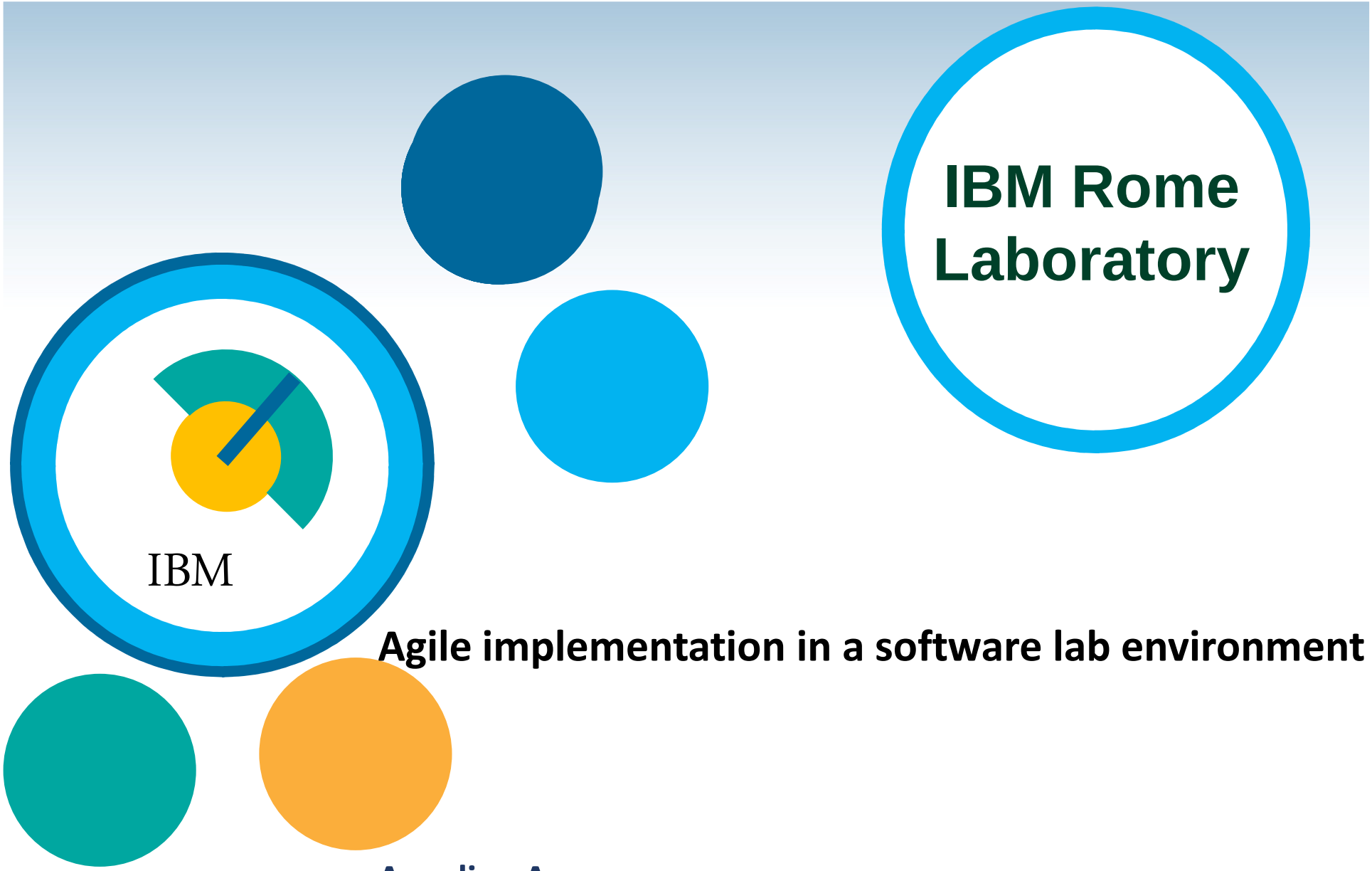

Agile implementation in a software lab environment

Angelina Ascone
IBM - Rome Lab Senior Development Manager

Reaching New Heights

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AGENDA

1. Breve introduzione del Laboratorio SW di Roma
2. Evoluzione dell' Industria del SW
3. Sviluppo applicazioni per grandi aziende
4. Progetti di collaborazione con le Università

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Rome Software Laboratory

Reaching New Heights

IBM

01 A Global Team

02 The History

03 The System

04 Our Value

01

A Global Team

A Global Team

Interconnected

No boundaries

Research Labs
Hardware Labs
Software Labs

Hursley	Yamato	La Gaude	Fujisawa	Burlington	Boulder	Yorktown Heights
Greenock	Bangalore	Perth	San Paolo	Austin	Rochester	Zurich
Dublin	Pune	Krakow	Boeblingen	Toronto	Tucson	Rome
Tokyo	Dehli	Cairo	East Fishkill	Santa Teresa	Emeryville	Endicott
Yasu	Beijing	Haifa	Raleigh	Almaden	San Jose	Poughkeepsie

