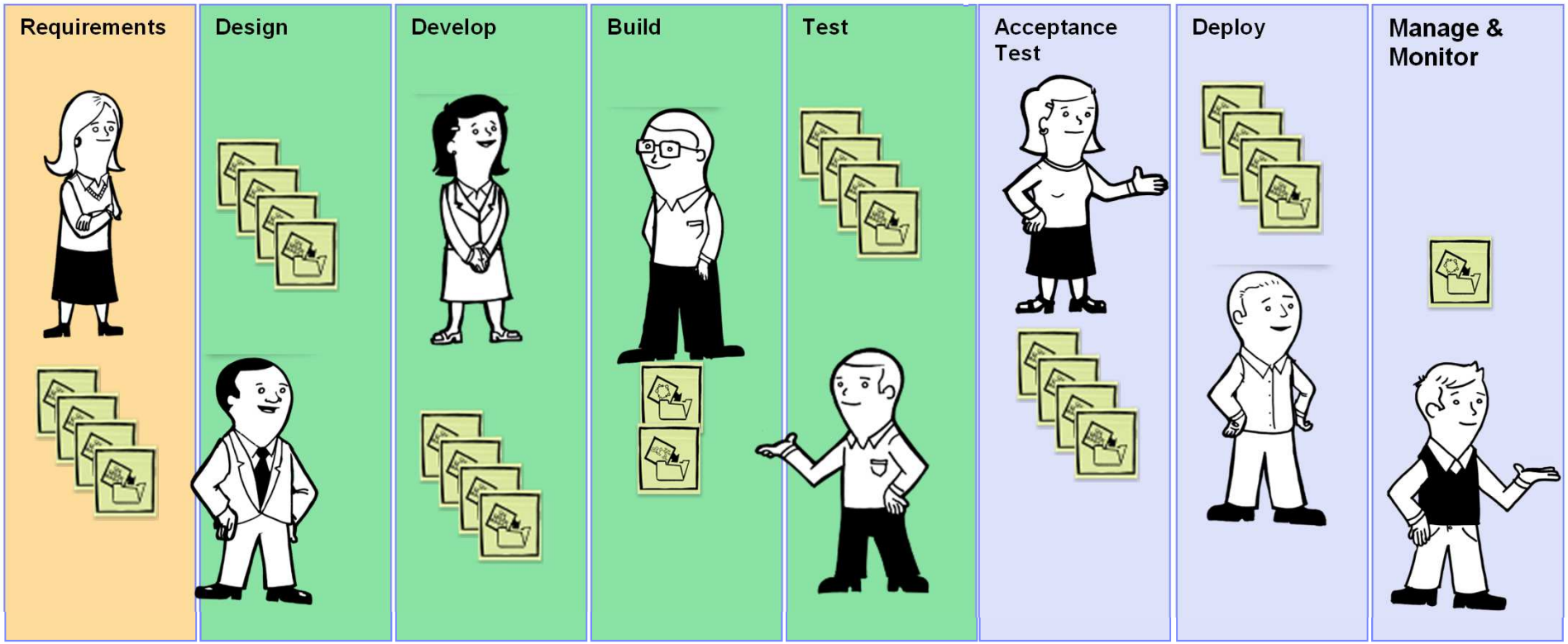
Disadvantages

Opponents of application lifecycle management claim that it

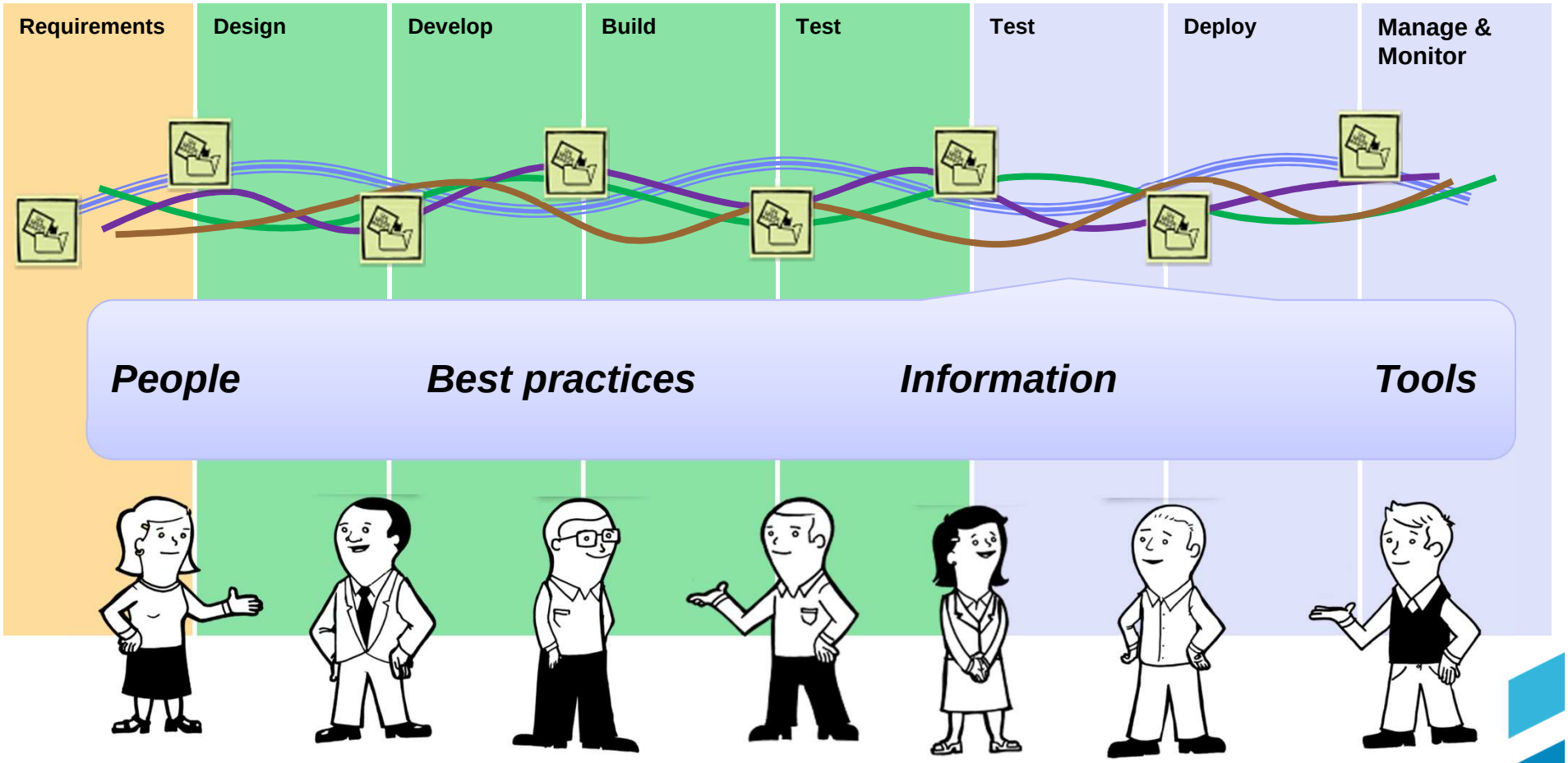
- Increases an application's **whole-life cost**
- Increases **vendor lock-in**



We're good at going deep in each discipline



The challenge is coordinating across the disciplines…



Application Lifecycle Management can improve productivity

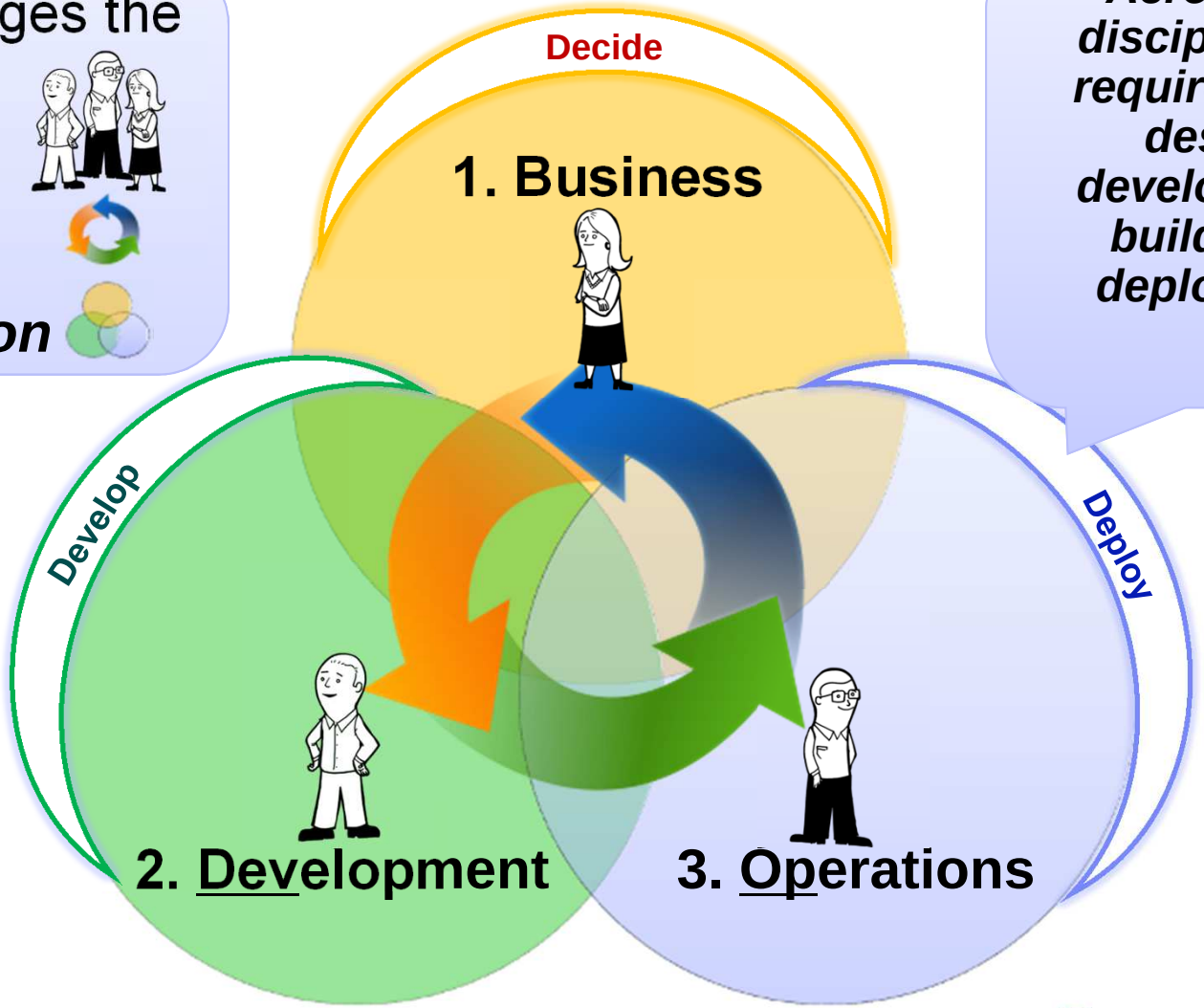
ALM manages the flow of:

People

Process

Information

Across the disciplines of requirements, design, development, build, test, deployment



Five Imperatives for Application Lifecycle Management

Improve time to delivery with integrated planning

Improve quality with lifecycle traceability

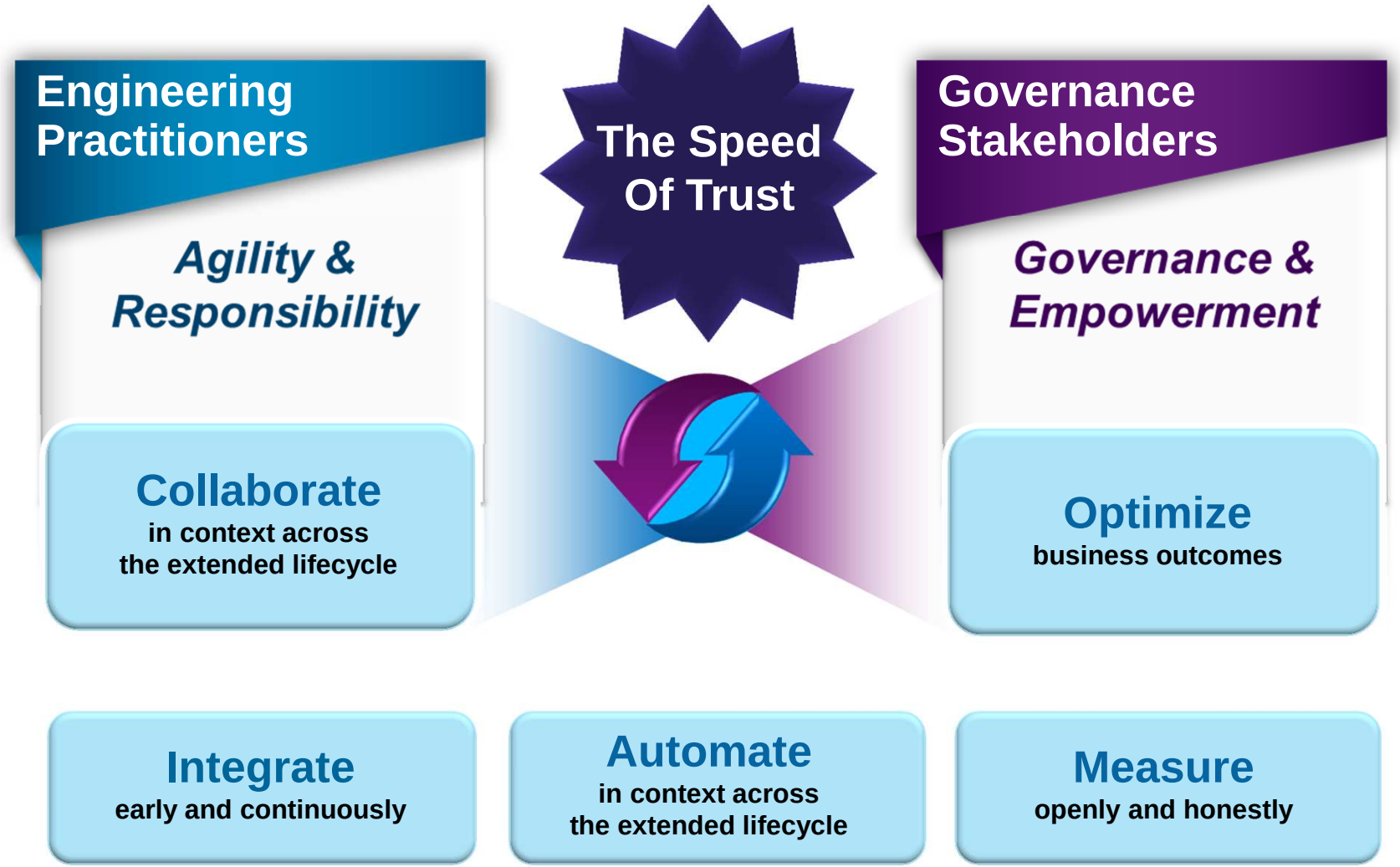
Improve time to value with collaboration and automation

