



Where do we start?

*And How Much Improvement Should We Expect?*

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IBM Software

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# Accelerated delivery demands a quid pro quo

## Engineering Practitioners

- Design, create, test
- Reuse knowledge, best practices
- Address uncertain things first
- Be adaptive to change

**Embrace Measurement**

## The Speed Of Trust

## Governance Stakeholders

- Achieve predictable outcomes
- Manage risk
- Ensure compliance
- Improve software economics
- Visibility and transparency

**Enable Agility**

## High impact initiatives to accelerate delivery today

### IT organizations

1. Elaborate user experience earlier in lifecycle
2. Link requirements management to test
3. Make integration, test and deployment continuous
4. Scale agile to enterprise with governance and metrics

### Product and systems organizations

1. Implement cross-discipline systems engineering
2. Implement model-based systems engineering
3. Integrate tools and data to support common processes

# 1. Elaborate user experience earlier in lifecycle

- Challenge
  - User experience often not effectively addressed until late in lifecycle
- Solution
  - Elicit user experience through user stories
  - Demand early iterations be demonstrable to users
- Benefit
  - More honest and meaningful collaboration among stakeholders
  - Development team now focused on outside-in perspective
  - Significant improvements in perceived feature usability

## ***Typical target***

25% less scope creep in development  
*...and a substantial increase in stakeholder trust*

## 2. Link requirements management to test

- Challenge
  - Testing is often manual, siloed effort
  - User expectations weakly represented
- Solution
  - Early test perspective with strong linkage of requirements to test cases
  - Automated traceability and automated regression test management
- Benefit
  - Testability and test team are integrated with design/development
  - End user requirements are tested, not just whether product works
  - Improved compliance

### Companies addressing this entry point today



### **Typical target**

25% lower variance in cost/schedule performance

### 3. Make integration, test and deployment continuous

- Challenge
  - Higher value and risk in integration of apps, data, systems
  - Significant rework costs when integration issues surface late
  - Protracted release cycles due to late, big-bang integrations
- Solution
  - Plan on integration testing preceding unit testing
  - Prioritize release content — attacking the hard things first
  - Measure cost of change, initiate development analytics
- Benefit
  - Accelerated internal delivery cycles
  - Earlier uncertainty resolution, optimized test resource allocation
  - Significant improvements in quality and performance



#### **Typical target**

50% reduction rates in lifecycle scrap and rework

## 4. Scale agile to enterprise with governance and metrics

- Challenge
  - Dynamic change competes with governance/ compliance
  - High number of constituencies complicates collaboration
- Solution
  - Automate and instrument project management, change management and test management
  - Leverage integrated platform for processes, measurements
  - Encompass the end-to-end lifecycle and entire software supply chain
- Benefit
  - Accelerated delivery cycles
  - Measured feedback control



### **Typical target**

50% more time on task by eliminating overhead activities  
(*progress reporting, documentation, change propagation, etc.*)



## Amir Gomroki

*Vice President, R&D Operations, IP and Broadband  
Ericsson*



# 1. Implement cross-discipline systems engineering

- Challenge
  - Numerous siloed engineering perspectives
  - Impact of change across software, mechanical, electrical disciplines
- Solution
  - Multi-level traceability across the lifecycle
  - Multi-disciplinary collaboration platform
  - Scalable to support system of systems engineering
- Benefit
  - Early and continuously integrated perspectives, artifacts
  - Early quality, performance, usability insight of products and/or systems

*Companies addressing this entry point today*

*Powering Business Worldwide*

## ***Typical target***

25% lower variance in cost/schedule performance

## 2. Implement model-based systems engineering

- Challenge
  - Rising complexity of product and systems
  - Error-prone hand-offs between systems engineers and software engineers
- Solution
  - Shared models using standard visual languages
  - Rapid, automated cycles from models to code
  - Simulation and analysis to prove functionality and timing
- Benefit
  - Integration issues resolved earlier, lower cost of change
  - Architecturally significant errors discovered earlier in lifecycle

**Companies addressing this entry point today**

The image displays a collection of logos for companies that are addressing model-based systems engineering. At the top, a blue banner reads "Companies addressing this entry point today". Below this, the logos are arranged in a white, rounded rectangular frame. The logos include: ikerlan ik4 research alliance (with an orange and black icon), iPLON The Infranet Company (with a blue and black icon), AUTHORIZED IACET PROVIDER (with a blue and white icon), Continental (with a black and white icon), KYOCERA (with a red and black icon), and Raytheon (with a red and black icon).