02

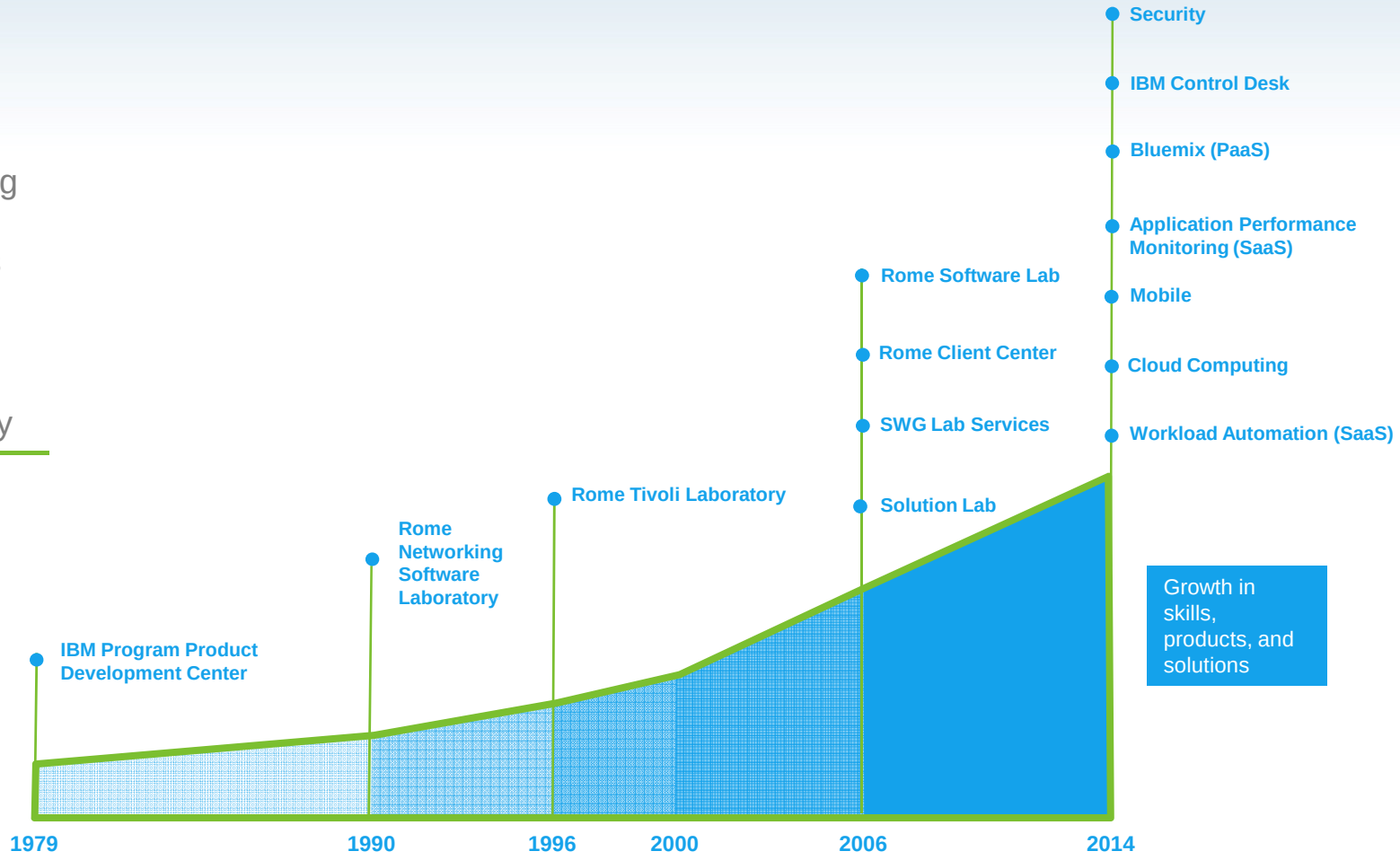
The History

The History

Always growing

From products to solutions

Competencies and technology



03

The System

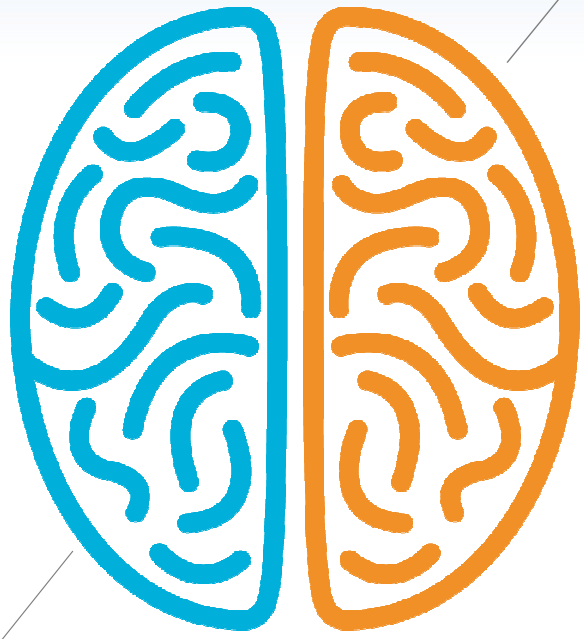
The System

A Software Development Lab

Effectiveness comes from diverse forces at work at the same time

Software Development

50%



50%

Delivering Enterprise Class Solutions

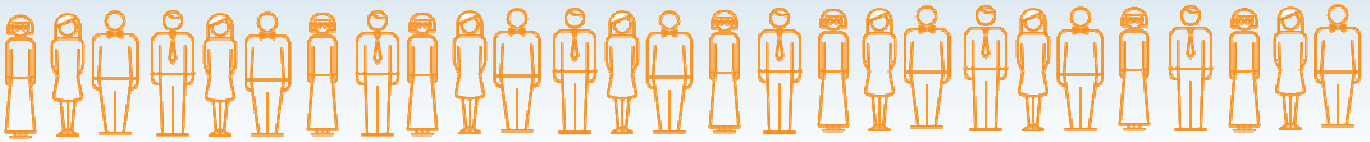
- Research and Solutions
- Sales and Technology Centers
- Services and Support
- Business Operations

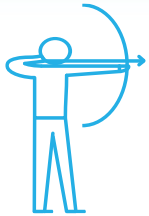
04

Our Value

Our Value

People who value excellence in innovation, processes, skills, and community relations





Talent

Breadth and Depth – software technologies, platforms, tools
Cross platforms competencies, from legacy mainframe to embedded technologies

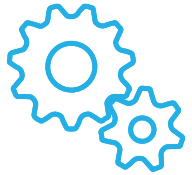
Creativity and Knowledge

Leadership in several strategic IBM technologies

Innovation & Technical Vitality

IBM Academy of Technology
Involvement in **Standard Bodies**
Patents
- 200 inventors with **1000+ submissions**
- **20 Master Inventors**

University & Research
Career Days



Development Excellence

Quality – Corporate Award Winners
Standard and Best Practices

Leader in Software Development **methodology** and **processes**

Key competencies in Agile, DevOps, Life cycle management, automation, performance testing, and software project management

Competence at **International** Level

Reach Out and Community

Volunteer activities with **students** to promote technology

Collaboration with **IBM Italia Foundation**

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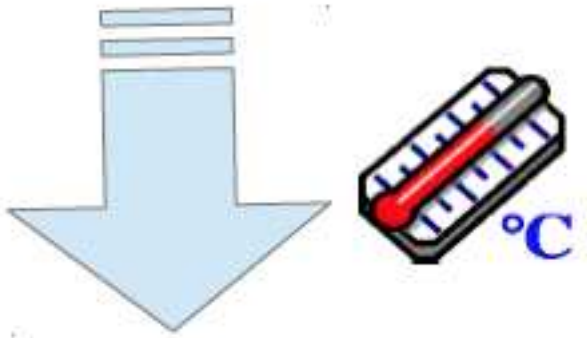
Competition in the SW Industry
(what changed in early 2000s)

The Temperature of the SW Industry
(the new imperatives)



+ Effectiveness = Build the Right Product (since the 1st release)

+ Efficiency = Build the Product Fast (leveraging WW workforce)

= Risks = Build the Product Right (no shortcuts on Quality)