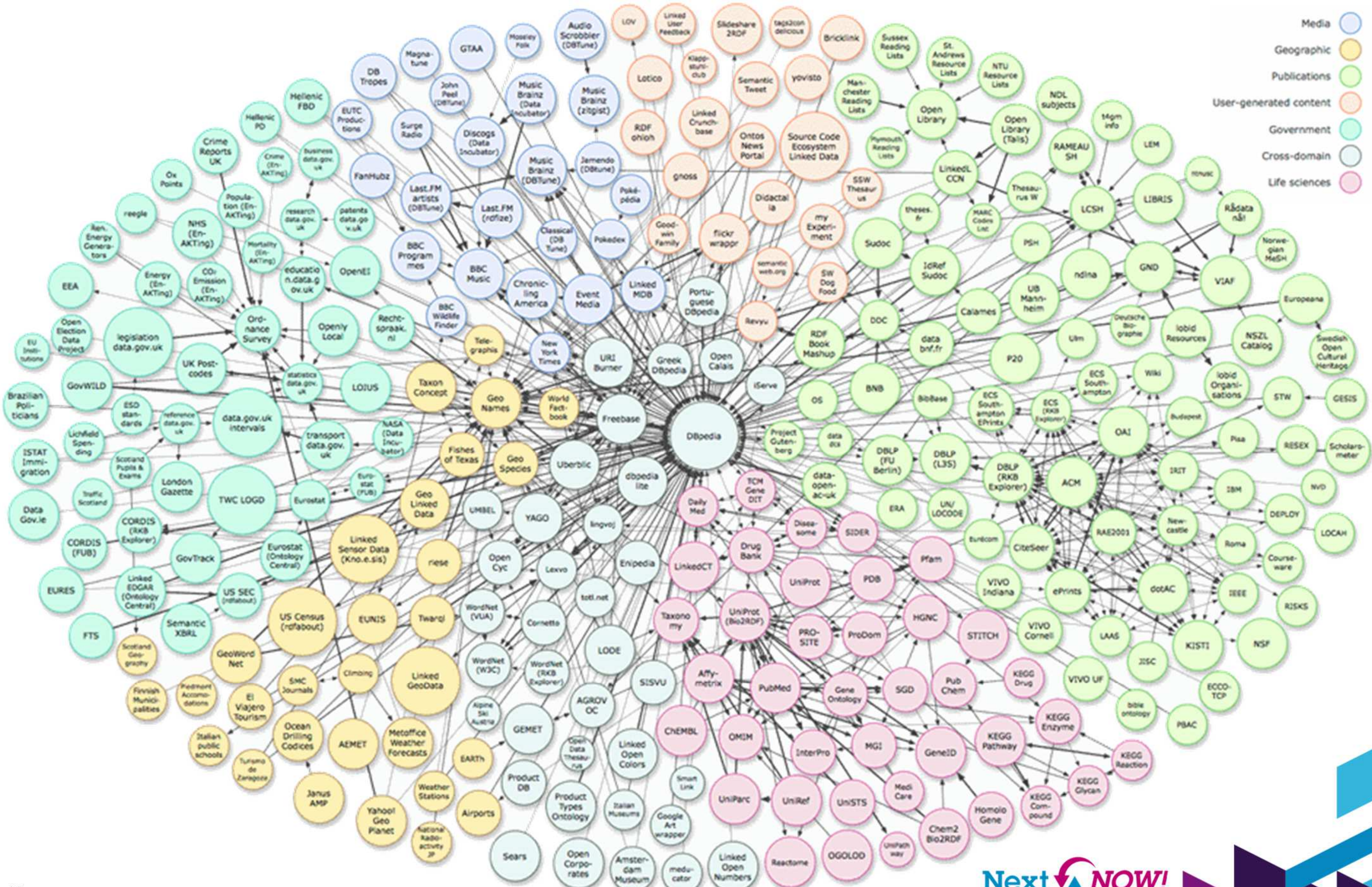
Improve predictability with development intelligence

Reduce costs with continuous process improvement

…within and **beyond your organizational boundaries**

Succeeding in the New Delivery Reality

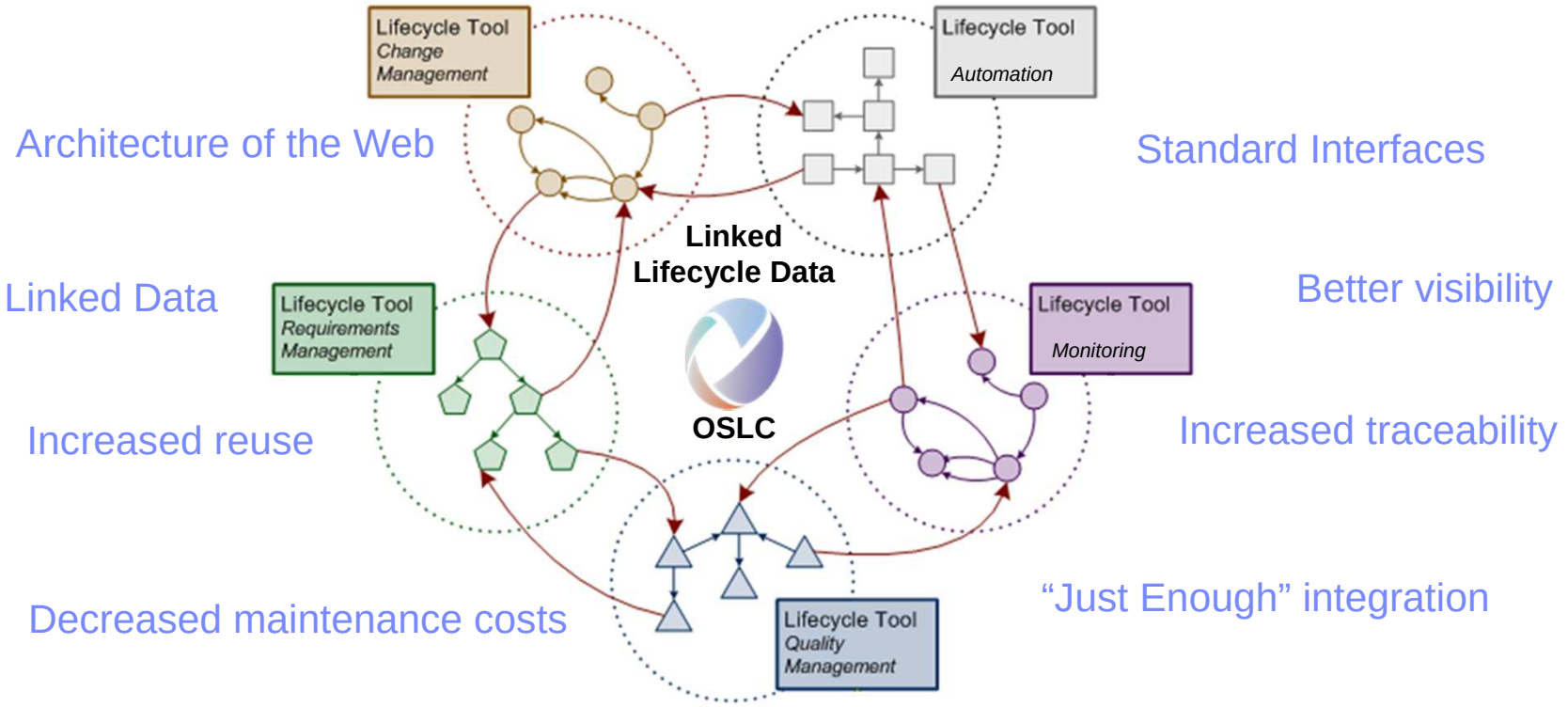




IBM Rational Integration Strategy: Open Services Life Cycle

An Innovative approach to the Tool Integration problem

Users can work across the integration without leaving their favorite tool



*Links to **where the data lives***
as opposed to copying and synchronizing

Why should **YOU** be interested in OSLC

- A path towards standardization

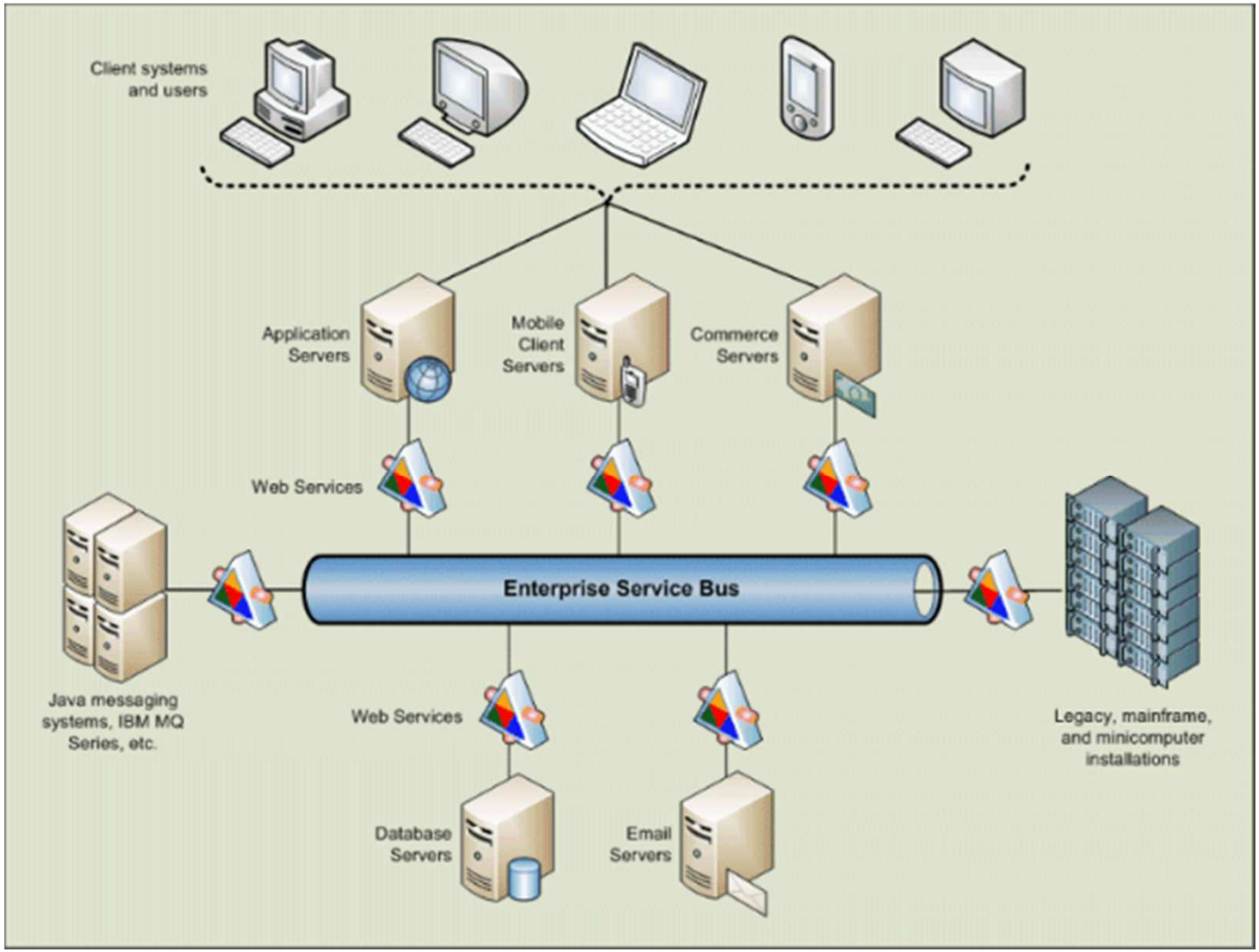
- Open Source project Eclipse Lyo to lower barrier to OSLC adoption
- IBM Leading the evolution of W3C linked Data

- Not just relevant in development…
  - Expanding to **Operations** and **Product Lifecycle Management**
- Increasing the Business Value
  - Enabling and Leveraging traceability based on latest modern architecture (linked data)

