Business @ the speed of Software

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Vice President, Worldwide Strategy

Rational Software

We are at an inflection point in the industry

MOBILE CUSTOMER TARGETING

Card swipe in one store attracts coupons from nearby store – resulting in 109% incremental sales lift

JUST-IN-TIME MAINTENANCE

Global aircraft engine manufacturer increases service revenue by 12% in one year using real-time monitoring and proactive fault detection

BUSINESS INNOVATION DRIVER

Building materials manufacturer deploys social collaboration platform driving real-time process improvement and reducing time to market by 2/3

Software delivery is at the heart of today's top technology trends

Big Data
Insights on new products by more efficiently interpreting massive quantities of data

Cloud
Demand for apps requires fast, scalable environments for dev and test, as well as production

Social Business
Broader set of stakeholders collaborates to deliver continuous innovation and value

Instrumented Products
Industry requirements demand faster response to regulations and standards, with traceability and quality

Software delivery

Mobile
Modern workforce expects constantly updated software to connect to enterprise systems

Intelligent/ Connected Systems
Software component in smart products driving increased value and differentiation
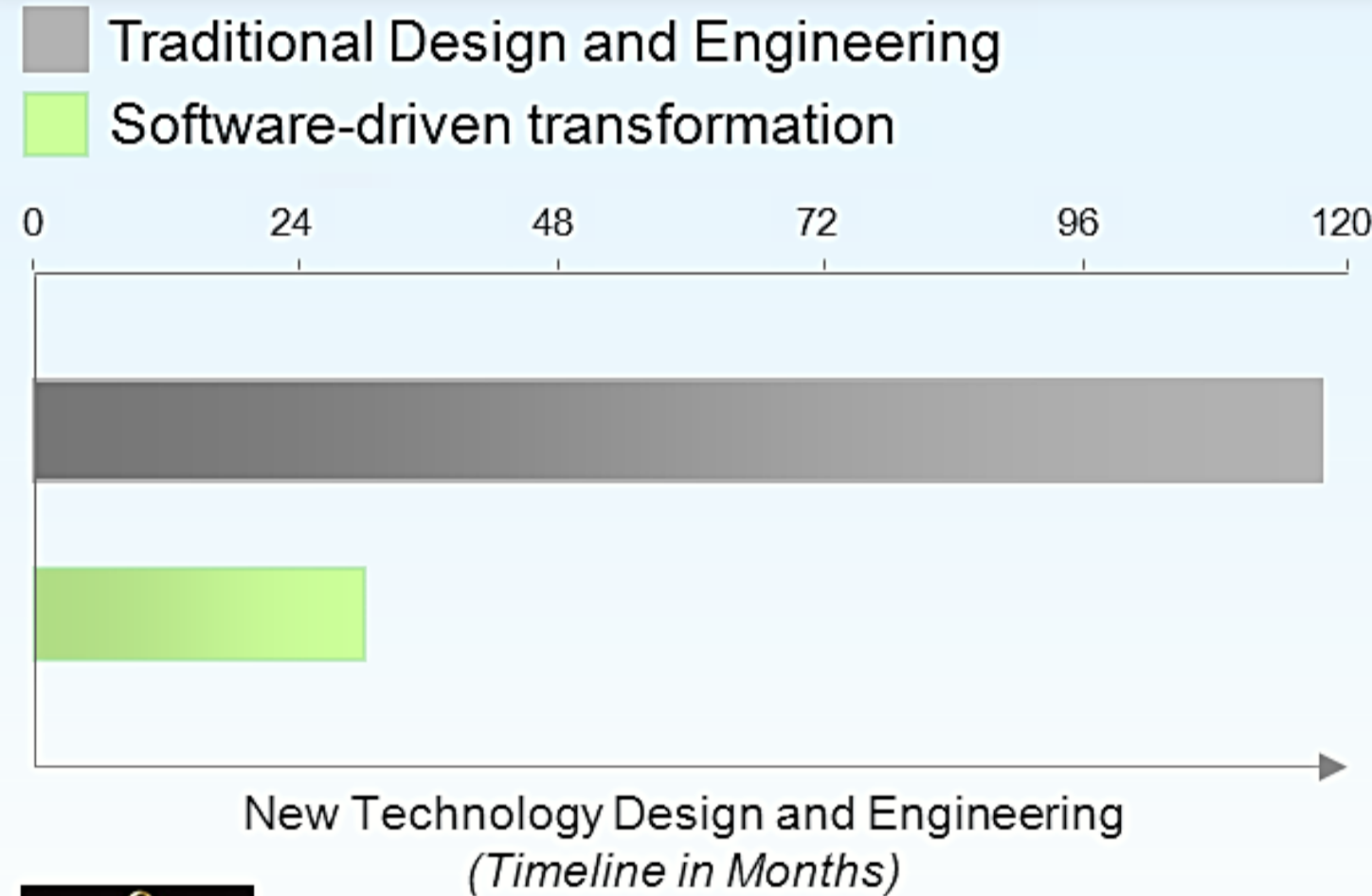
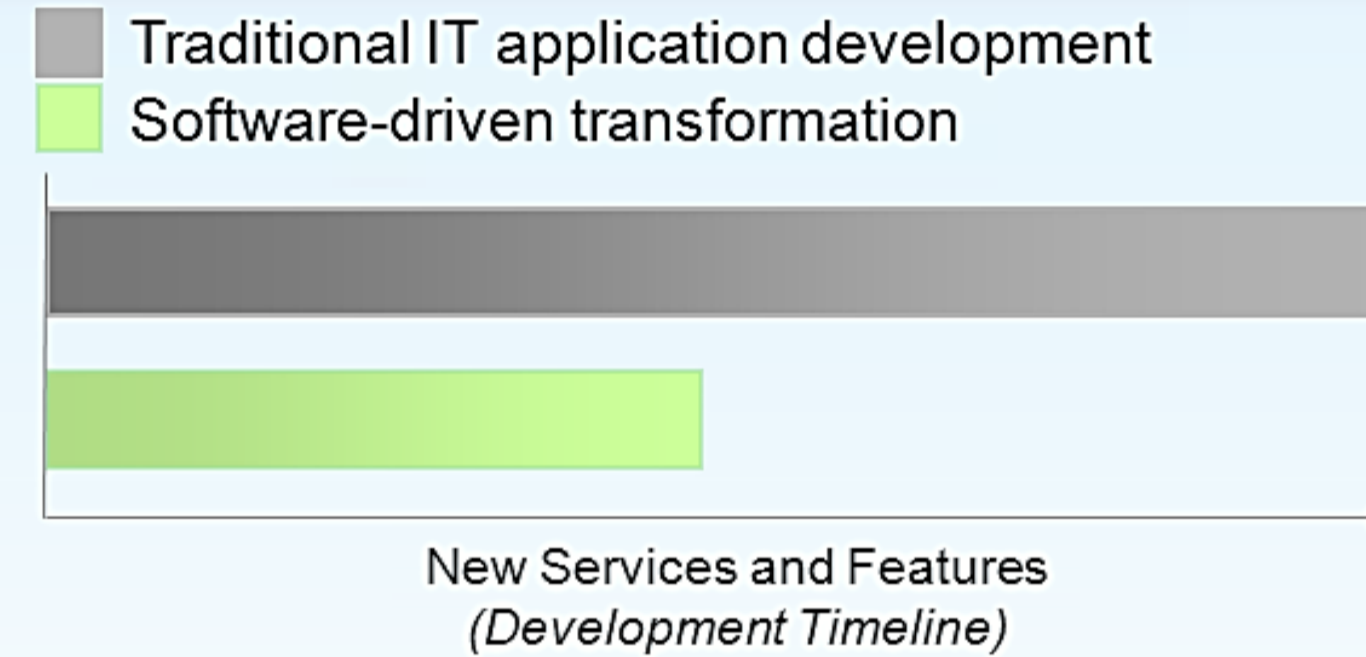# Transforming software and systems delivery brings about dramatic business results

Volt was designed and engineered in 29 months!