AGENDA

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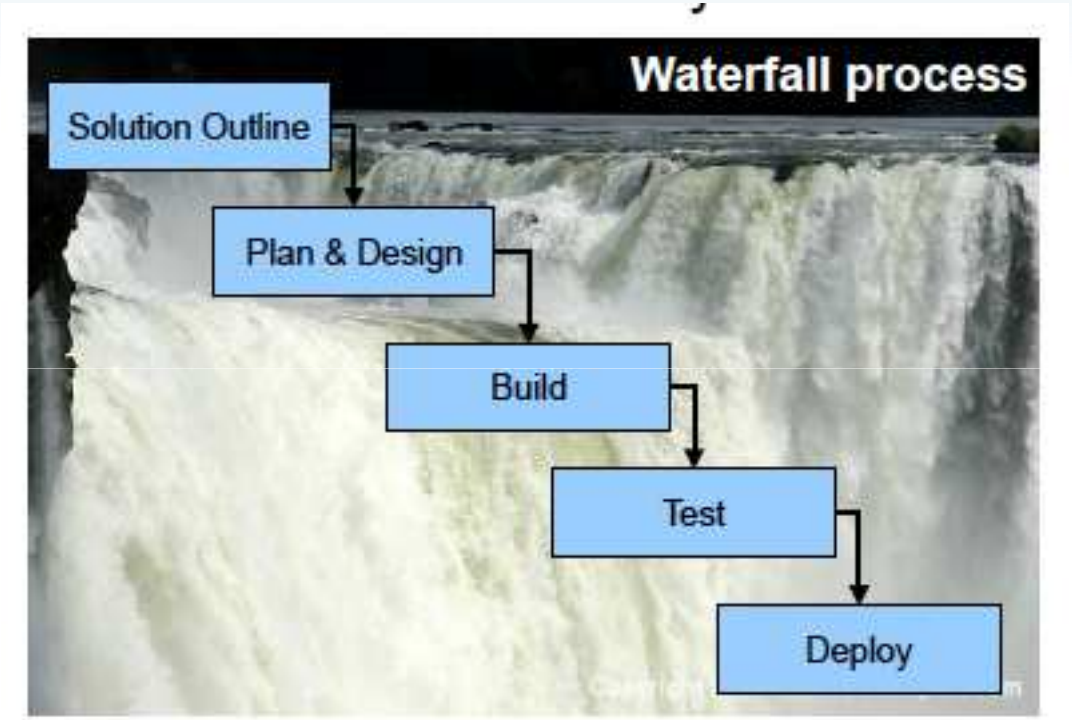
The Waterfall Age



The New Way : Why Agile ?

The problem to solve

"Rapidly provide customers what they need to compete while preserving high-quality deliverables"

The solution

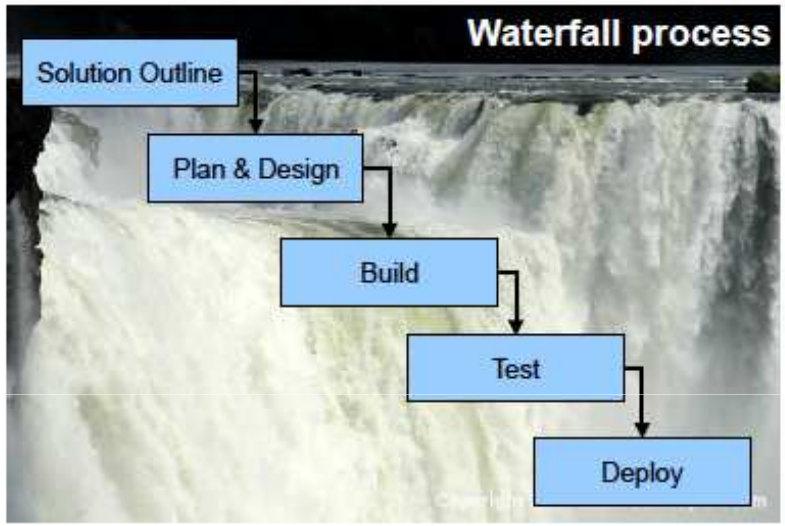
- Deliver business value early and often in the development cycle
- Validate deliverables with customers and integrate requirements as they emerge
- Leverage tight, efficient, self organizing teams

Its implementation

"Disciplined Agile Software Engineering uses...continuous stakeholder feedback to deliver high-quality, consumable code through user stories and a series of short, stable, time-boxed iterations."

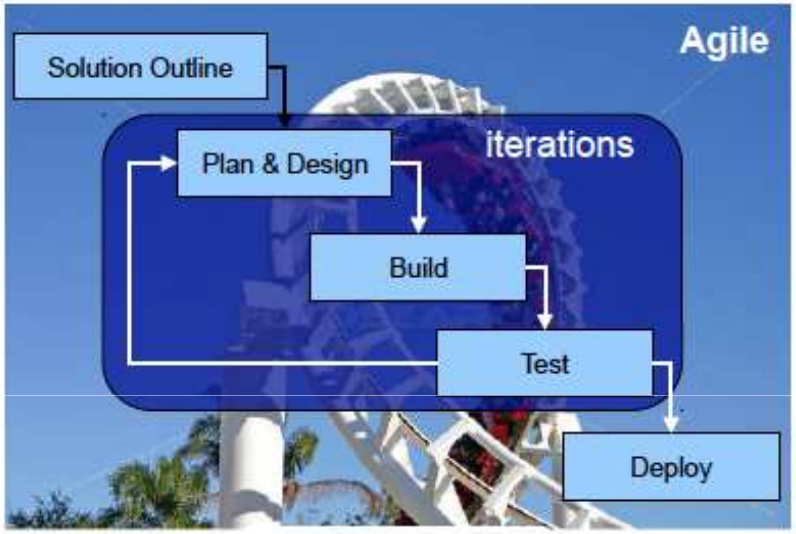
The New Way : Agility in the Development Process

The "old" way



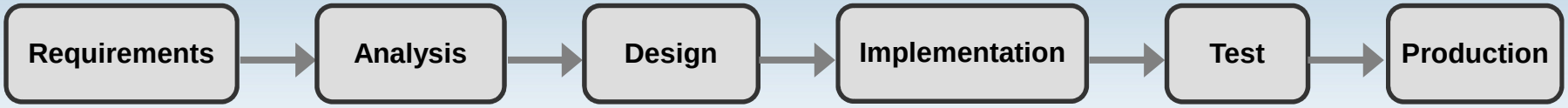
- Long Development Cycle – approx. 2 years per code release
- No flexibility
- Development team in the same location
- Customers involved late in the cycle (only code problems fixed)
- Very expensive to maintain