Automation : Greenhat

Putting "Integration" into Integration Testing

A representation of your (prduction) environment



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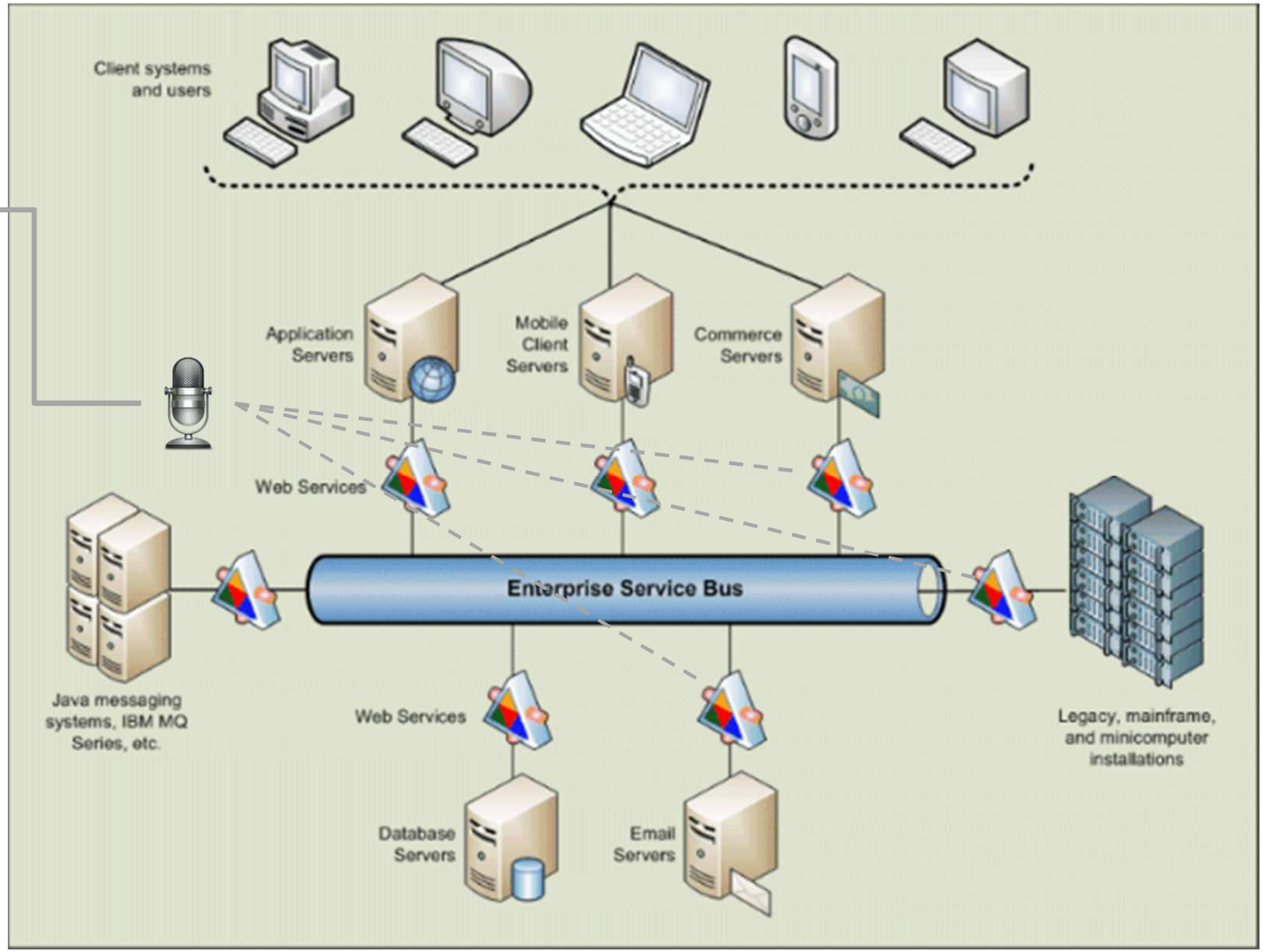
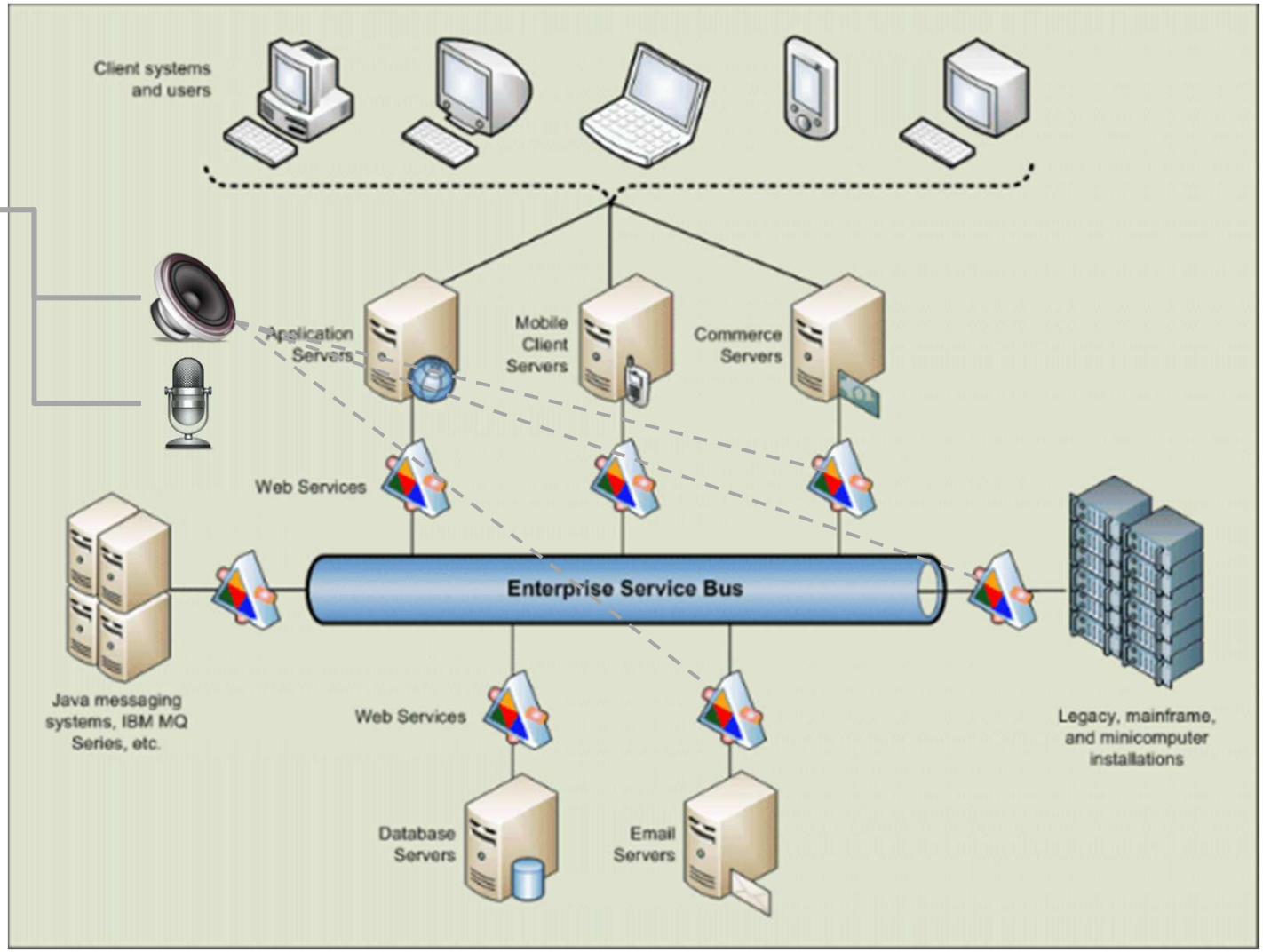


Recording requests to servers & Services…

recording also their responses

Automation : Greenhat

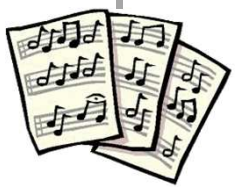
Putting "Integration" into Integration Testing



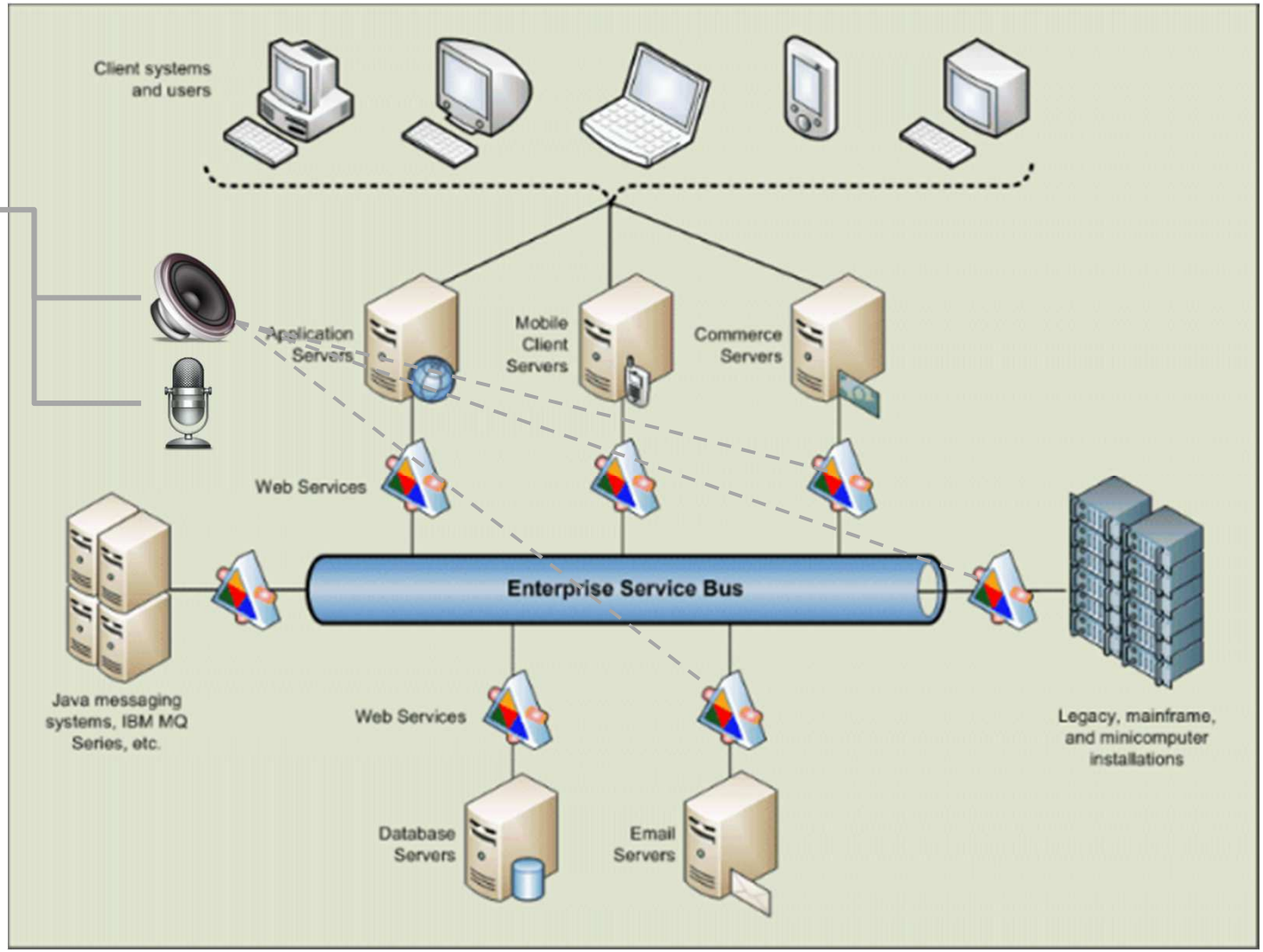
Playing back the recorded requests to isolate the testing of a service

Automation : Greenhat

Putting "Integration" into Integration Testing



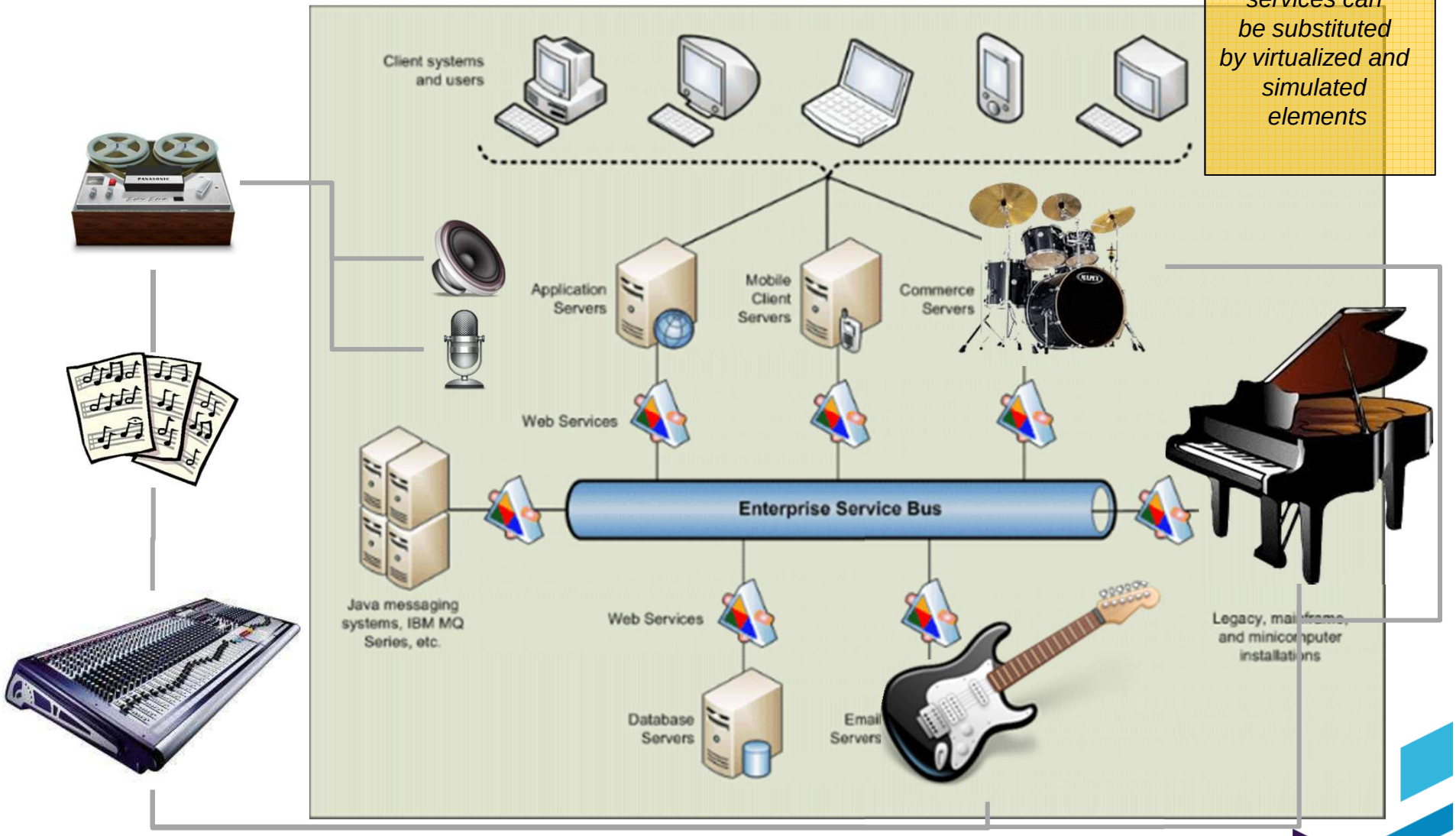
Recorded information can be manipulated and enhanced to enrich playback and verifications



Automation : Greenhat

Putting "Integration" into Integration Testing

And eventually services can be substituted by virtualized and simulated elements



Trends in Enterprise Application Management & Development

Portfolio Strategy and Management

- "Average amount spent on **ongoing operations and maintenance exceeds 65%** of the IT budget, but many firms report much higher percentages" [1]
- Understanding the application portfolio results in development spend where it can have **the most value**. [2]

Continuous Integration [2]

- Early and frequent builds and testing provides immediate feedback to developers, resulting in bugs being found earlier when **less costly to fix**.
- This has **rarely been done** in mainframe development where the time to deploy and test changes is measured in weeks not hours, and cost for test automation can be prohibitive.