- Traditional Design and Engineering
- Software-driven transformation

New Technology Design and Engineering
(Timeline in Months)

Reliance reduced development time by 50%

- Traditional IT application development
- Software-driven transformation

New Services and Features
(Development Timeline)

Reliance reduced development costs by 50%

Customer / Agent Service
(Development Costs)

Emergence of Systems of Engagement creates challenges for Software Delivery

Line of Business

Takes too long to introduce or make changes to mobile apps and services

Operations

Rapid app releases impact system stability and compliance

Systems of Interaction

4-6 weeks

to deliver even minor application changes to customers

Systems of Engagement

Systems of Record

CRM	HR
DB	ERP

>70%

of budgets devoted to maintenance and operations

Cloud-based Services

Development and Test

Speed mismatch between faster moving front office and slower moving back office systems, delaying time to obtain feedback

Suppliers
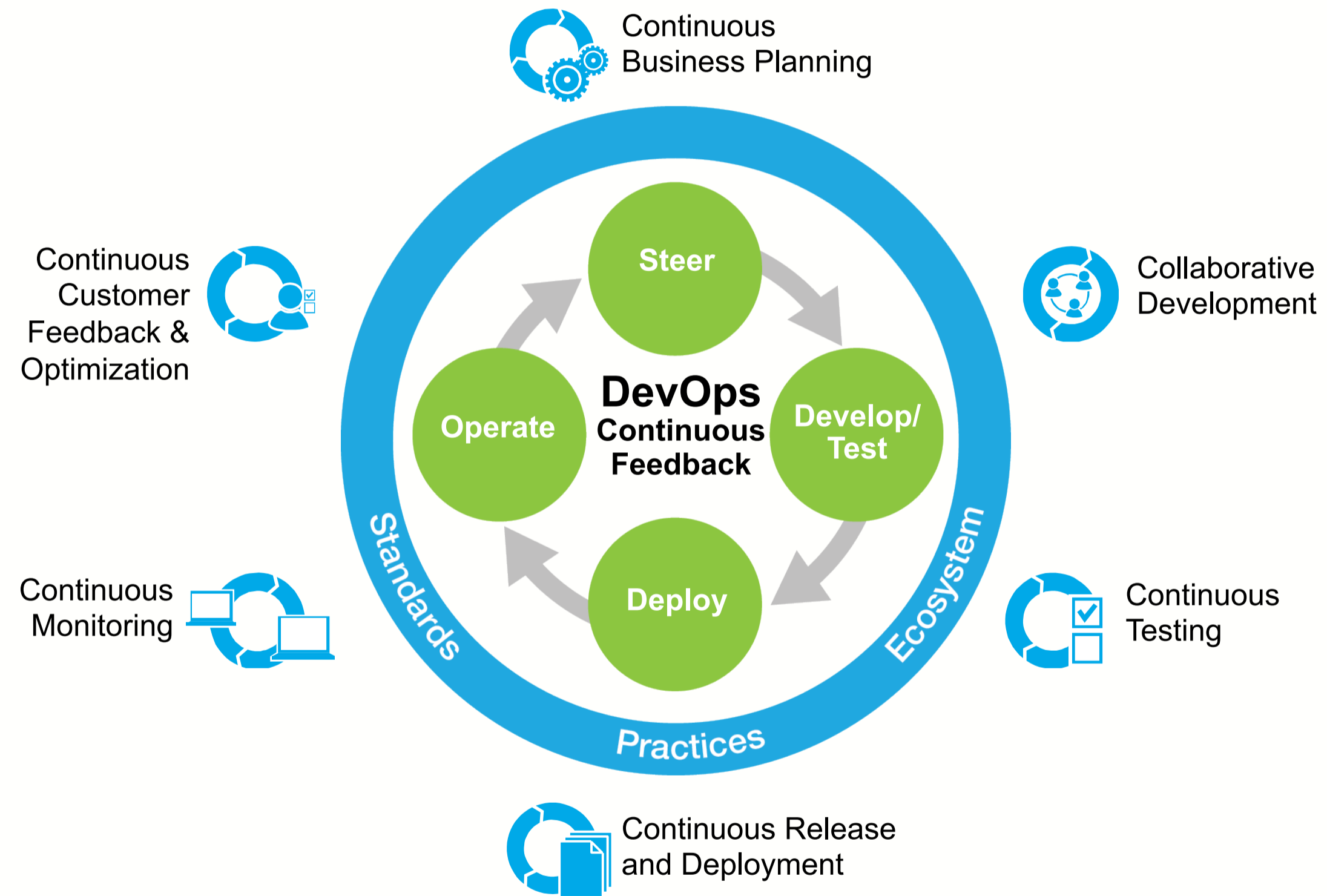
Delivery in the context of agile

IBM

IBM DevOps point of view

Enterprise capability for continuous software delivery that enables organizations to seize market opportunities and reduce time-to-customer feedback

Accelerate software delivery – *for faster time to value*

Balance speed, cost, quality and risk – *for increased capacity to innovate*

**Reduce time to customer feedback –** *for improved customer experience*

Continuous Business Planning

Continuous Customer Feedback & Optimization

Collaborative Development

Steer

Operate

DevOps Continuous Feedback

Develop/ Test

Deploy

Standards

Ecosystem

Practices

Continuous Monitoring

Continuous Testing

Continuous Release and Deployment

DevOps delivers measurable business outcomes

DevOps is designed to drive the **effectiveness** and **efficiency** required to dramatically increase speed, reduce cost and risk
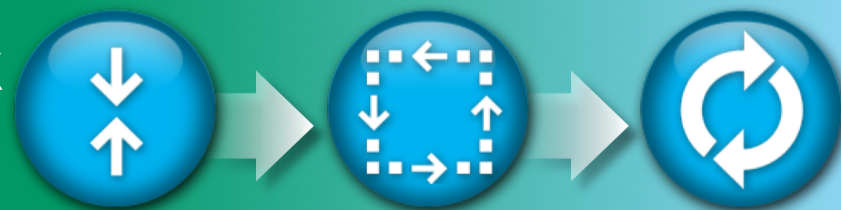
Effective Steering
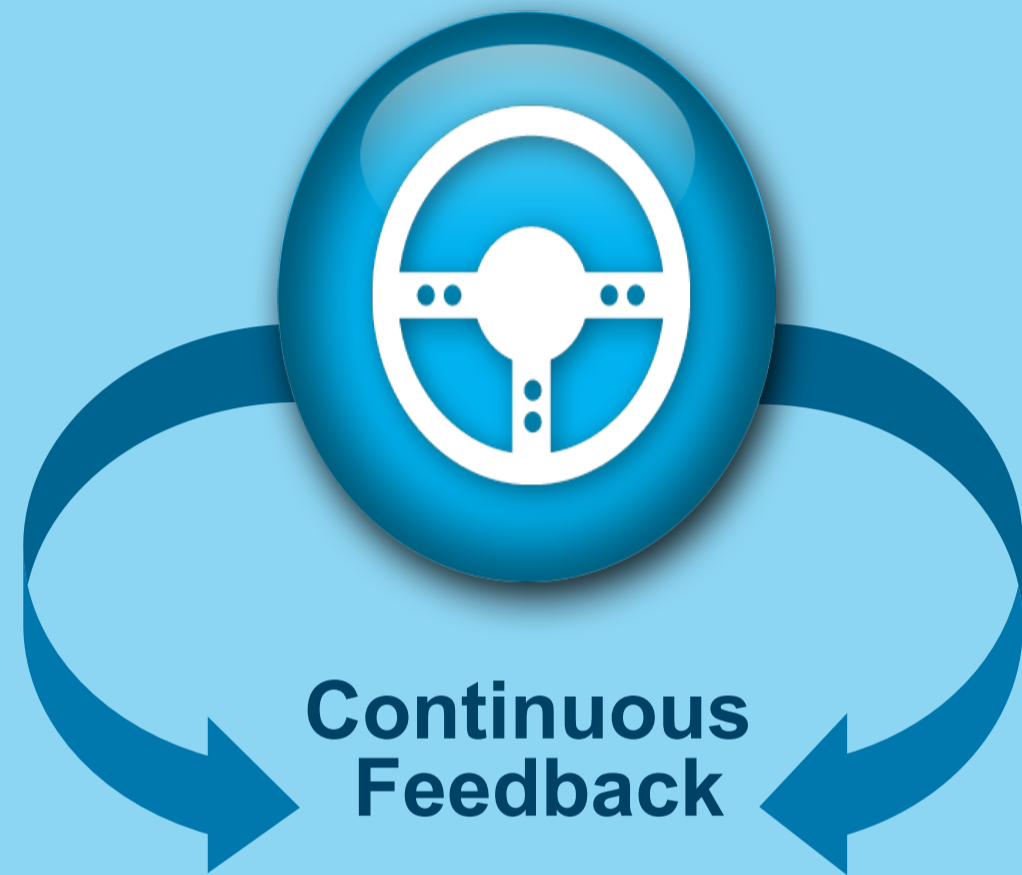
Continuous Feedback