### **Typical target**

50% reduction rate of lifecycle scrap and rework  
*And reduction of critical defects to (nearly) zero*



## Brian Wells

*Vice President of Corporate Engineering  
Raytheon*

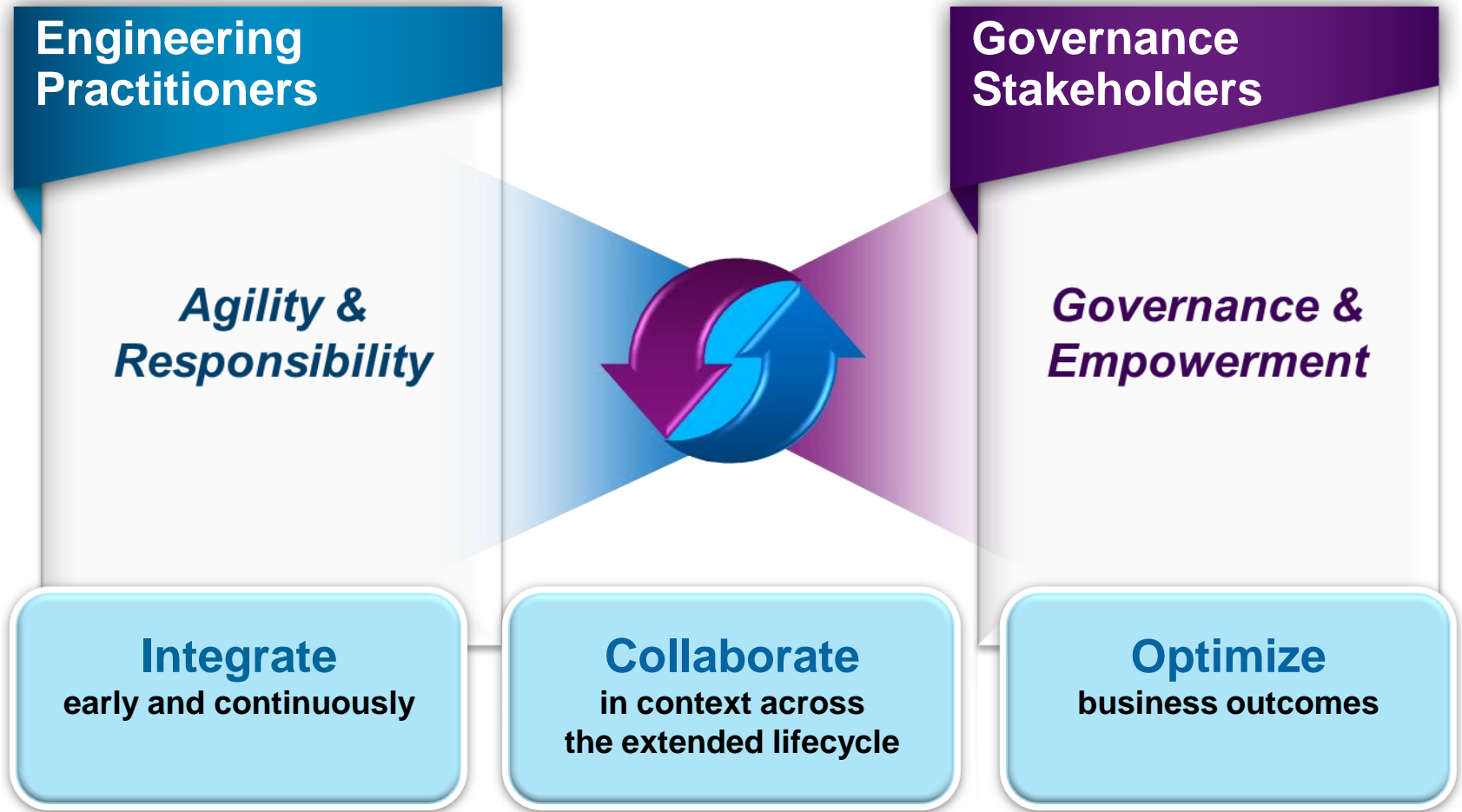
### 3. Integrate tools and data to support common processes