Mobile Development [3]

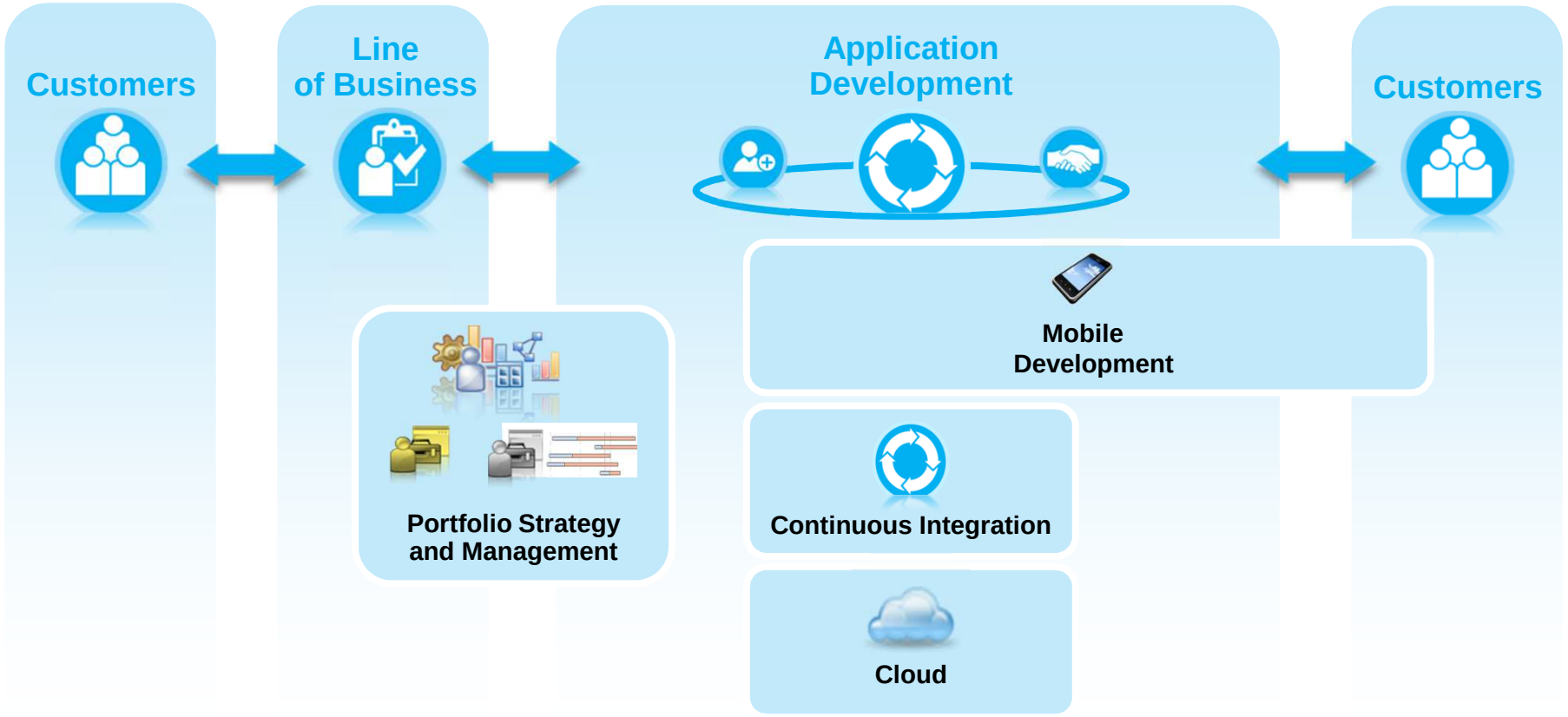
- **75% respondents** currently working in mobile computing, **growing to 85%** within the next two years
- **31% are focused** on extending existing core applications with mobile capabilities

Cloud Computing [3]

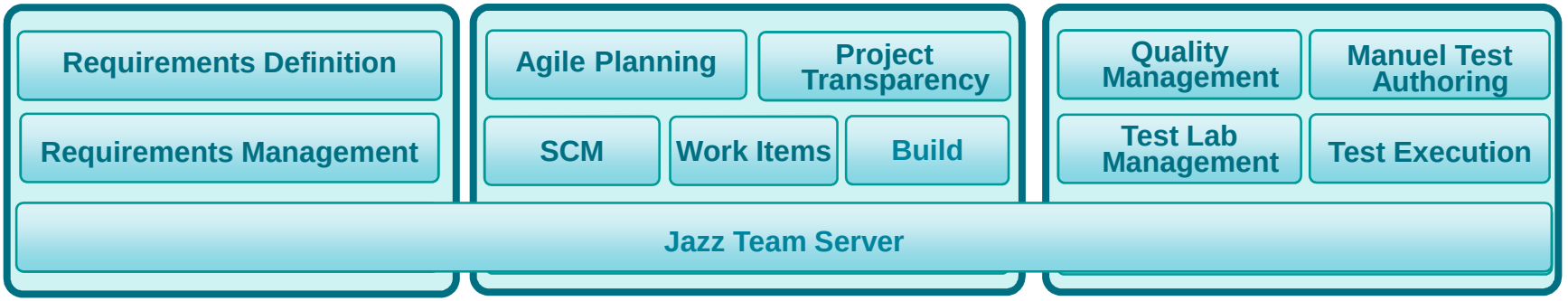
- **75% believe** that over the next two years their organizations will begin to build cloud infrastructure
- **25% of the respondents** indicated that they plan to develop new applications for the cloud

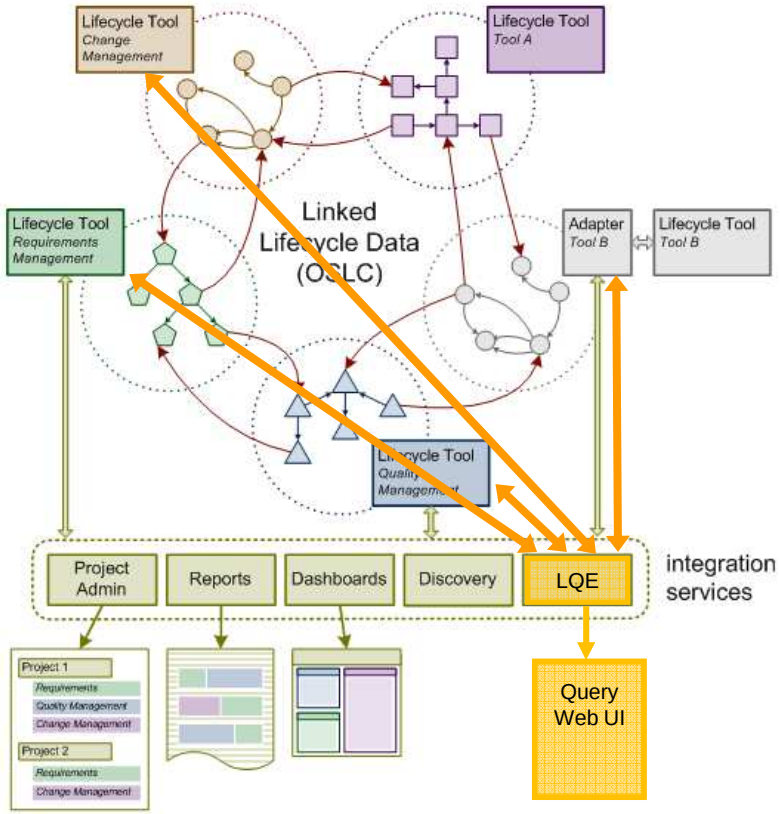
[1] The Application Portfolio Management Landscape —Combine Process And Tools To Tame The Beast, Forrester, Phil Murphy , 2nd May 2011
[2] Statement from IBM, May 2012
[3] The 2011 IBM Tech Trends Report: Tech Trends of today. Skills for tomorrow

Positioning of these trends within application management and development



IBM Collaborative Lifecycle Management



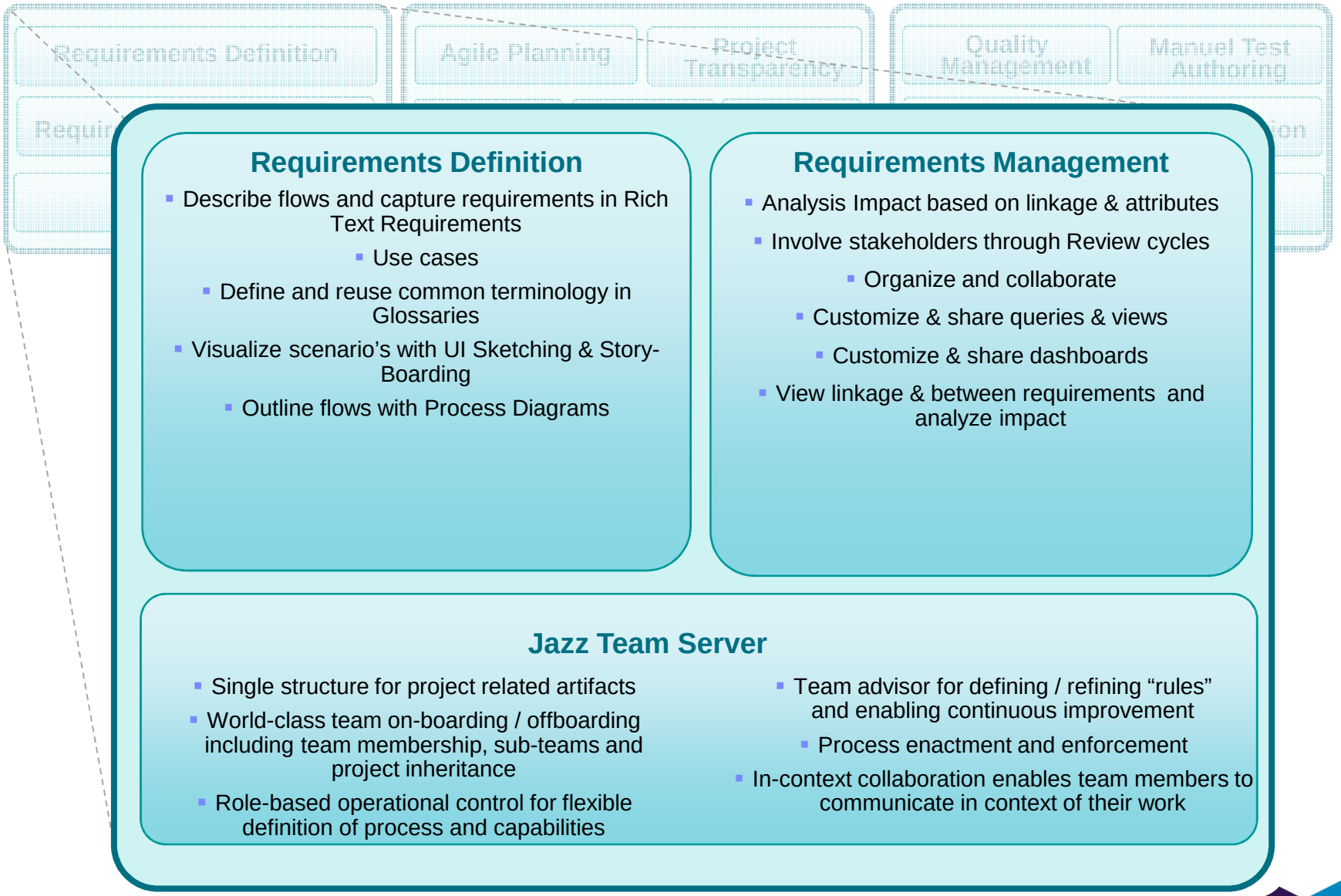


Linked Lifecycle Data (OSLC)

Provides ability to run ***queries over linked lifecycle data*** *aggregated from* ***multiple lifecycle tools***

Jazz Integration Services & Protocols (Jazz Platform)

IBM Collaborative Lifecycle Management – Requirements Composer



Requirements Definition

- Describe flows and capture requirements in Rich Text Requirements
- Use cases
- Define and reuse common terminology in Glossaries
- Visualize scenario's with UI Sketching & Story-Boarding
- Outline flows with Process Diagrams