- Stakeholders
- Marketplace
- Users

Feedback cycles

Efficient Delivery

Minimize Waste

- Less waiting and bottlenecks
- Less unproductive overhead
- Less defects and rework

Efficiency

80% 20%

Productive

Waste

# Comprehensive set of IBM DevOps software capabilities…

Continuous Business Planning
- Requirements Management
- Project & Portfolio Management
- DevOps Analytics

Continuous Monitoring
- IT Operations Analytics
- Application Performance Management
- Operational Problem Management

Collaborative Development
- Collaborative Development Lifecycle
- Omni-channel Development

Continuous Customer Feedback and Optimization
- Customer Experience Management
- Mobile Sentiment Analysis
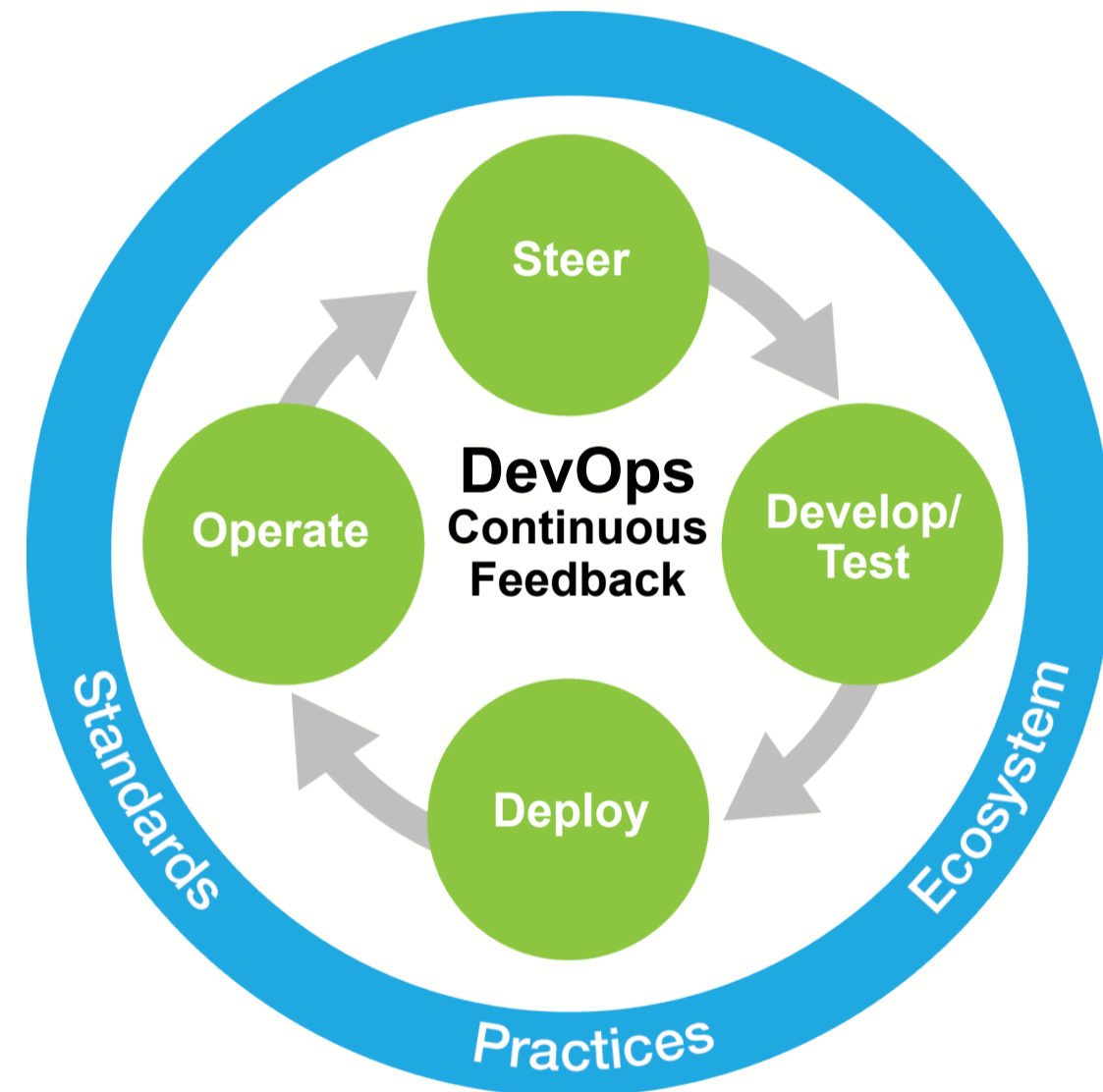
Continuous Testing
- Service Virtualization
- Software Quality Management
- Multi-Platform Automated Testing
- Security Vulnerability Testing
- Test Data Management

Continuous Release and Deployment
- Application Release Automation
- Hybrid Cloud Management
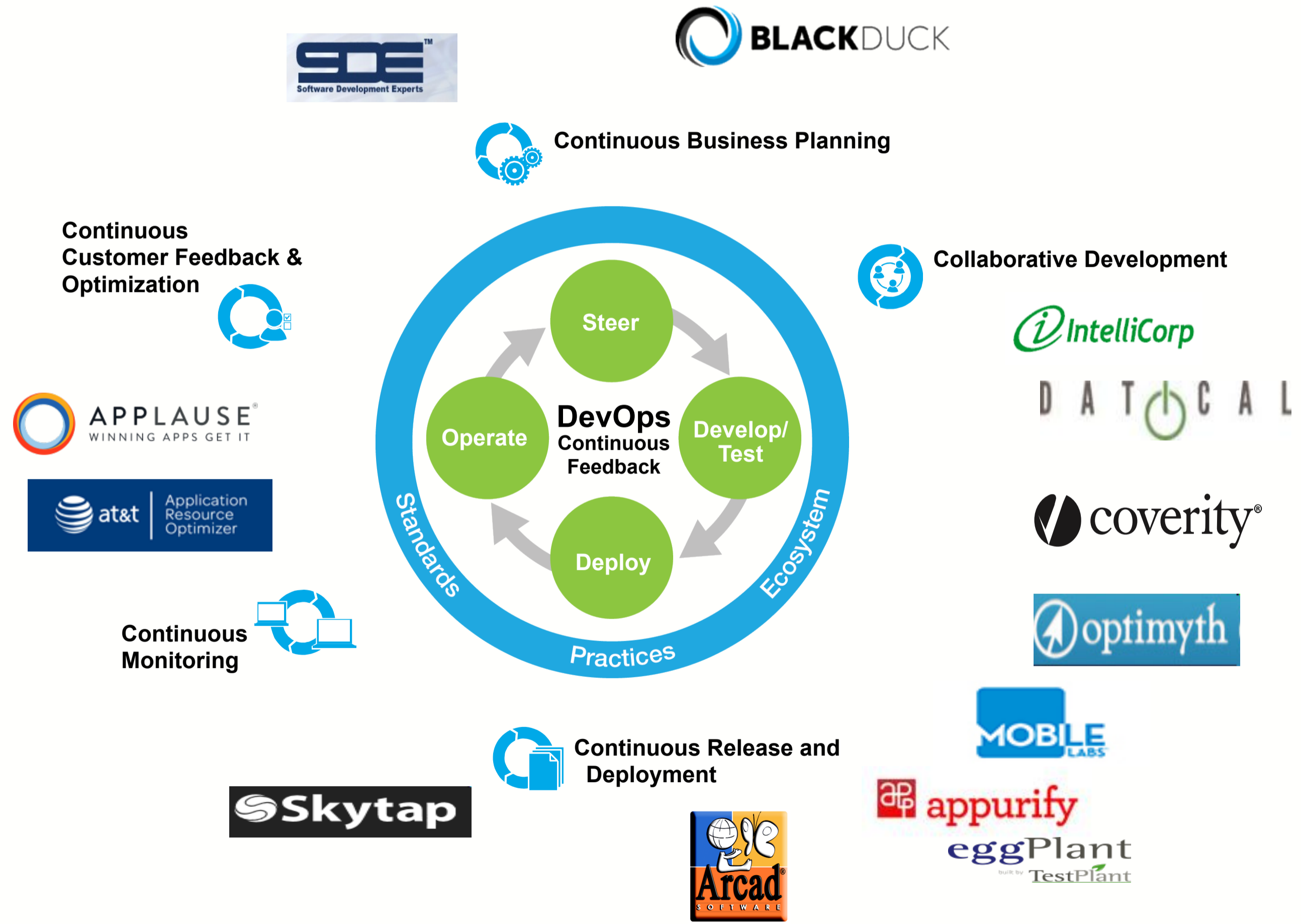- Hybrid Cloud Application Integration
- Software Lifecycle Patterns