- **Challenge**
  - Lack of end-to-end visibility, metrics, analytics
  - Compliance risks (regulations, safety or mission critical)
  - Rapid deployment of resources to new projects
- **Solution**
  - Industry tailored practices and process guidance
  - Consistent measures and instrumentation
  - Share federated information across tools with standards-based integrations via OSLC
- **Benefits**
  - More honest and objective communication across engineering teams
  - Easier to move people between projects and teams
  - More time on task, less overhead activities



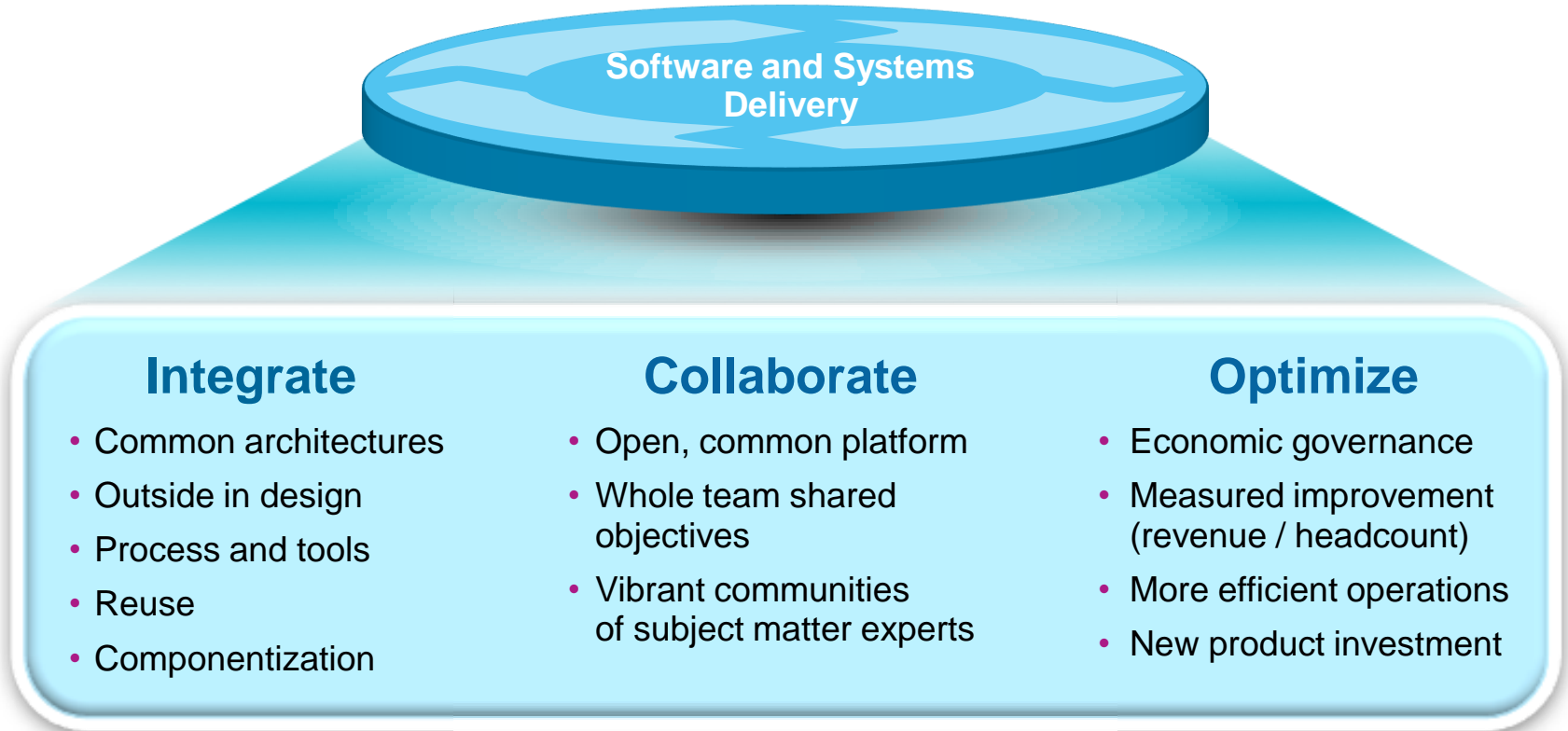
**Typical target**  
50% lower cost of compliance