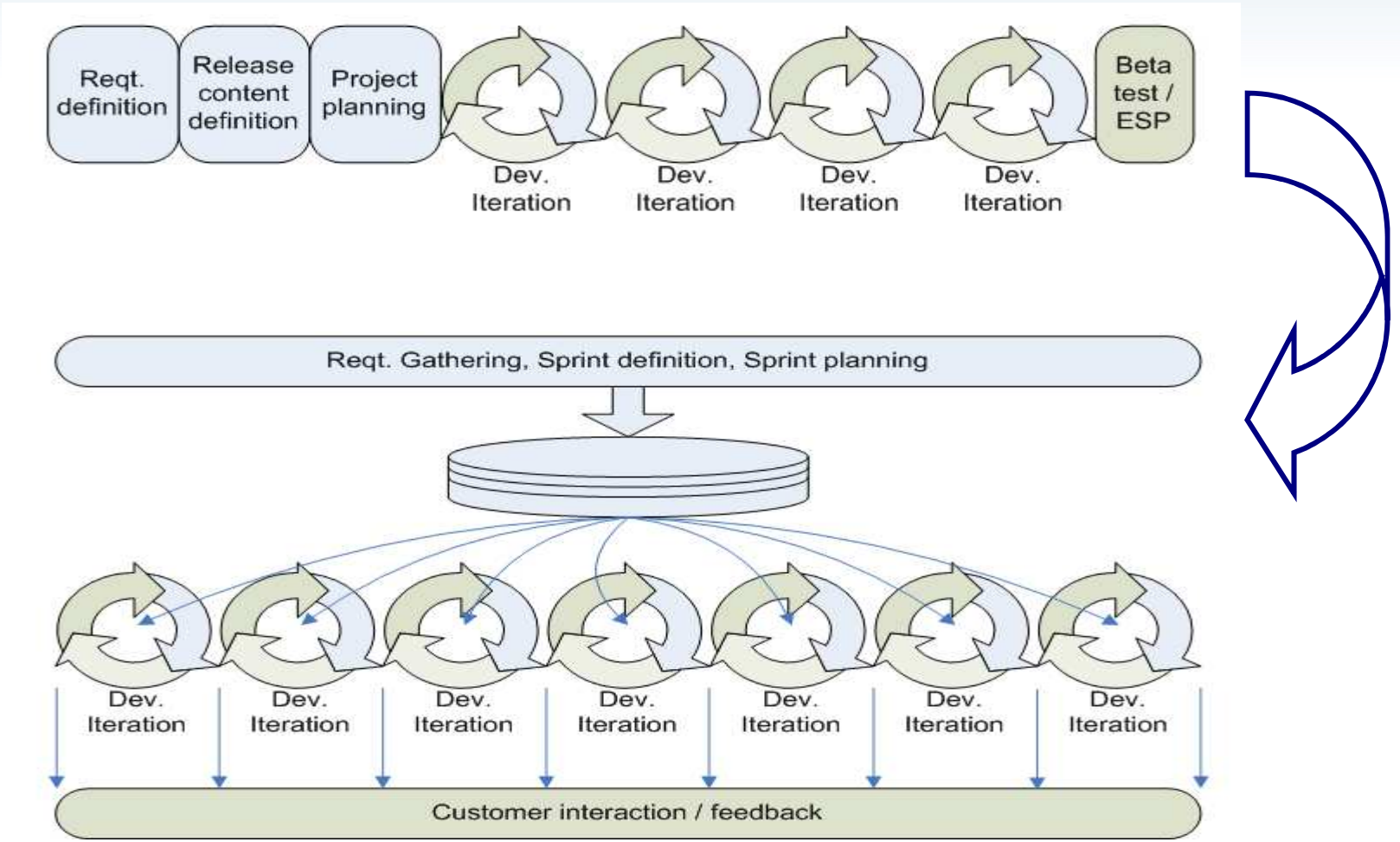
The "new" way



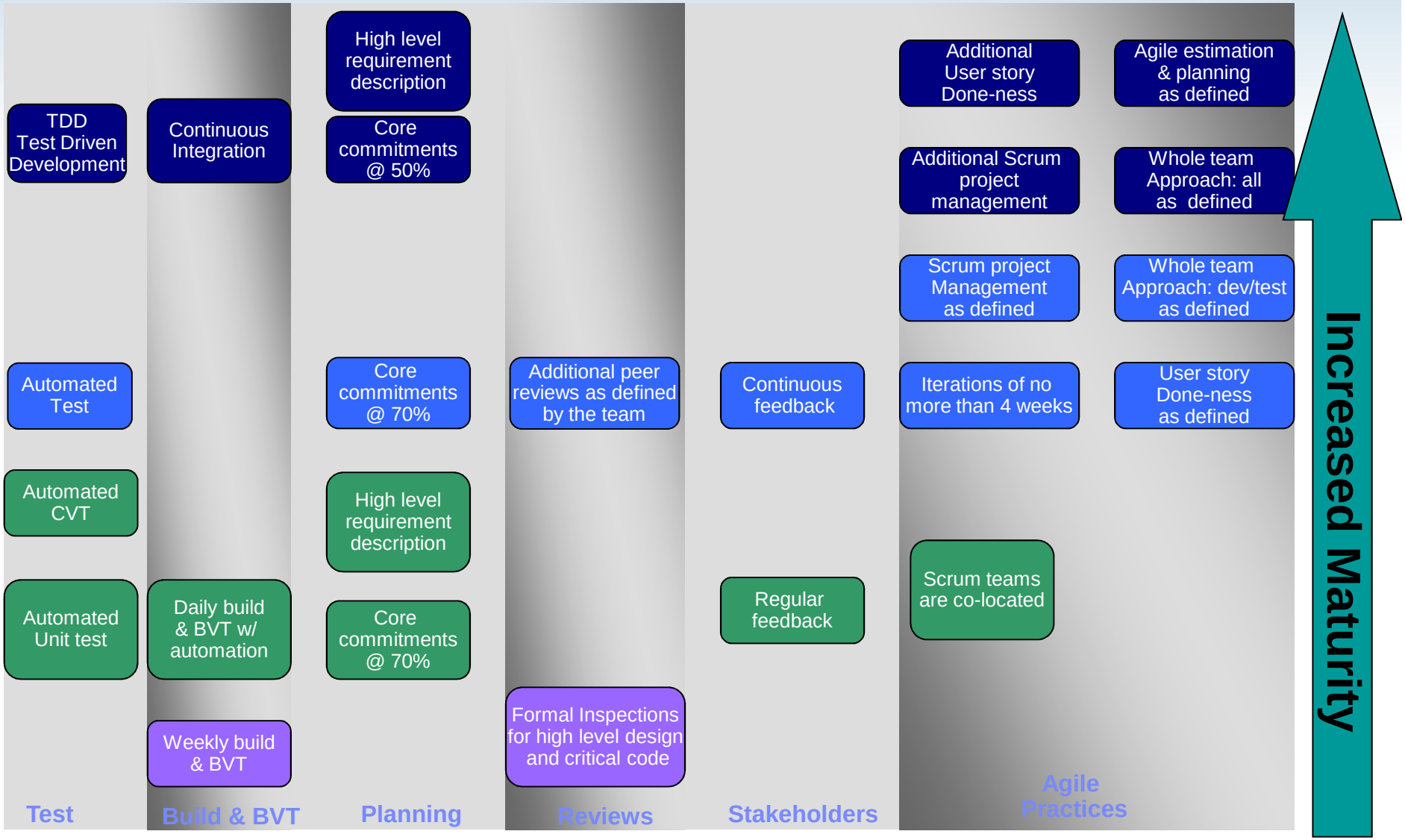
- Short development cycle – new release every 6-9 months
- Flexible development – need to adapt to changing market (and requirements)
- Development team geographically dispersed
- Customers involved during development cycle to verify adherence to requirements
- Several iterations to increase quality and reduce risk

SDLC Models : Iterative to Agile





Agile Development : Best Practices – The Stack



Reaching New Heights

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EQC (required) | Agile Readiness | Agile definition | Agile Best Practice

Agile Champions and Coaching Activities

Who

- Agile Champion, Agile coachers and Virtual Team of developers, testers and ID people

Objectives

- Assess the status of projects against the Agile best practices(The Stack) and discuss the outcomes
- Common glossary: Ensure teams use the same words and definitions for common Agile concepts, to facilitate communication and knowledge sharing
- Best Practices: Identify, from previous experience, what practices can be easily implemented without major effort.
- Foster and evangelize Rome best practices to other teams