Steer

Develop/ Test

Deploy

Operate

DevOps Continuous Feedback

Standards

Ecosystem

Practices

…Enhanced by a vibrant partner ecosystem

Accelerate software delivery – for faster time to value

Balance speed, cost, quality and risk – for increased capacity to innovate

Reduce time to customer feedback – for improved customer experience

Continuous Business Planning

Continuous Customer Feedback & Optimization

Collaborative Development

Continuous Monitoring

Continuous Release and Deployment

DevOps Continuous Feedback

Standards

Practices

Ecosystem

Steer

Develop/Test

Deploy

Operate

Empowered, demanding customers

Increasing digital competition

Increasing expectations of software

Deliver quickly to prove out business ideas and innovations

Deliver more digital business products, services, channels

Deliver fast to keep pace with fads, market shifts, opportunities

New App Delivery Models	New App Delivery Platforms	New Business Models
• As a service APIs • Mobile apps • Apps composed of services • DevOps/Continuous Delivery	• Cloud platforms • SaaS • CI-DevOps platforms	• Open source • Subscriptions • On-demand

Introducing IBM Bluemix

IBM Platform as a Service for Composing Applications

About Bluemix

- Run apps in any language
- Built on open standards
- Integration services to systems of record
- Designed for mobile
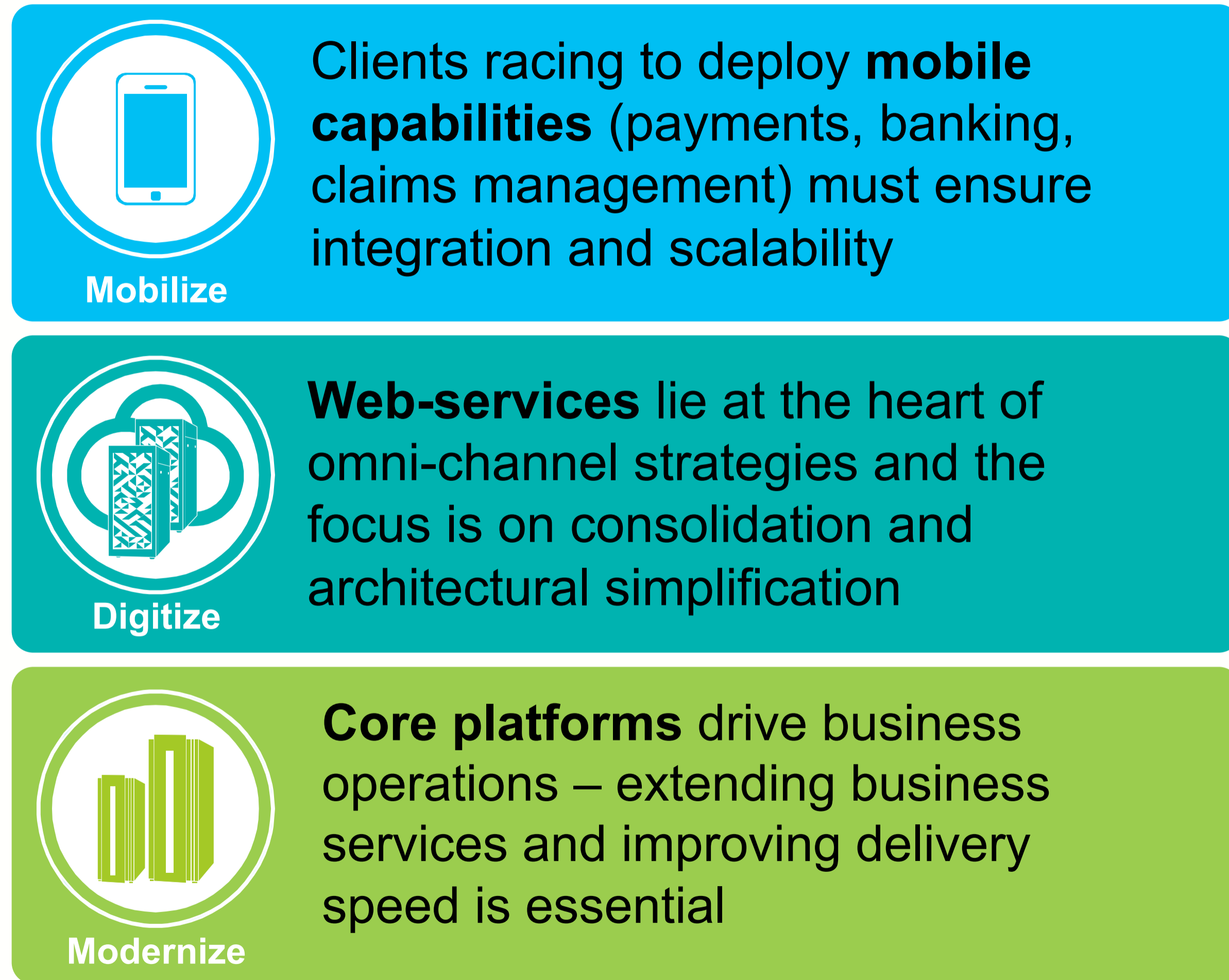- Provides DevOps services

Bluemix services include:

- DevOps
- Big Data
- Mobile
- Cloud Integration
- Security
- Internet of Things
- Watson
- Database
- Web and application