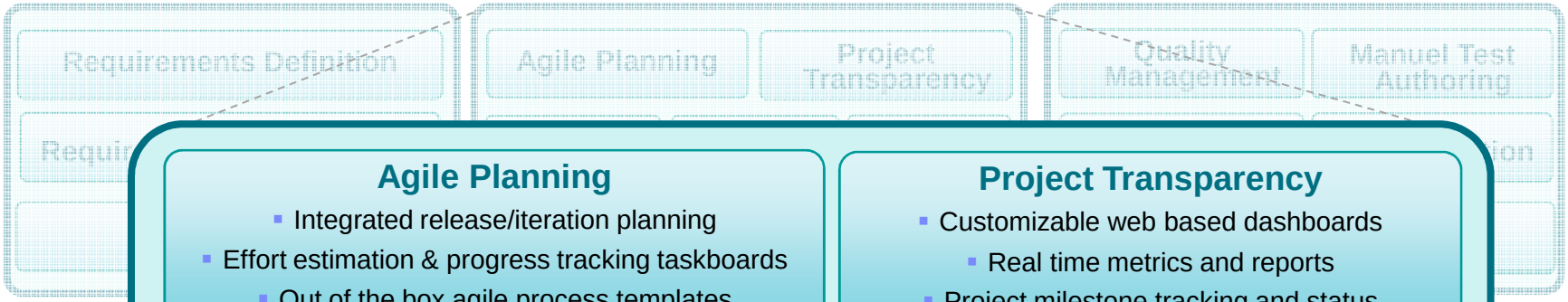
Requirements Management

- Analysis Impact based on linkage & attributes
- Involve stakeholders through Review cycles
- Organize and collaborate
- Customize & share queries & views
- Customize & share dashboards
- View linkage & between requirements and analyze impact

Jazz Team Server

- Single structure for project related artifacts
- World-class team on-boarding / offboarding including team membership, sub-teams and project inheritance
- Role-based operational control for flexible definition of process and capabilities
- Team advisor for defining / refining "rules" and enabling continuous improvement
- Process enactment and enforcement
- In-context collaboration enables team members to communicate in context of their work

IBM Collaborative Lifecycle Management – Team Concert



Agile Planning

- Integrated release/iteration planning
- Effort estimation & progress tracking taskboards
- Out of the box agile process templates

Project Transparency

- Customizable web based dashboards
- Real time metrics and reports
- Project milestone tracking and status

SCM

- Integrated stream management
- Component level baselines
- Server-based sandboxes
- Identifies component in streams and available baselines
- SVN, Git, CC bridge, connector

Work Items

- Defects, enhancements and conversations
- View and share query results
- Support for approvals and discussions
- Query editor interface
- ClearQuest bridge, connector

Build

- Work item and change set traceability
- Build definitions for team and private builds
- Local or remote build servers
- Supports Ant and command line tools
- Integration with Build Forge

Jazz Team Server

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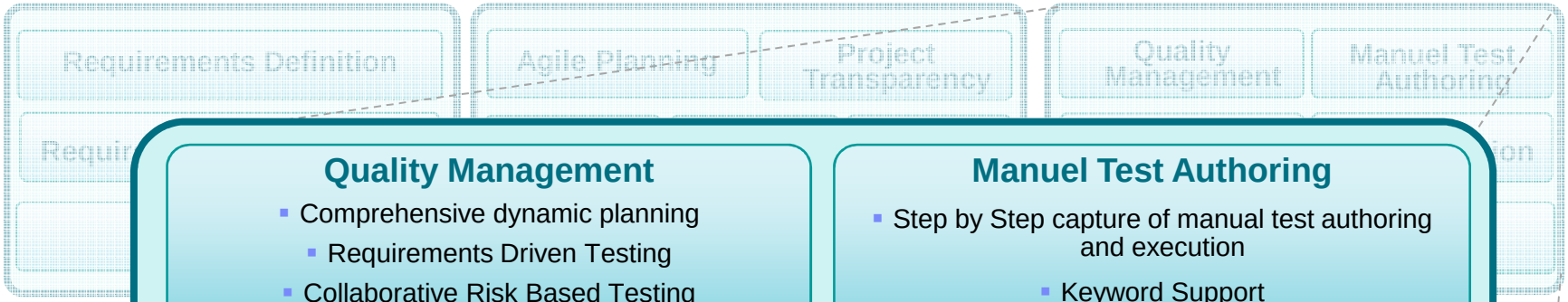
IBM Collaborative Lifecycle Management – Quality Manager



Quality Management

- Comprehensive dynamic planning
- Requirements Driven Testing
- Collaborative Risk Based Testing
- Test Coverage Optimization

Manuel Test Authoring

- Step by Step capture of manual test authoring and execution
- Keyword Support

Test Lab Management

- Insight and control over the Test lab
- Manage resources required to fulfill test plan
- Orchestrate and Automate delivering and deploy configurations
- Analyze patterns to minimize cost and maximize utilization

Test Execution

- Rich Defect Capture during execution, including screenshots and attachments
- Integration with various Test Automation Tools
- Simple intuitive interface for quick test execution

Jazz Team Server

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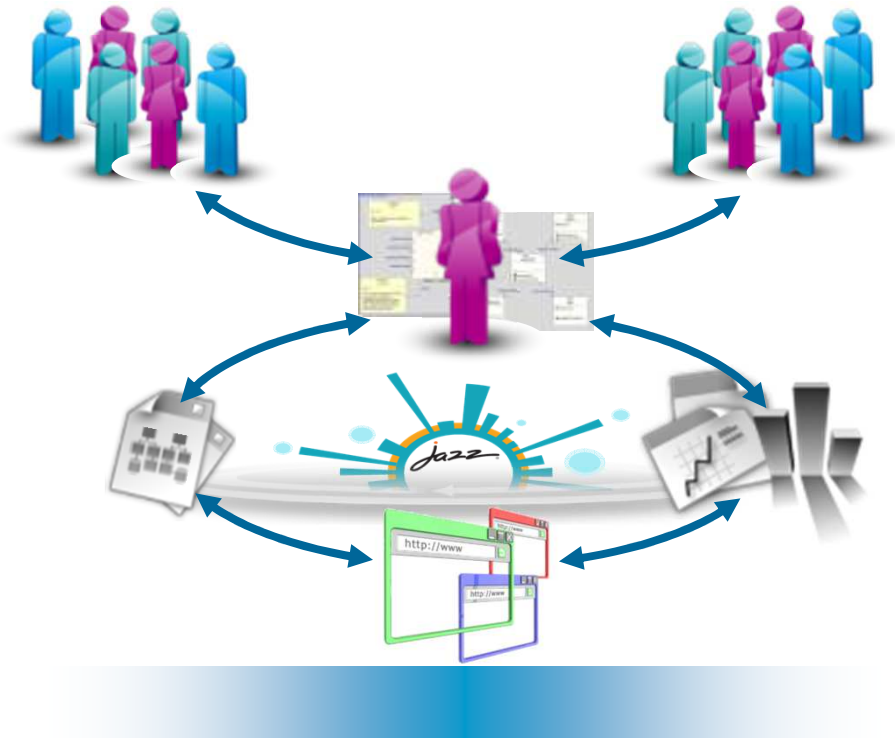
RSA Design Manager 4.0

Design model management and tighter integration into the lifecycle

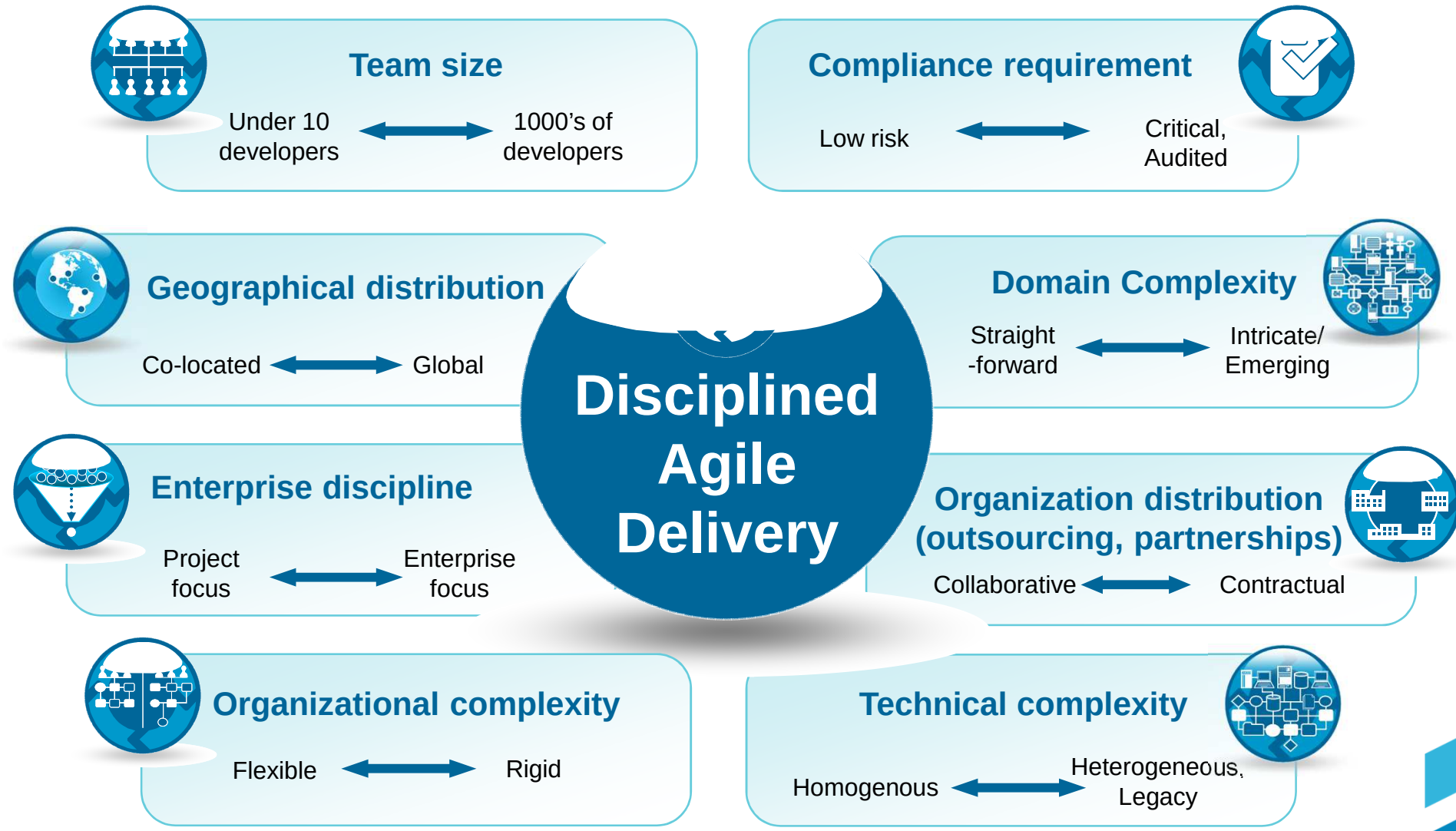
- **Design configuration management**
  - **Designs directly editable** on Jazz from RSA and Rhapsody
  - Versioning, history, **serial and parallel change control**, visual compare and merge, snapshots
- **CLM Integration**
  - Shared Jazz Team Server
    - Common **user administration**
    - **Lifecycle projects** including design
  - Design included with **Money That Matters** sample application
  - Common **deployment configurations**
- **Lifecycle Integrations**
  - Bi-directional **traceability between requirements (RRC & DOORS) and design**
  - Stakeholders can **easily find designs**
  - Understand the **impact of changes** to requirements or designs



"We are excited about the capabilities in Collaborative Design Management …. We see it playing a significant role in our development process because it allows us to transition away from our home grown solutions in that area to standardized Rational products."

Hans-Peter Berger, Department Head, Application Development Infrastructure, GAD

Agility @ Scale

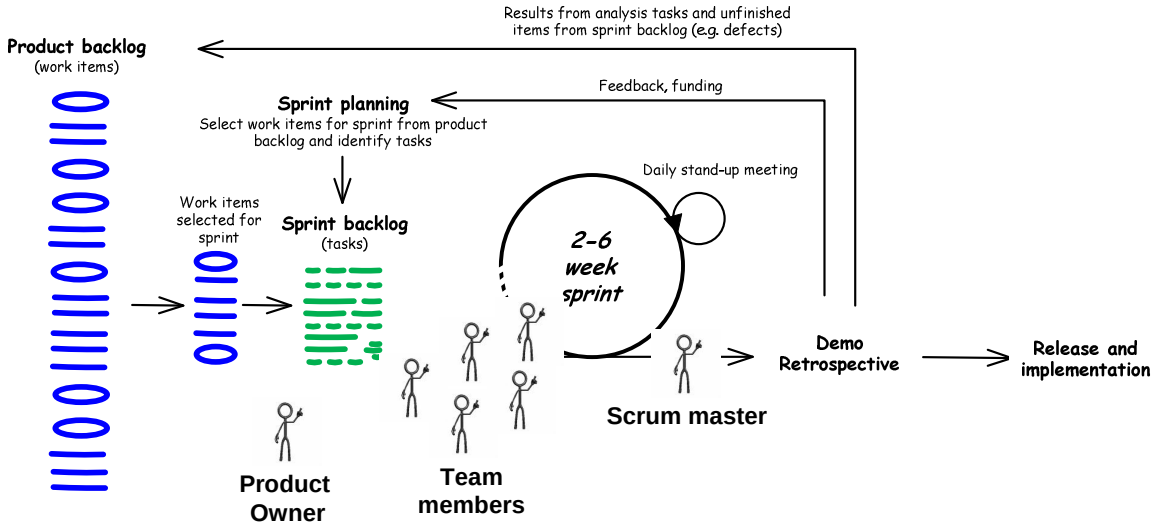


Water-Scrum-Fall

The Reality of Agile for Most Organizations Today

Source: Forrester Report ,"Water-Scrum-Fall is The Reality Of Agile For Most Organizations Today, July 2011

Basic agile (Scrum)