How

- Periodic Checks to discuss obstacles
- Education
- Ad-hoc meeting with other teams to share experience

Agile Adoption Roadmap @ RomeLab: real example

Reaching New Heights

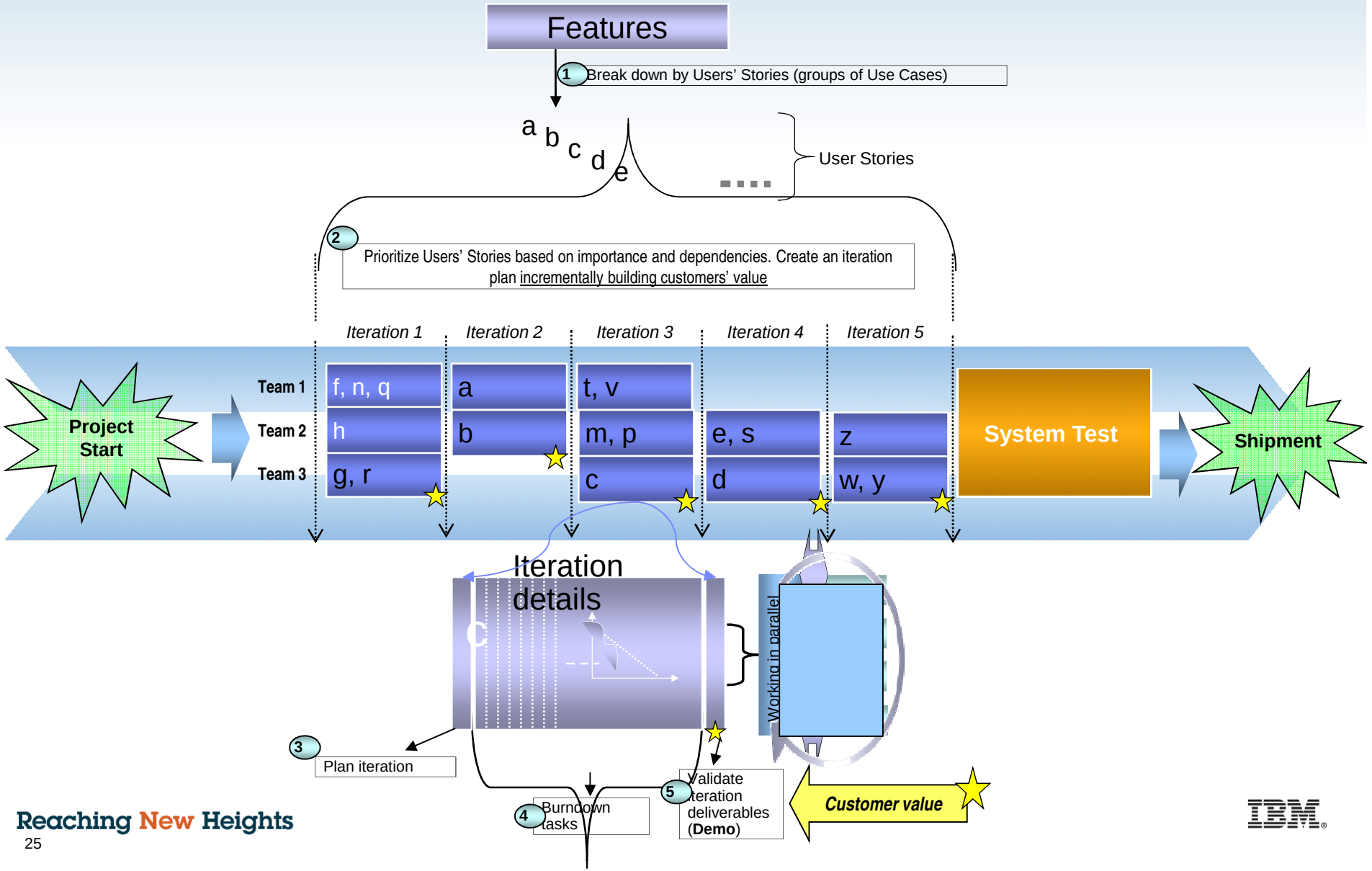
IBM

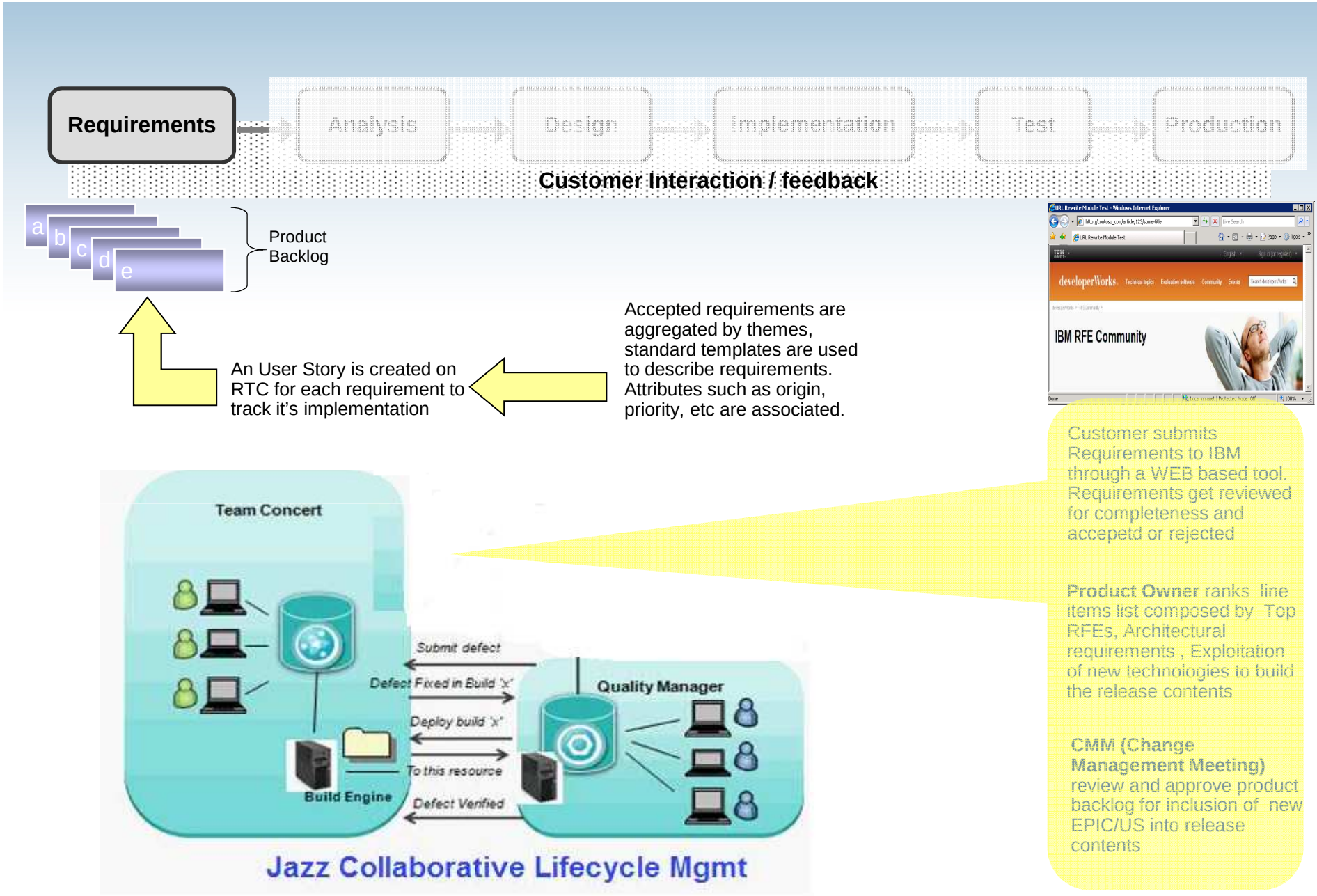
* DDD : Documentation Driven Development