Bluemix enables everyone from individual developers to large enterprise teams to rapidly build and deploy new applications, embrace DevOps and extend existing IT investments with cloud integration services.
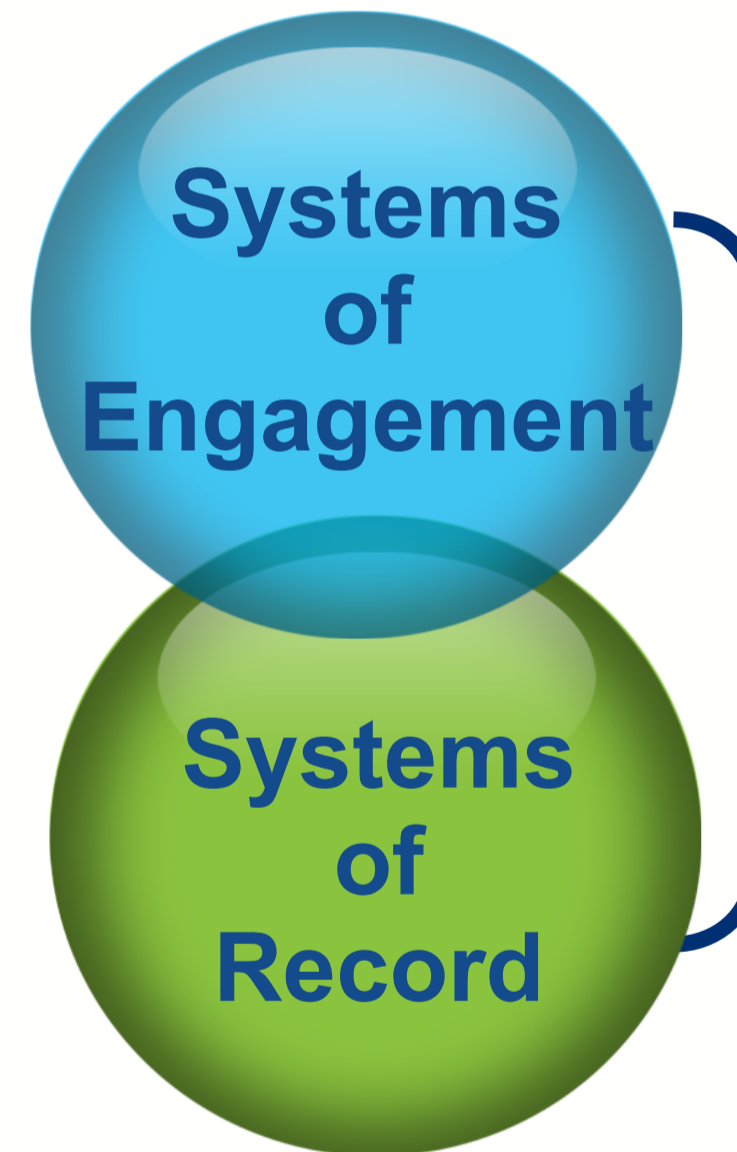
Business innovation requires multi-platform software delivery transformation
Businesses must modernize, digitize and mobilize simultaneously to stay competitive

Mobilize

Clients racing to deploy **mobile capabilities** (payments, banking, claims management) must ensure integration and scalability

Digitize

Web-services lie at the heart of omni-channel strategies and the focus is on consolidation and architectural simplification

Modernize

Core platforms drive business operations – extending business services and improving delivery speed is essential

Improve speed and feedback cycles
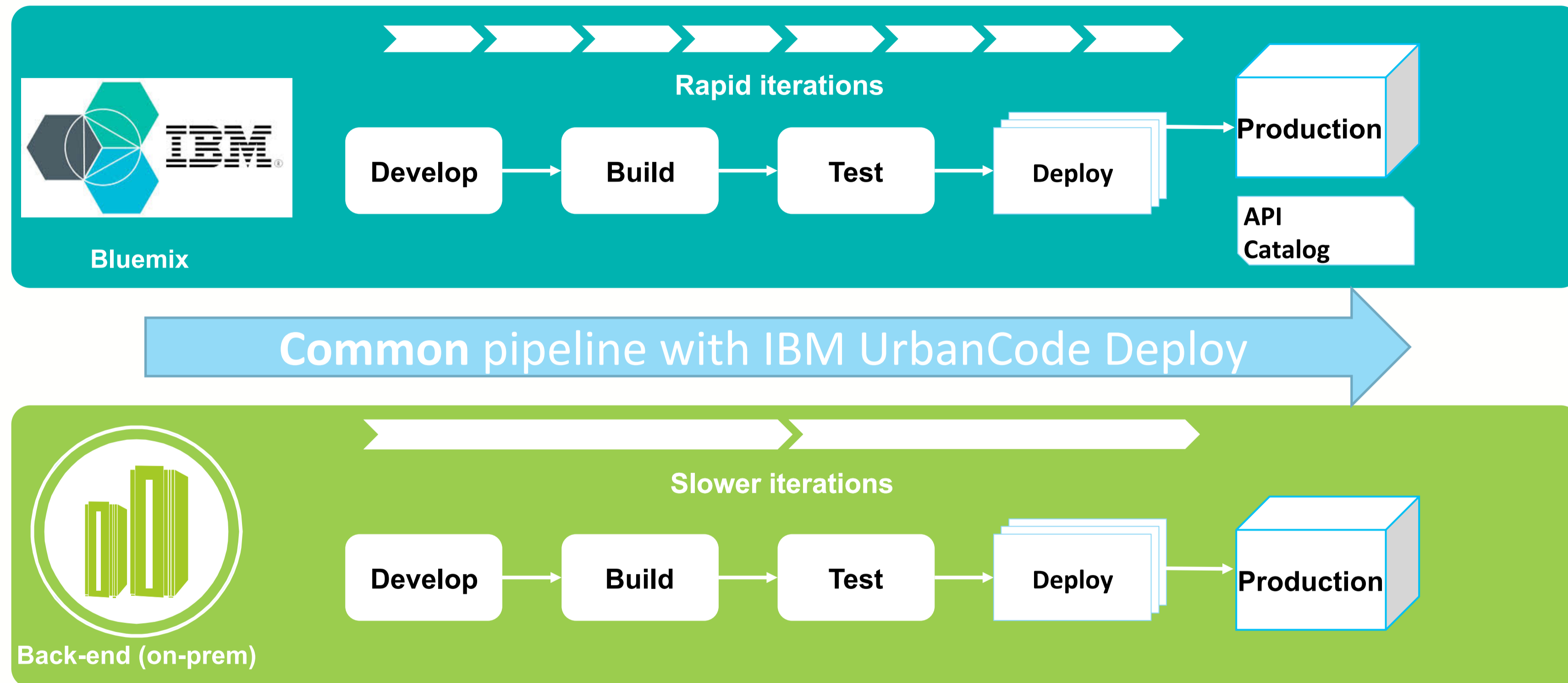
Systems of Engagement

Systems of Record

Systems of Interaction

Improve efficiencies

A common automated deployment pipeline across PaaS and back-end environments is critical
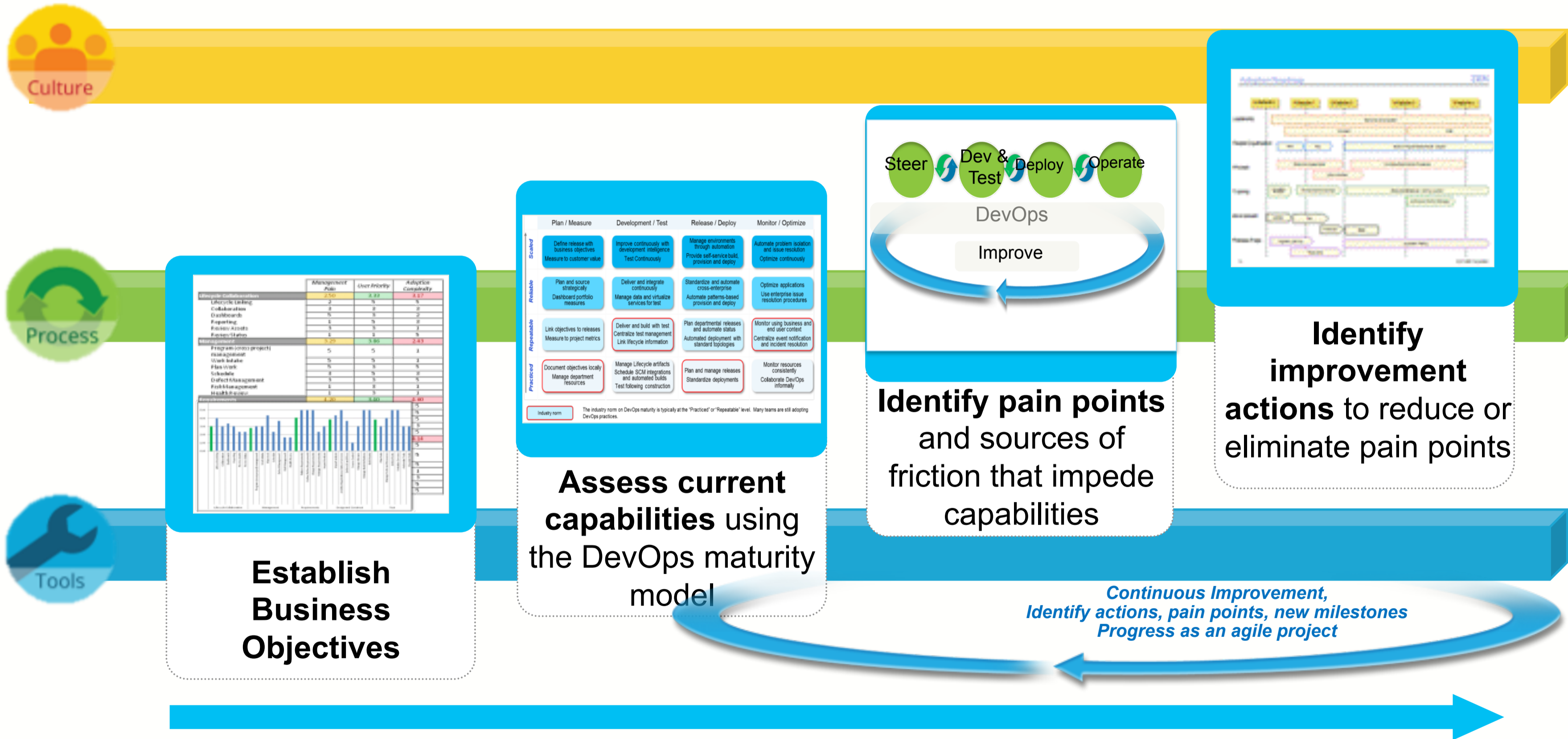