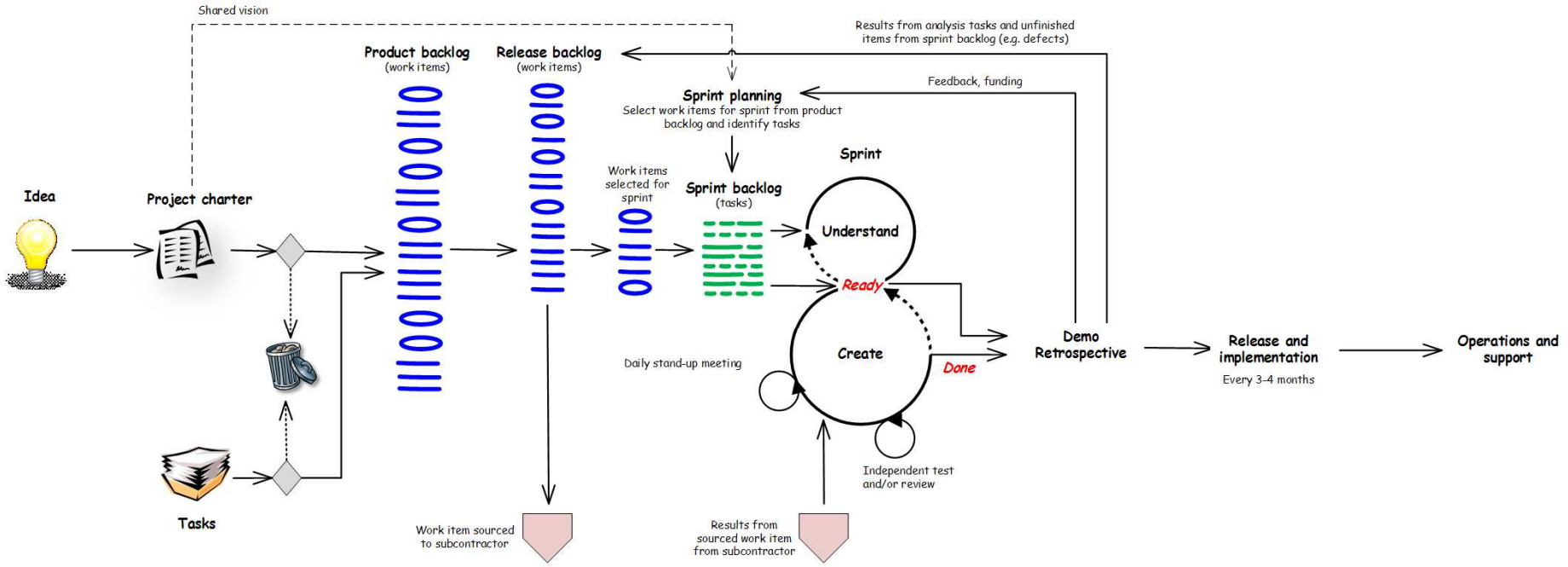


The text book version of agile is not aligned with the realities seen in software supply chains...

- Product owner is one person
- No sub-contracting of deliverables (incl. off-shore)
- Global transparency ignores need for multiple, customizable layers of visibility, privacy, security, etc.
- Lack of strong focus on contracts and formal agreements
- Limited need for high-level and multi-level planning
- User and acceptance test can be performed in each sprint
- No need for a project manager, resource manager, etc.
- Limited focus on reusable platforms and services
- Etc. etc.

Source: Danske Bank

Enterprise Agile Lifecycle

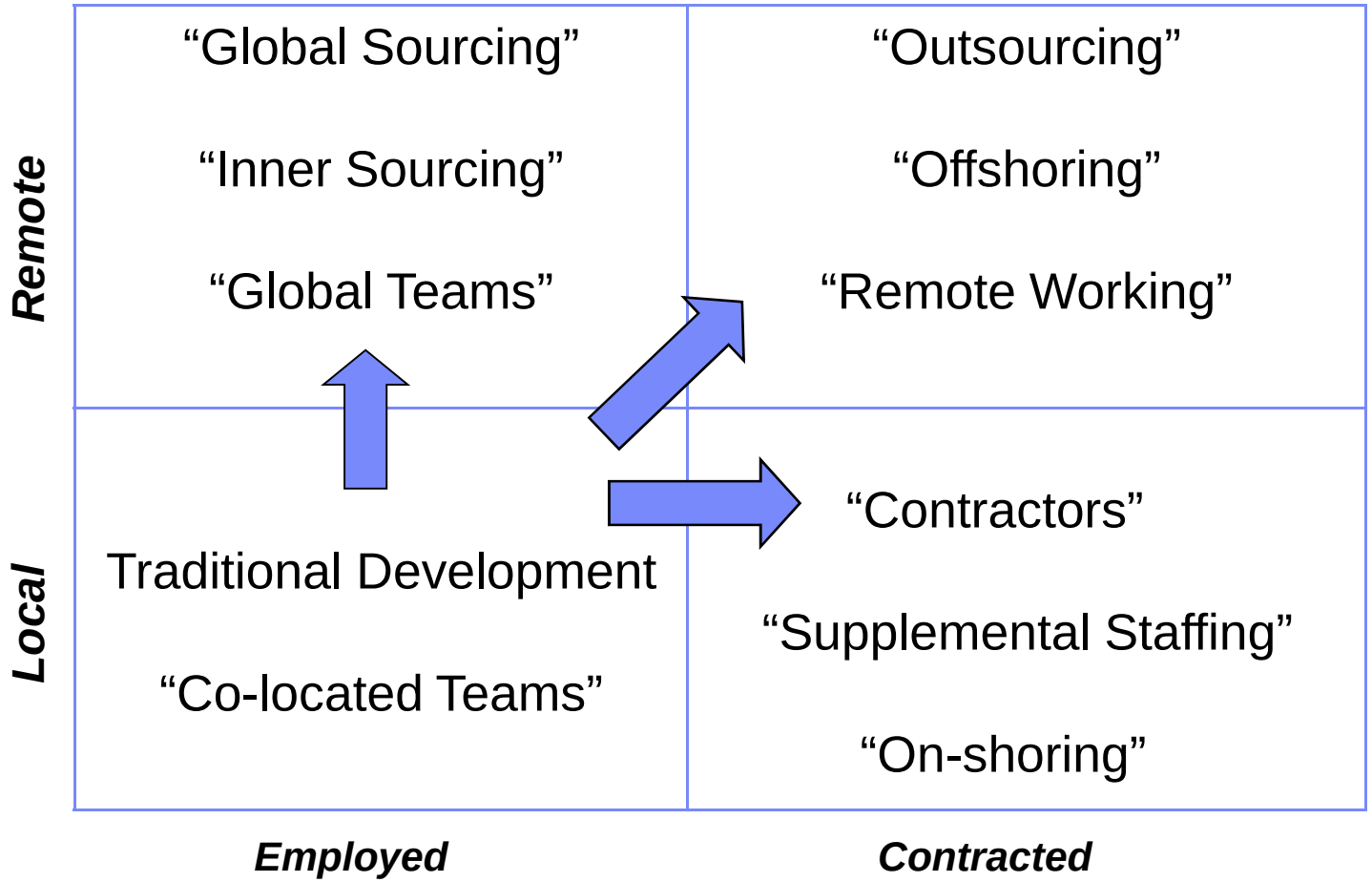


Source: Danske Bank

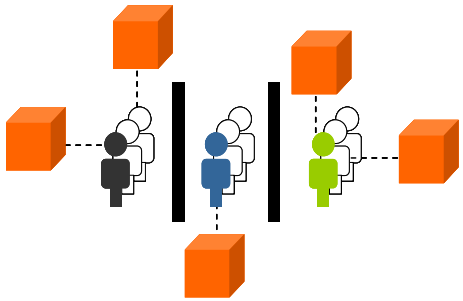
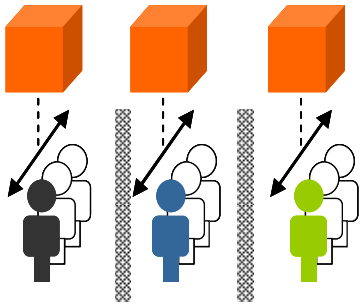
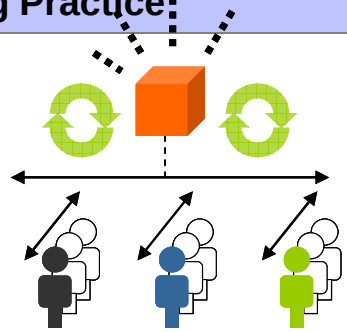
Sourcing Eco-System

Dimensions of Outsourcing

Patterns and Vocabulary

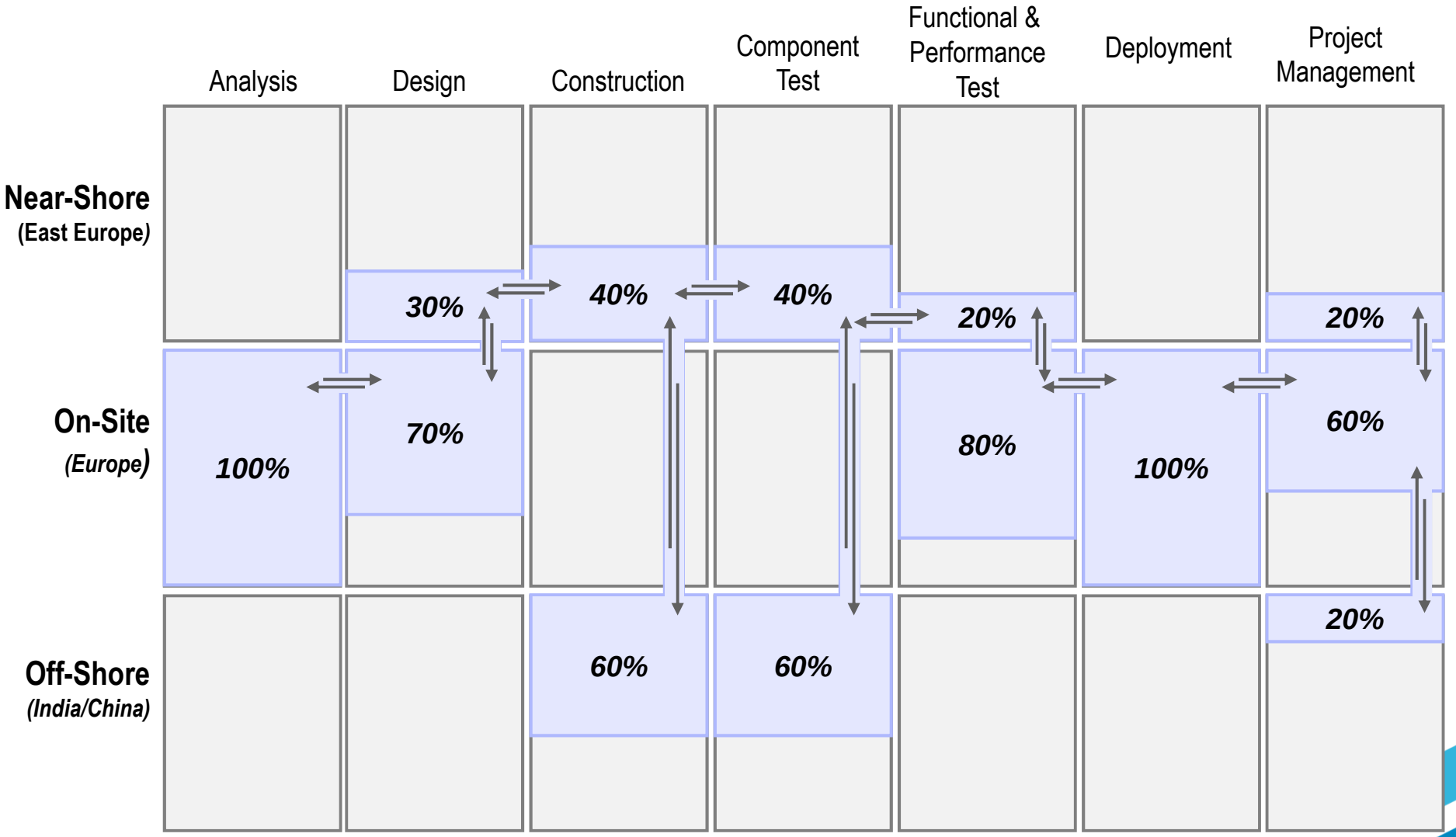


The Evolving Global Software Supply Chain

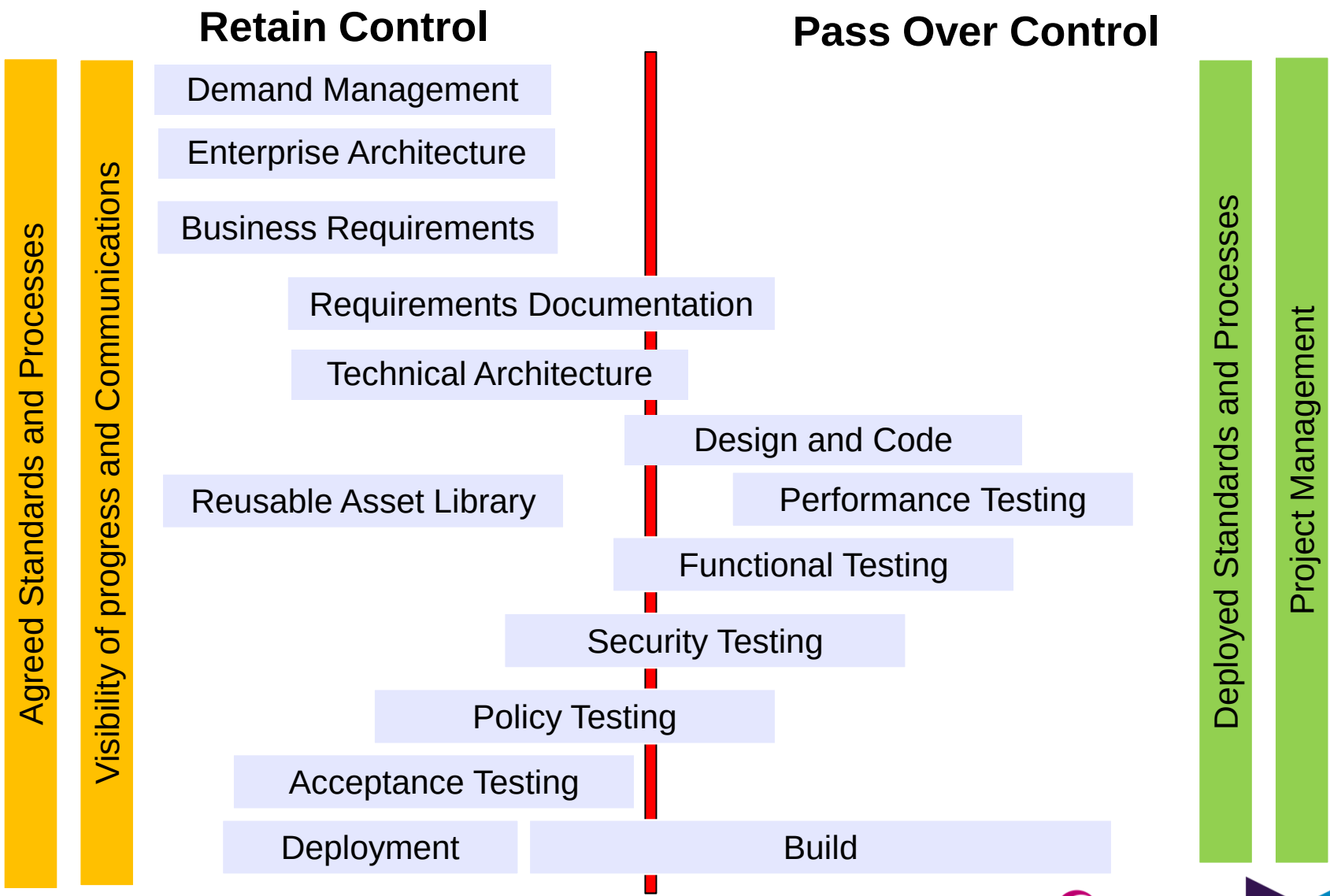
Initial Practice	Current Practice	Emerging Practice
		