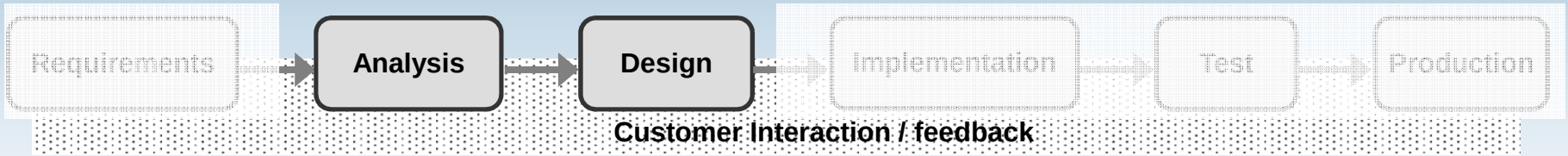
Challenges while implementing Agile in Rome projects

Work with geographically distributed teams	Solution	Assign to co-located teams the ownership to deliver completed and self contained stories
	ROI	Increase in efficiency and productivity
Avoiding each Sprint becoming a "waterfall" kind of iteration	Solution	Define, review and consolidate all the interfaces (CLI, API, GUI etc.) at the beginning of the Sprint (the first 2-3 days)
	ROI	The availability of the interfaces enables the Development, Verification and ID engineers to start working immediately and in parallel on code, test automation and manuals
Product Backlog prioritization & Release Backlog Prioritization	Solution	• Work closely with Prod Mgmt team and at each sprint review Release Backlog priorities • Timebox sprints focusing on prioritized user stories
	ROI	Delivering the right solution to our customers
RTC Adoption (tool used for project management, code management, defects tracking..)	Solution	Pilot.. Pilot .. Pilot.. + Early adopters become evangelist and point of reference for the other teams facing adoption + Continuous Best practices assessment
	ROI	Support effectively agility for both Scrum teams & Project Management teams

Agile@RomeLab – Iteration/Sprint

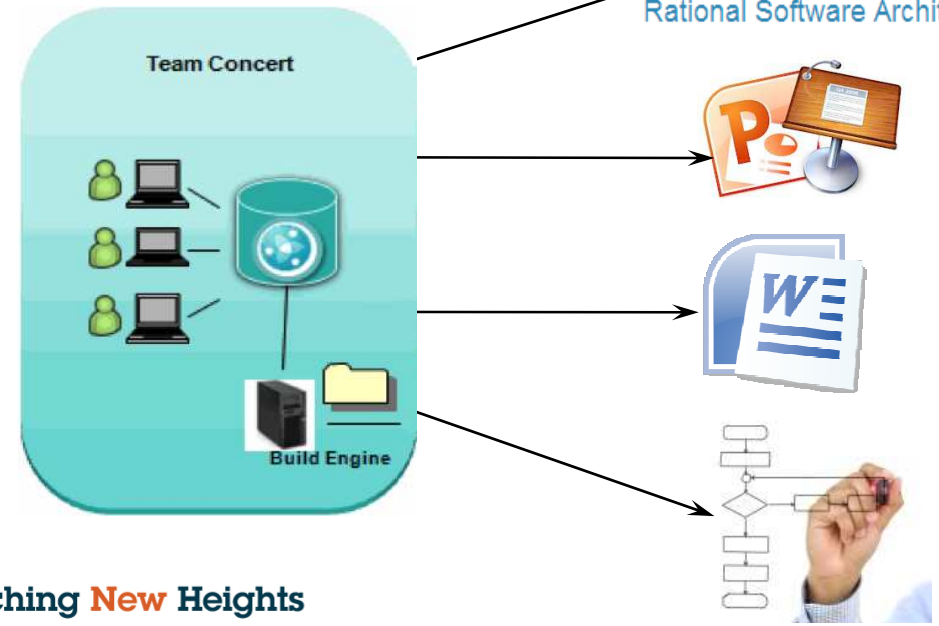


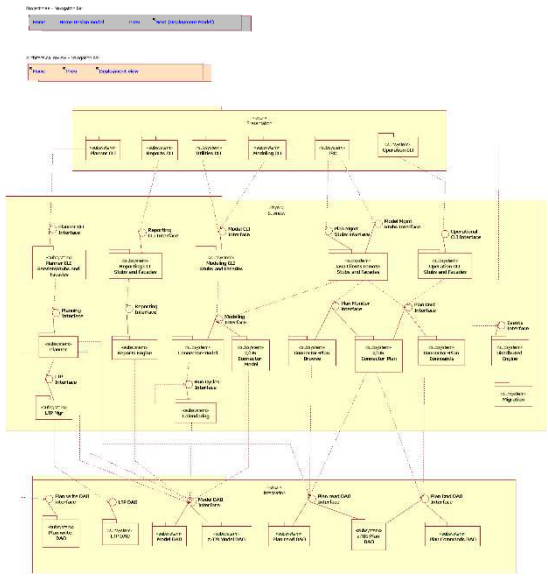

Requirements
Analysis
Design
Implementation
Test
Production
Customer Interaction / feedback
a
b
c
d
e
Product Backlog
An User Story is created on RTC for each requirement to track it's implementation
Accepted requirements are aggregated by themes, standard templates are used to describe requirements. Attributes such as origin, priority, etc are associated.
IBM RFE Community
Customer submits Requirements to IBM through a WEB based tool. Requirements get reviewed for completeness and accepetd or rejected
Product Owner ranks line items list composed by Top RFEs, Architectural requirements , Exploitation of new technologies to build the release contents
CMM (Change Management Meeting) review and approve product backlog for inclusion of new EPIC/US into release contents
Team Concert
Submit defect
Defect Fixed in Build 'x'
Deploy build 'x'
To this resource
Defect Verified
Quality Manager
Build Engine
Jazz Collaborative Lifecycle Mgmt

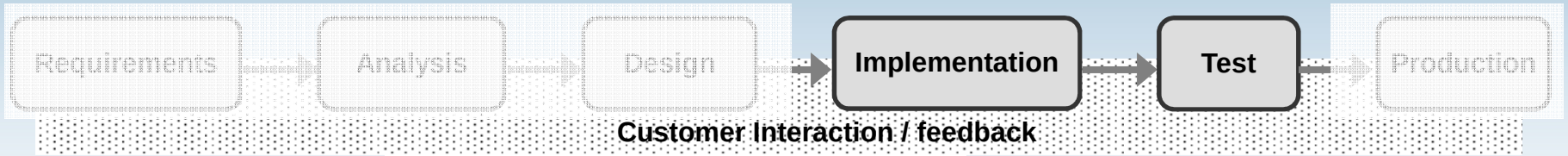


- The analysis phase:
  1. Defines a system structure that will support the system user stories, workitems and sprint
  2. Is independent of implementation details.