UrbanCode create a single, coordinated release pipeline across all tiers/technologies

Deployments are simultaneous across all tiers; rollbacks triggered by any tier propagates across all tiers

Configuration snapshots guarantee compatibility amongst different part of the application

Prescription for DevOps Adoption

Establish Business Objectives

Assess current capabilities using the DevOps maturity model

Identify pain points and sources of friction that impede capabilities

Identify improvement actions to reduce or eliminate pain points

Continuous Improvement, Identify actions, pain points, new milestones Progress as an agile project

Nationwide embraces DevOps to drive continuous delivery across platforms and improve speed to market

80% reduction in critical defects over
the last three years

90% on-time delivery
vs. 60% previously

70% increase
in user's overall system
availability

82% of Agile teams
moved into top two
industry quartiles (QSM) in
productivity measures

"We're more agile as a business and more responsive to our customers. Collaboration has become an expected part of our culture."

— **Steve Farley**, Vice President,
Application Development Center, Nationwide

Nationwide®
On Your Side℠

Nationwide Case study Video to Roll

[Click here](#)

The New World Order

Products today are complex, intelligent and connected.
Organizations need to innovate to stay competitive

Drivers for change

Delivering the change

Engineering challenges

Closed Loop Product Development

- Collaborate across disciplines
- Manage complexity
- Optimize information & traceability
- Rapid response to operational feedback
- Systematically reuse assets, processes and knowledge

Delivering innovation

Focus on Agility and Time-to-Value

- Assemble solutions from verified components and services
- Continuously verify work to reduce costs
- Reduce time to value for regulated environments
- Use engineering lifecycle analytics to improve decision making

Continuous engineering is about game-changing capabilities

Continuous engineering is an enterprise capability that speeds delivery of increasingly sophisticated and connected products by helping businesses to evolve their engineering practices to adapt to the accelerating pace of business change.

Continuous Engineering & The Internet of Things

Connected and intelligent products and the growth of instrumentation continues to create new business opportunities and disrupt existing markets

Users of Things

Makers of Things

Continuous Engineering
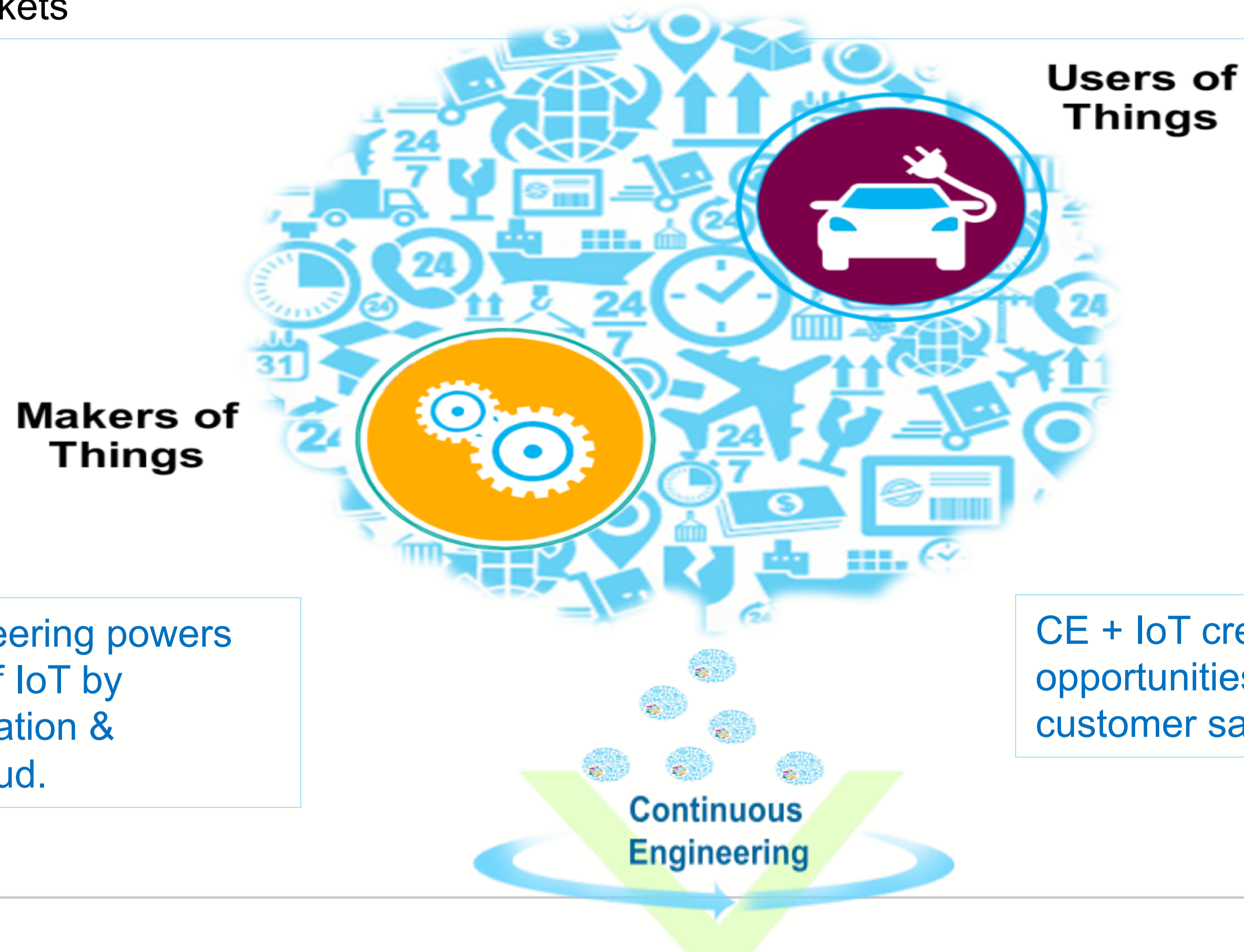
Continuous Engineering powers the "Maker" side of IoT by accelerating innovation & leveraging the Cloud.