▪ Country-based delivery	▪ Onshore / Offshore	▪ Networked Global Centers
▪ Utilization based	▪ Deliverables based	▪ Outcome based
▪ Limited collaboration	▪ Core team collaboration by project	▪ Community Collaboration across process and technology
▪ No workflow management	▪ Limited workflow management	▪ Component-based workflow management
▪ No reuse	▪ Ad hoc reuse	▪ Systematic reuse
▪ Limited visibility	▪ Visibility of standard project metrics	▪ Pervasive transparency of all project artifacts
▪ None	▪ Ad hoc improvement processes	▪ Continuous improvement with Lean
Technology Platform		
▪ Standalone development and project management tools	▪ Limited tool integration and collaboration capability	▪ Integrated technology platform enabling real-time collaboration and AD/M automation

Organizational Complexity

Handover points

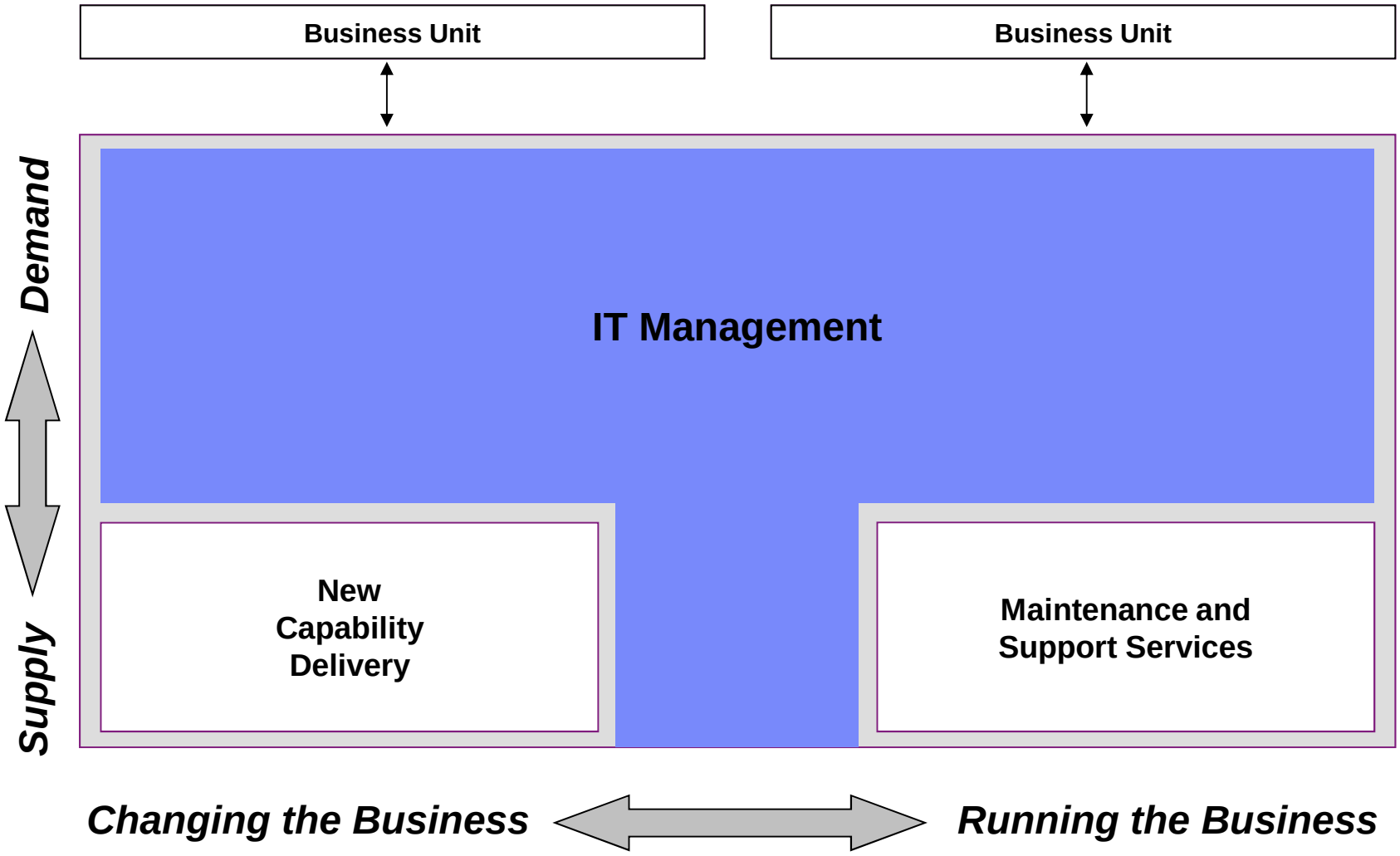


Establish Right Level of Control



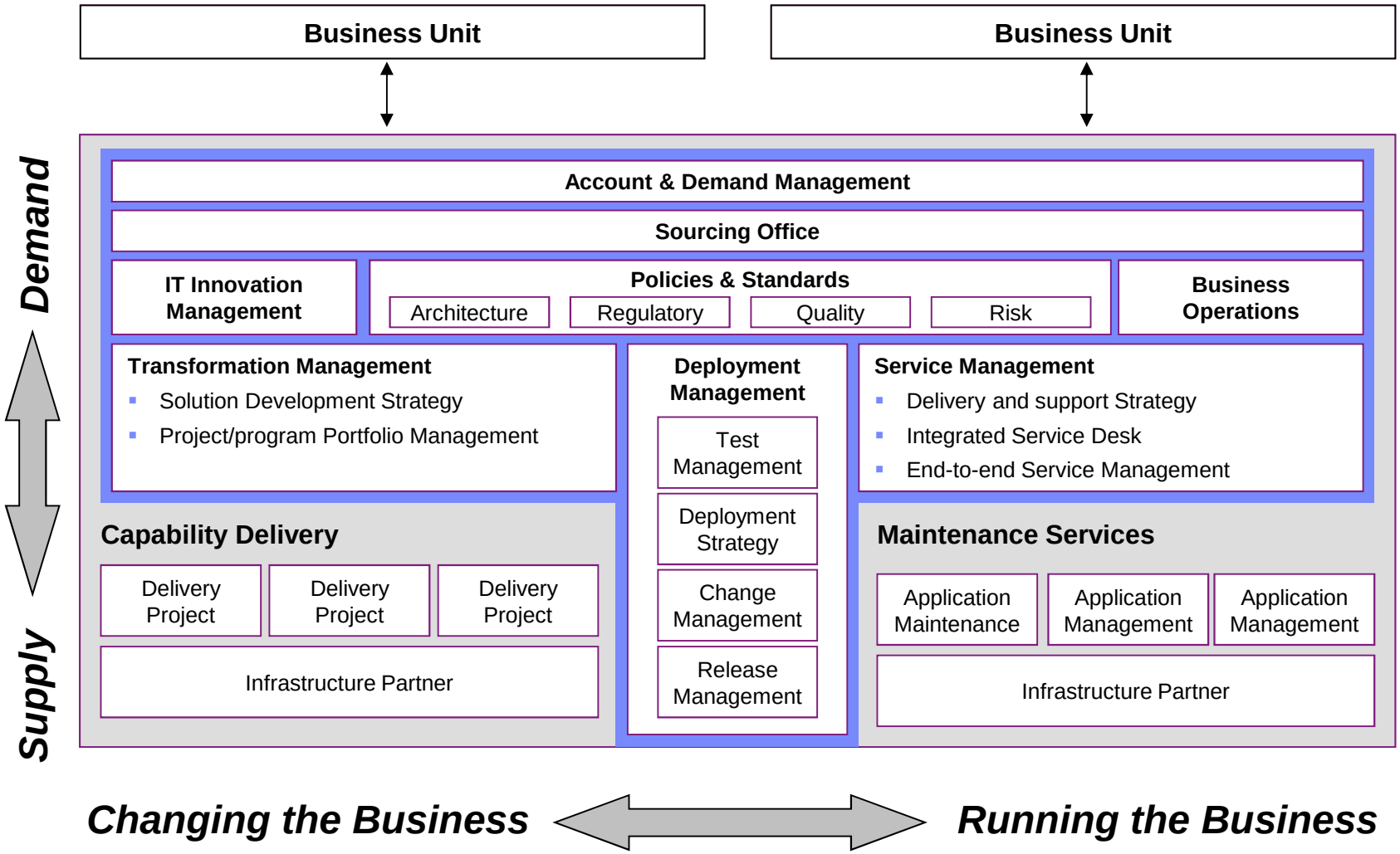
Software Supply Chain – Modern Structure to Govern IT