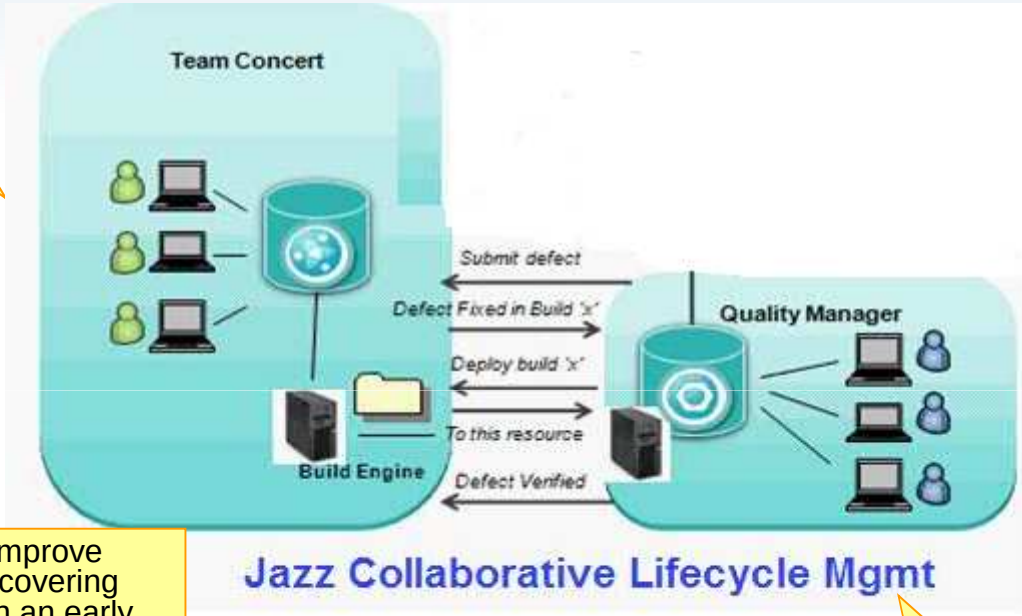
- The Analysis models are input to the design phase
- UML can be used to model the design of the system in terms of layers, subsystems and interfaces (design model) and in components and configurations (deployment model)
- Other models (ppt, doc, pictures) can be used in the desing phase







- **RTC** provides complete development deliverables life cycle management



Purify allows to improve code quality discovering memory leaks in an early phase and optimizing memory managent

Quantify profiles runtime execution and memory usage

Purify

Quantify

Performance Tester

RPT allows to generate user loads via a thin agent. Can be configured to replicate different user types. Automatically identifies correlations of dynamic server response.

RQM provides the core requirements for test process management:

- Test Plan, Test case definitions
- Test execution tracking

IBM

RTC - Project Dashboard Customization

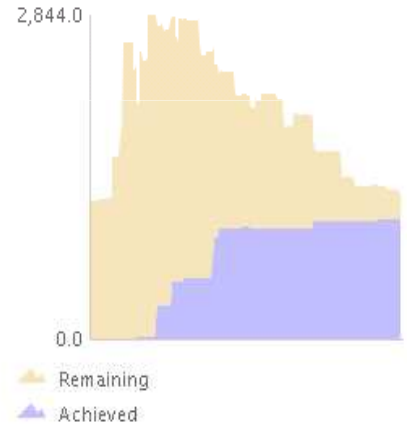
Current TWS Team Plans (4)

Current Iteration: **TWS_91_S8**

- Release Backlog [TWS_9.1]
- Batch Modernization [TWS_91_S8]
- Installation [TWS_91_S8]
- zCore [TWS_91_S8]

Story Points All Teams

Show Parameters



Where we'll fall

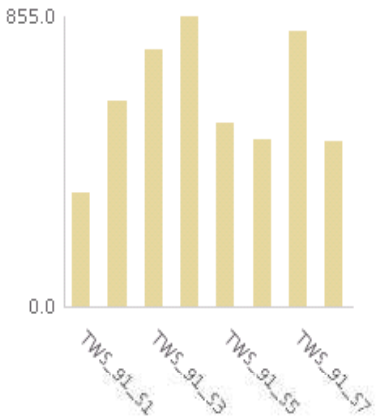
Where we'll fall Velocity by Priority Weight

TWA 9.1 Release Plan

TWA 9.1 Release Backlog

Story Points by Iteration

Show Parameters

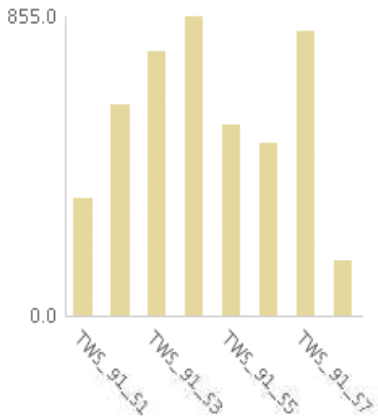


Defect Incoming by Sprint

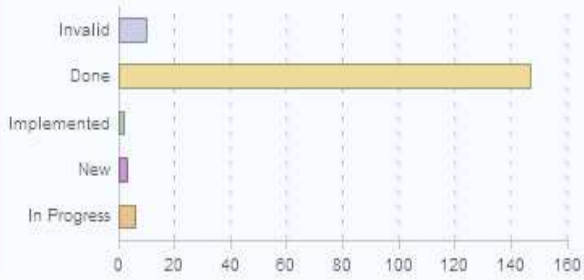
- TWS 9.1 - Distr - CVT Incoming Sprint 1 (60)
- TWS 9.1 - zOS - CVT Incoming Sprint 1 (11)
- TWS 9.1 - Distr - CVT Incoming Sprint 2 (172)
- TWS 9.1 - zOS - CVT Incoming Sprint 2 (62)
- TWS 9.1 - Distr - CVT Incoming Sprint 3 (128)
- TWS 9.1 - zOS - CVT Incoming Sprint 3 (53)
- TWS 9.1 - Distr - CVT Incoming Sprint 4 (202)
- TWS 9.1 - zOS - CVT Incoming Sprint 4 (79)
- TWS 9.1 - Distr - CVT Incoming Sprint 5 (194)
- TWS 9.1 - zOS - CVT Incoming Sprint 5 (62)
- TWS 9.1 - Distr - CVT Incoming Sprint 6 (225)
- TWS 9.1 - zOS - CVT Incoming Sprint 6 (86)
- TWS 9.1 - Distr - CVT Incoming Sprint 7 (216)
- TWS 9.1 - zOS - CVT Incoming Sprint 7 (115)