CE + IoT creates new opportunities for revenue, customer satisfaction & loyalty

Key Principles of Continuous engineering

Continuous Engineering

"Turn Insight into Outcomes"	"Measure twice, cut once"	"Don't reinvent the wheel"
Unlocking Engineering Knowledge	Continuous Verification	Strategic Reuse

Unlocking Engineering Knowledge
Turn Insight into Outcomes

Access, unlock and understand all engineering information no matter where it resides
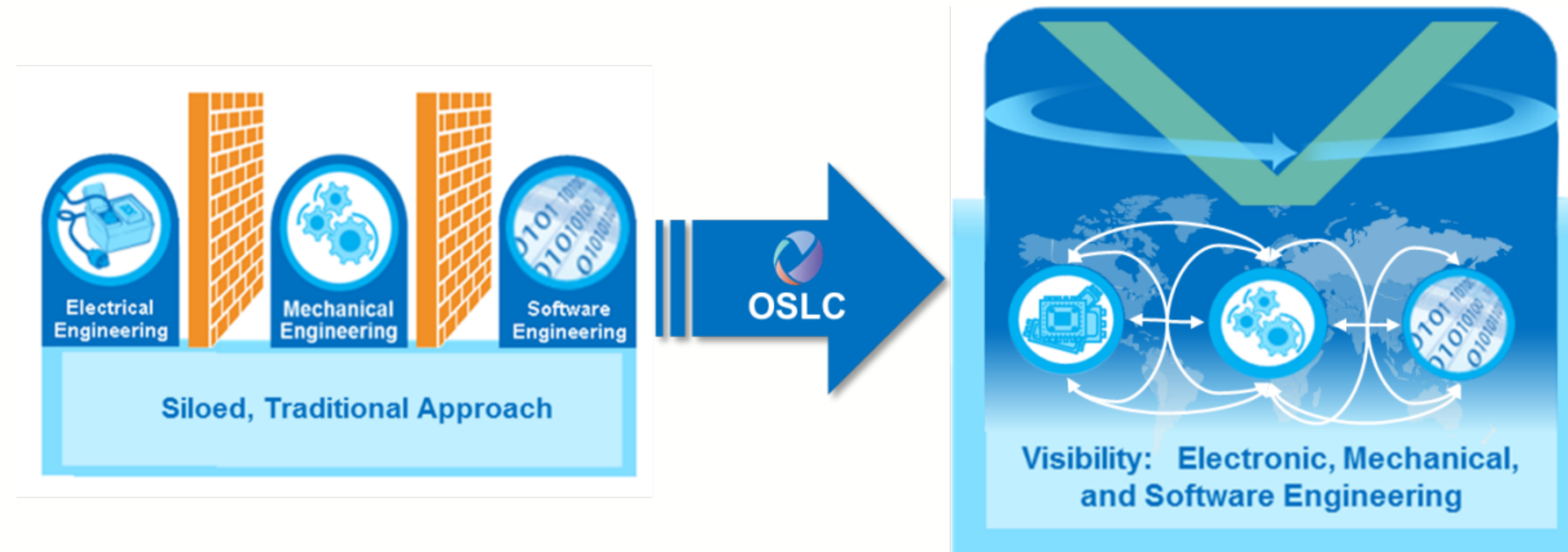
I need to **share information** from multiple disciplines with **large groups of stakeholders**.

My data represents a **huge amount of valuable product knowledge**.
How can I use this insight to **gain a competitive advantage**?

I need to **show traceability across domains**, even across tools **from different vendors**. Today it takes me weeks of manual effort.

I need a **faster and easier** way of finding the information I need **no matter where it is stored**.

It's about enabling the right decisions at the right times

Continuous Verification

Measure Twice, Cut Once

Verify throughout the product lifecycle to reduce rework and achieve faster time to quality

Left shift

Early & continuous stakeholder collaboration

Model based system design

Virtual product cyber-physical simulation

Test virtualization of systems & sub-systems

Automated test & test management

I need **better ways to explore** my requirements and designs with my customers

How can I **optimize my design** choices before we sign the contract and start ordering parts?

My hardware won't be ready for months how can I use **models & simulation** to verify the behavior of the software and hardware together and **reduce my technical risk earlier?**

I have to actually drive the car to run some of my tests. I need **ways of ensuring proper test execution** and to make it easy to capture the results.

It's about achieving evidence based confidence in your design as early and as quickly as possible

IBM

Strategic Reuse

Don't Reinvent the Wheel

Engineer for continuous reuse in complex product lines or exploit simpler reuse patterns in line with your economic fundamentals

I have several component designs that we know are reliable. I want to **easily re-use the requirements, code and tests in all of my new products**.

I have a serious defect in one of our products, which was copied from another, which was derived from another. We need to know **how far this defect spans across our product range**.

My team has created a set of **reusable components**. How do I select the **right components for each variation of my product**?

The business wants us to offer a broad product line based on a core set of technologies. Help me create a **feature-driven** design based on a top-down architecture.

Core Engineering Library
(reusable components and artifacts)

Component 1

Requirements
Test
Design
Implementation

Component 2

Requirements
Test
Design
Implementation
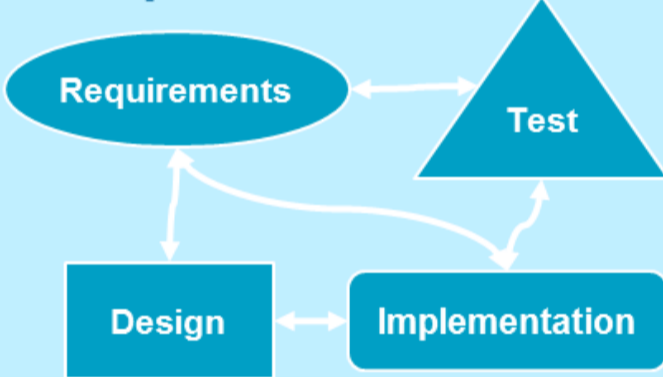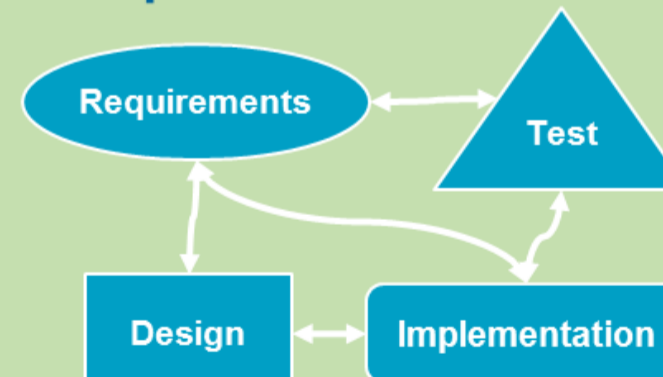
Multi Stream

Parameterized

Feature Driven

Product A

Component 1
Component 2
Requirements
Test
Design
Implementation

Product B

Component 1
Component 3
Component 2
Requirements
Test
Design
Implementation

Product B variant

Component 1
Component 3
Component 2
Component 2
Requirements
Test
Design
Implementation
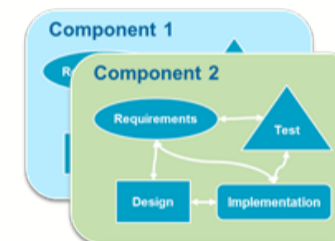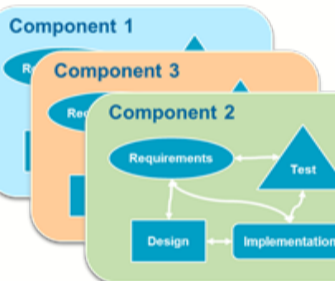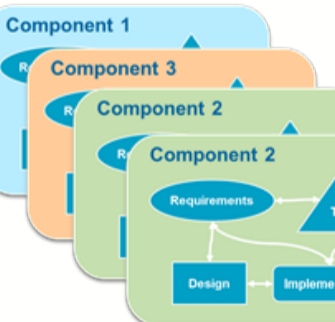
It's about maximizing investment by improving engineering efficiency and productivity

Cisco gains metrics and distribution for testresults as components of Continuous Engineering