It is time to look at the role of IT in a different way



Software Supply Chain – Modern Structure to Govern IT

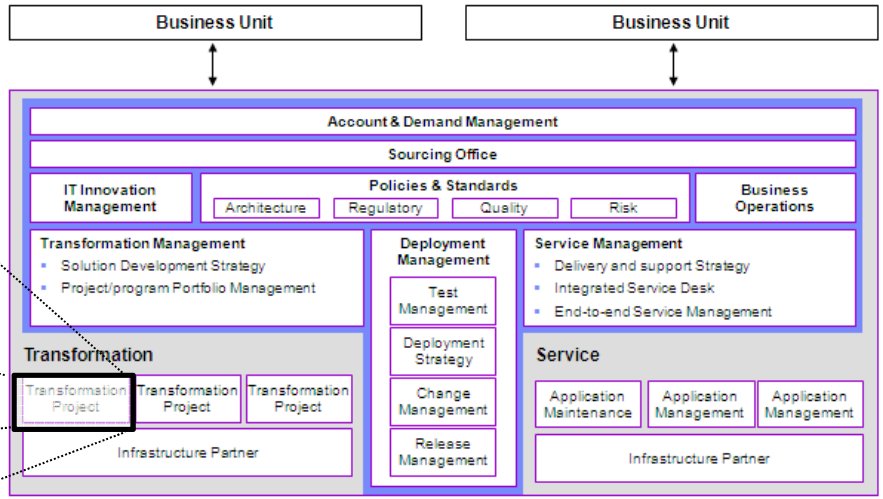
Detailed view of activities

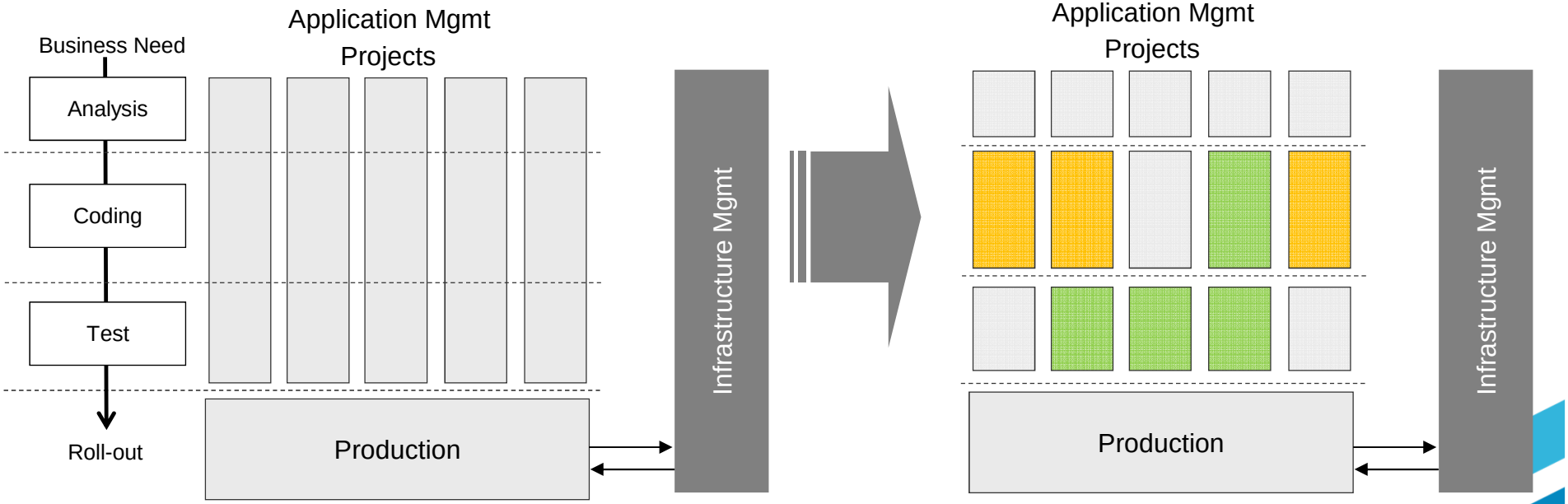


Organization and Processes

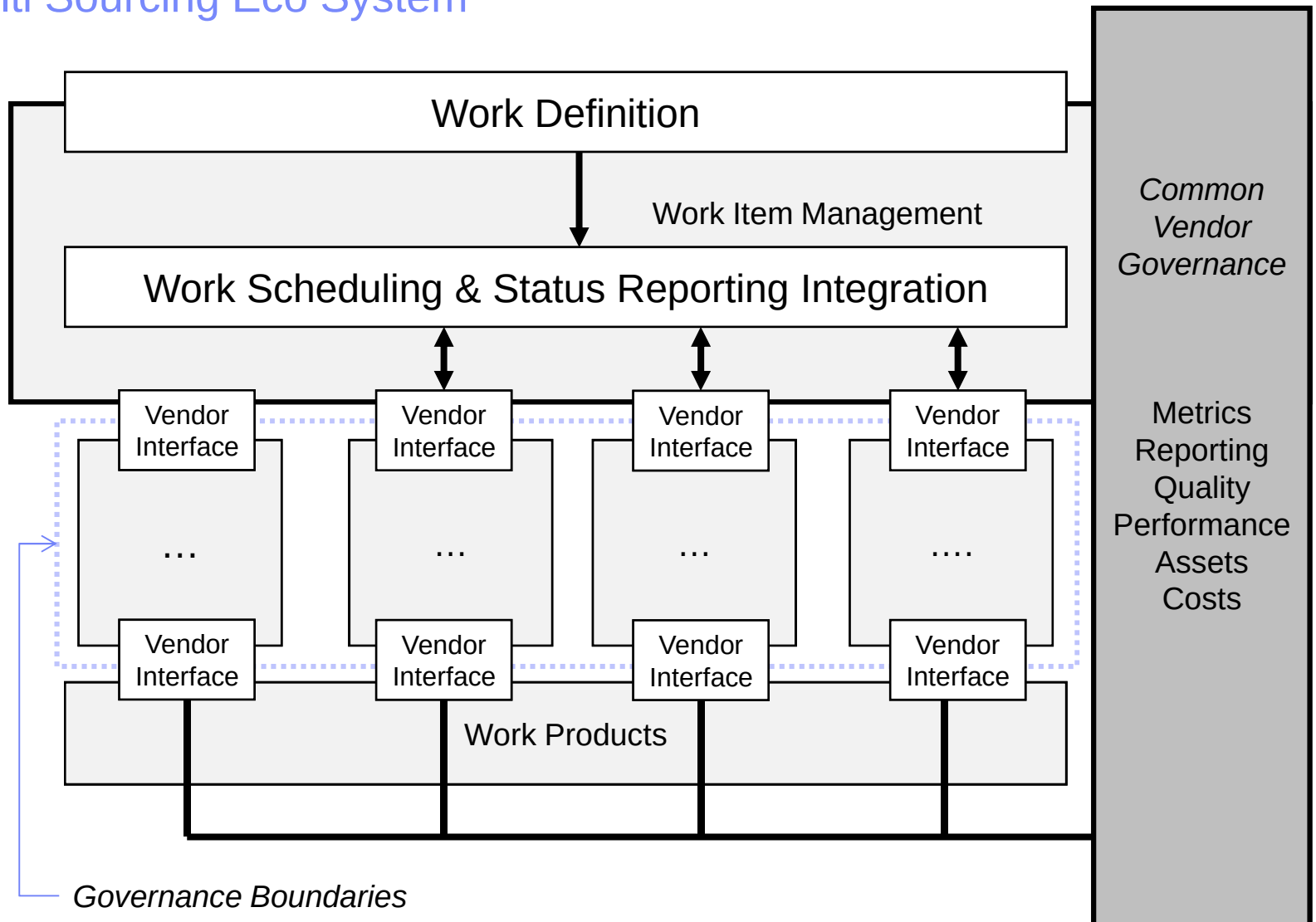
Operating Model Description

Delivery Project Challenges
- Complexity increasing
- More boundaries (Up, Down, Side)
- Re-Use

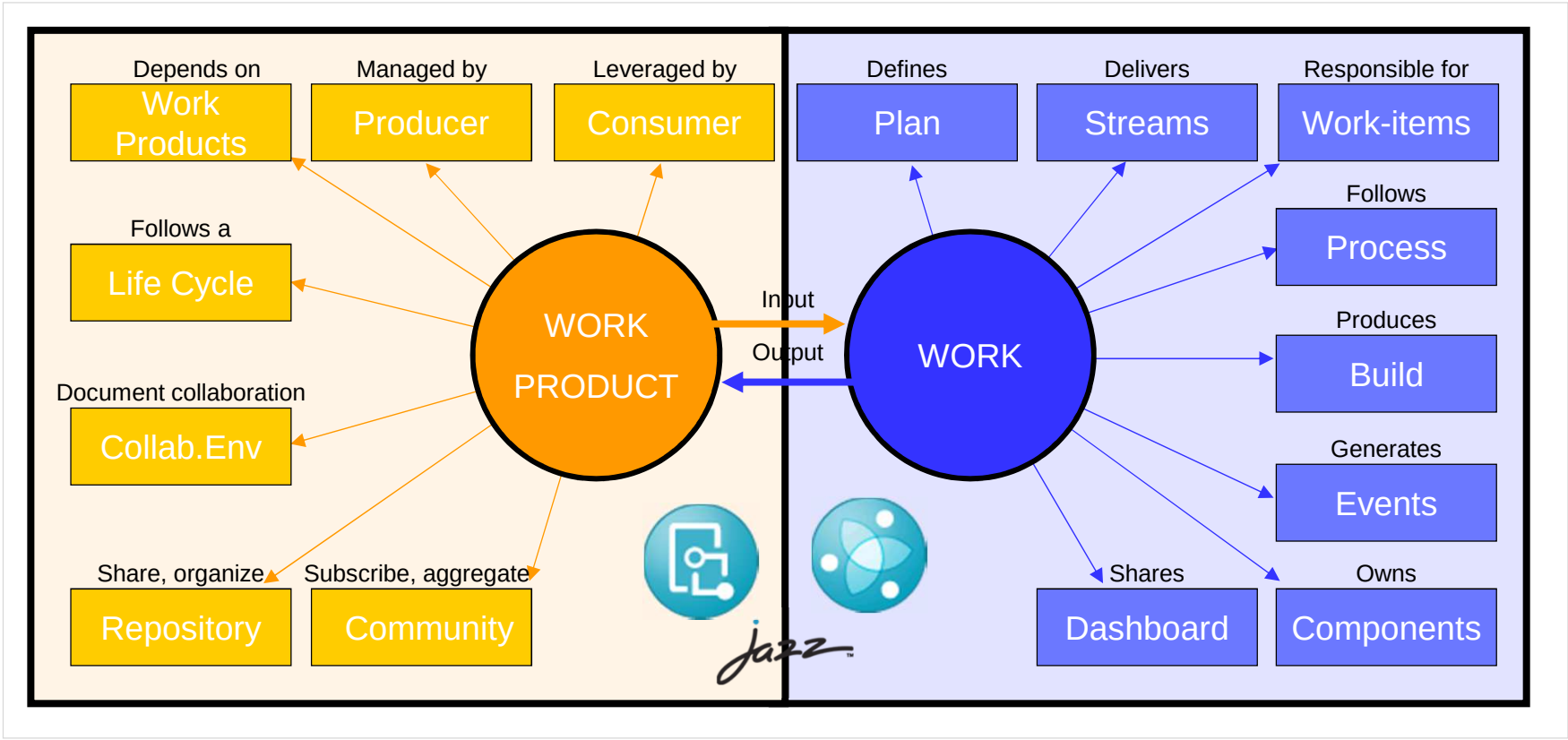




Multi Sourcing Eco System



Balanced & Interrelated Perspectives



Work Product Perspective *Work Perspective*

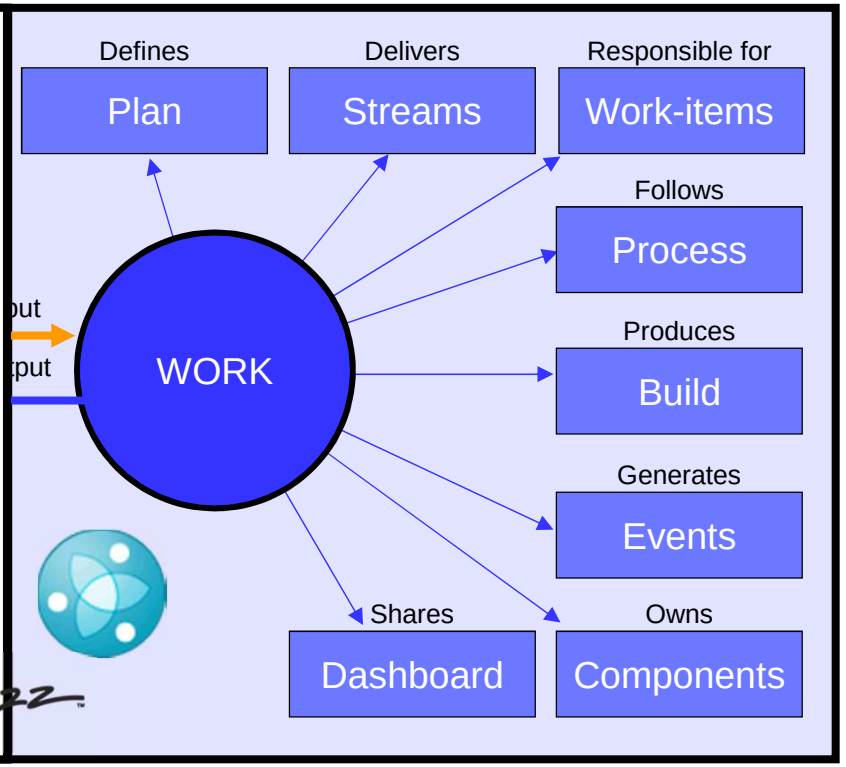
Work Perspective

Anti-patterns

- Isolated Plan
- Optimistic Plan
- Artificial

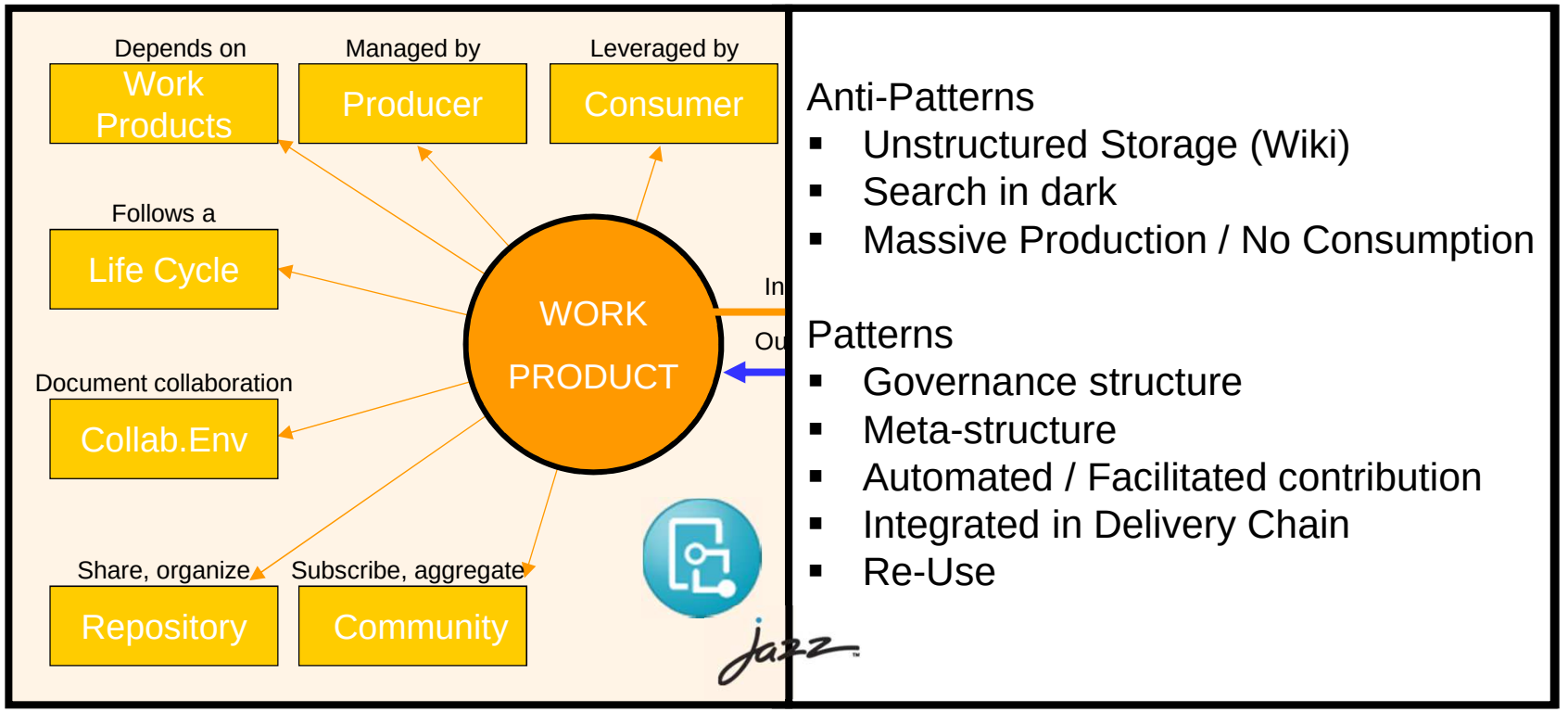
Patterns

- Continuous planning
- Real-Time insights in progress
- In Context
- Feeds Traceability



Work Product Perspective *Work Perspective*

Work Product Perspective



Work Product Perspective *Work Perspective*

Agenda

- Innovation Olympics
- (Application) Life Cycle Management
- Agility@Scale
- The Global Software Supply Chain View

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