# Succeeding in the new development reality



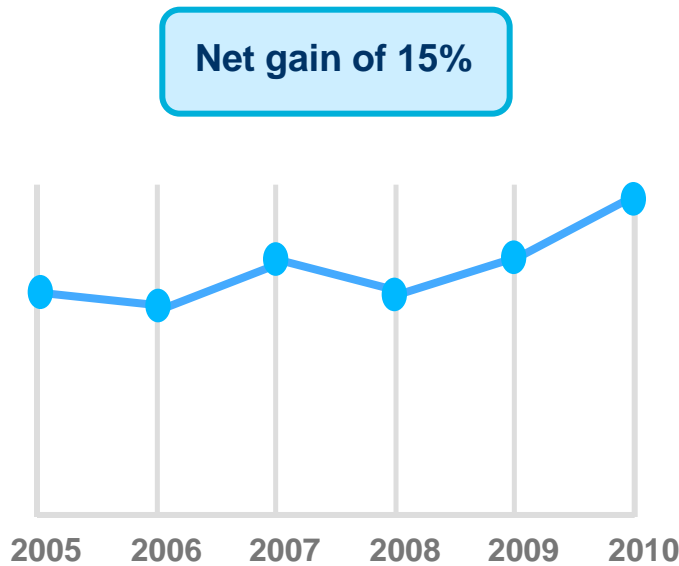
# The IBM Software Group's Agile Transformation

*Adopting best practice methodologies in software and systems delivery*

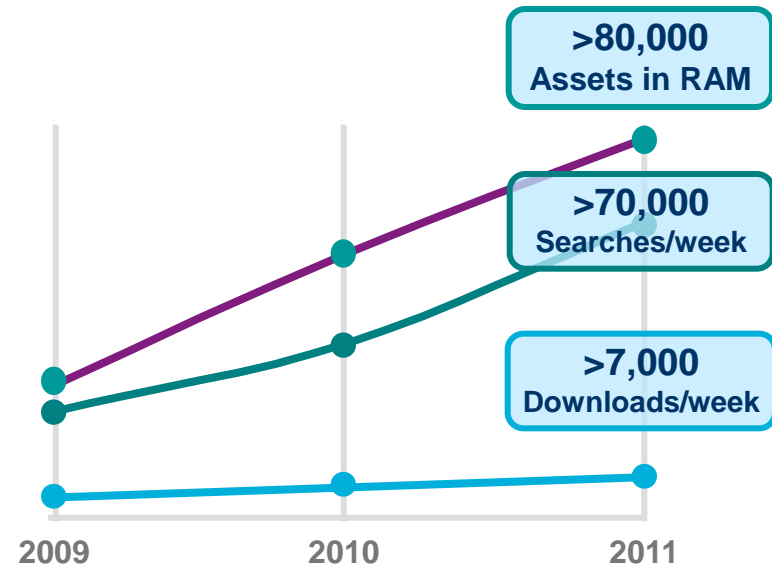


# Results from IBM Software Group's Agile Transformation

### Revenue per Headcount



### Growth in Asset Reuse Year-to-year Growth



**Reduced scrap and rework by 4.5% and avoided \$300M in maintenance costs**



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