Improved testing processes

Reduced fault analysis time by 60 %

Reduced licensing costs by 50 %

Brad Leabo
Technical Lead Testing
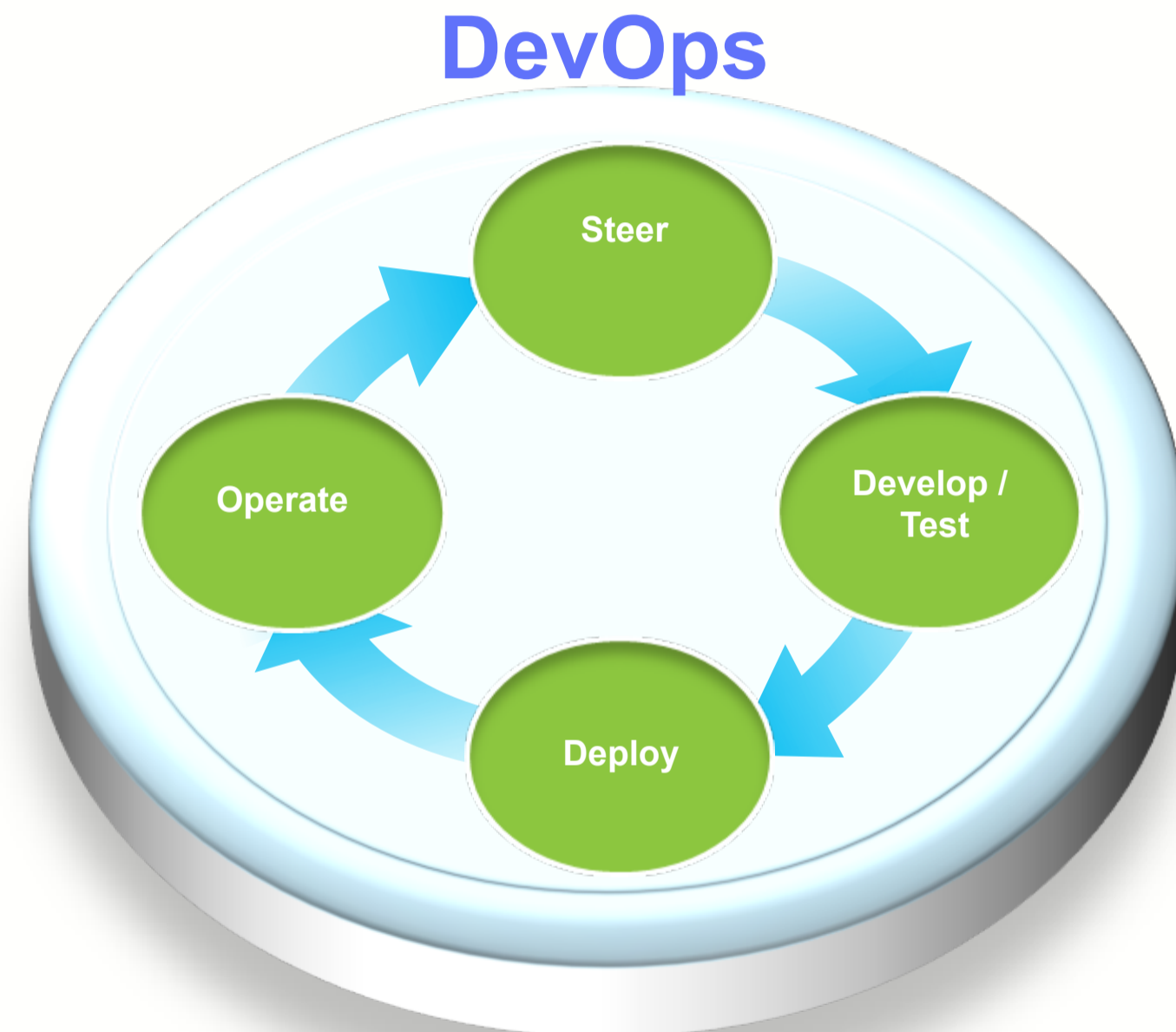*Cisco Systems*

Cisco Customer Case study Video to Roll

[Click here](#)

And Finally…

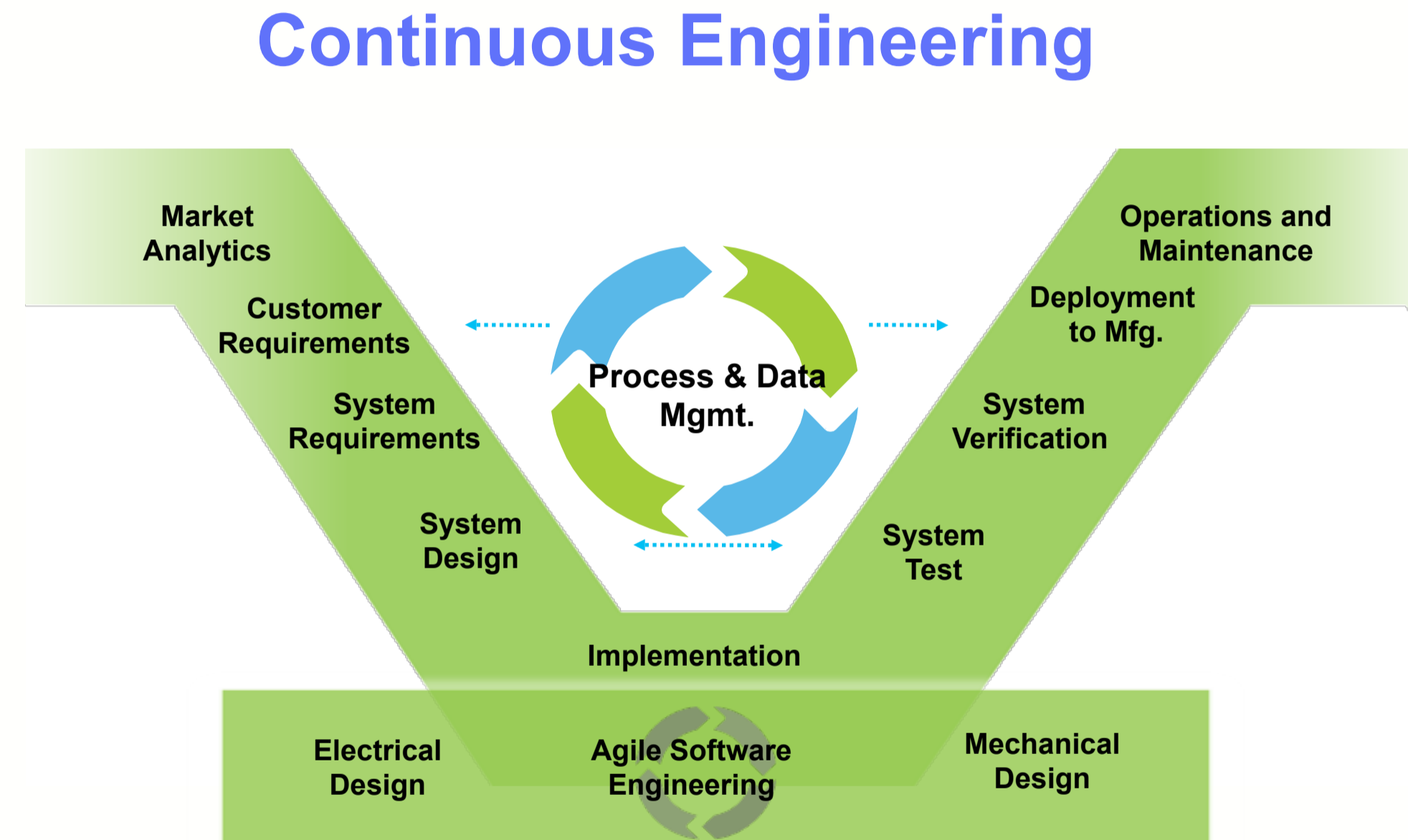Practices that are **most successful** at meeting the expectations of business leaders

1. Minimal requirements to start

2. Team dedicated to 1 project at a time

3. Loose coupling, APIs in the design

4. Minimize handoffs for each work item

5. Deliver small batches

6. Project status visible to anyone, any time

7. Organize to reduce paperwork

8. Automate, automate, automate…. especially testing

Base: 600 IT professionals with application development responsibilities from US, Canada, UK, France, and Germany
Source: A commissioned study conducted by Forrester Consulting on behalf of IBM, May 2014

RUC2014

IBM

IBM Rational supports clients of all industries, in every phase of their software development lifecycle.

DevOps

Steer

Operate

Develop / Test

Deploy

Continuous delivery of software

Continuous Engineering

Market Analytics

Customer Requirements

System Requirements

System Design

Process & Data Mgmt.

Operations and Maintenance

Deployment to Mfg.

System Verification

System Test

Implementation

Electrical Design

Agile Software Engineering

Mechanical Design

Develop smarter products

Thank You

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