Team Velocity All Teams

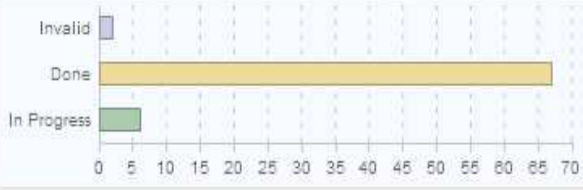
Show Parameters



TWS 9.1 Base Contents (168) Status



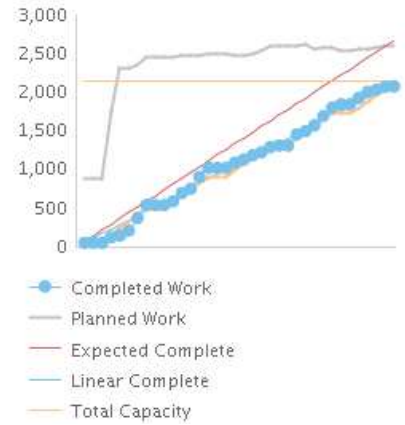
TWS 9.1 Extended Contents (75) Status



Sprint “burnup”

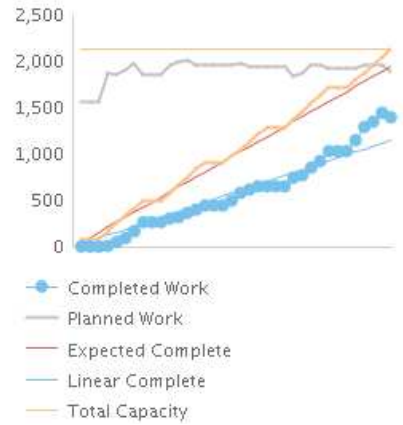
Burnup Z Core (Z Core Team)

Show Parameters



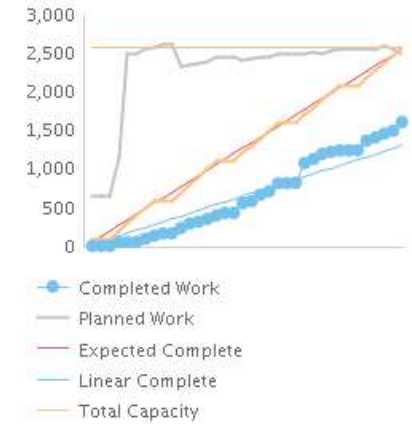
Burnup Agent (Batch Modernization Team)

Show Parameters



Burnup Installation Team

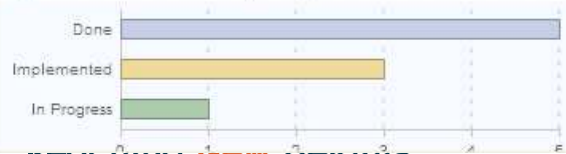
Show Parameters



zCore Stories - Current Sprint (9)

- 78814: TWSz: zos connector porting on zWAS
- 78574: TWSz 9.1: Tape preparation
- 78501: Reports on Workload Service Assurance (WSA) - z/OS
- 75757: TEP integration - Replace of UA
- 74360: Improve Usability and publish Gendays via PIF
- 71236: ID - Multiple Matching criteria - Define Matching Criteria
- 61745: TWSz Installation -Release Changes
- 55575: Multiple Matching criteria - MCP Multiple Criteria and Mandatory SUCCESSORS resolution
- 54048: SR 26: Enable faster restart of CONTROLLER at remote location using "WARM STANDBY" techniques

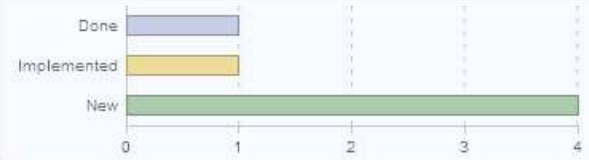
zCore Stories Current Sprint (9) Status



Agent Stories - Current Sprint (6)

- 68741: Export plan tables for L3 support
- 72578: Run Cycle Groups: test automation from composer
- 72721: Testing on WAS 8.5.5
- 78681: Sprint 7 debts
- 76481: SMC: LAM User Registry (AIX)
- 76529: SMC: 64bit support for JobManager and ITA on HP Itanium

Agent Stories Current Sprint (6) Status



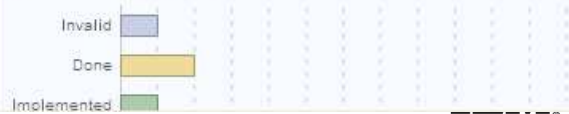
Agent Tasks Current Sprint (39) Status

Inst Stories - Current Sprint (16)

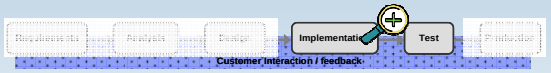
- 78692: L3 input about the Installation 9.1
- 78628: Check prerequisites for 9.1 release (Master/Agent/TDWC)
- 78627: Bundling definition for 9.1 release
- 78626: Dummy Fixpack for 9.1 release
- 78289: Drop support for dynamic agent on HPUX
- 71476: Miscellaneous
- 63224: TEM: Solution Upgrade Scenario
- 62516: Java Extension Promotion
- 62327: SR 59: Utility to reset permissions and ownership of all TWS files and directories
- 62214: Upgrade DDM

Page 1 of 2

Inst Stories Current Sprint (16) Status



Customer interaction: Typology and Timing



Feedback by Activity and Originator (Customer):

Naming Conventions for SMC Workitems

1: Naming Convention.

All items should use the following Name Prefix "SMC:"

2: Tags

All items should use the following tags:

Tag 1 "smc" *[indicates program]*

Tag 2 Customer Name (all lowercase with no space) . Use "ibm" for internal customers.

Tag 3 "demo", "usability", "beta" *[indicates activity]*

3: Phase Found

For defects instead of Tag3 use one of the following values of "Phase Found" :

- Sprint Demo
- Beta
- UAT (Usability Test with customers)

Control - CCP Workitems (0)

No work items found.

Work Item by IBMrs vs External Customer

TWS 9.1 - SMC Work Items opened by IBMrs (39)

TWS 9.1 - SMC Work Items open by Customers (13)

Work Item by Customer

TWS 9.1 - SMC Work Items (internal) (25)

TWS 9.1 - SMC Work Items (Metlife) (2)

TWS 9.1 - SMC Work Items (San Paolo) (5)

TWS 9.1 - SMC Work Items (smpo) (14)

TWS 9.1 - SMC Work Items (ing) (2)

TWS 9.1 - SMC Work Items (atp) (2)

TWS 9.1 - SMC Work Items (bdi) (1)

TWS 9.1 - SMC Work Items (intesa) (1)

Work Item by Activity

TWS 9.1 - SMC Sprint Demo Defects (2)

TWS 9.1 - SMC Sprint Demo Stories (42)

TWS 9.1 - SMC Usability Defects (0)

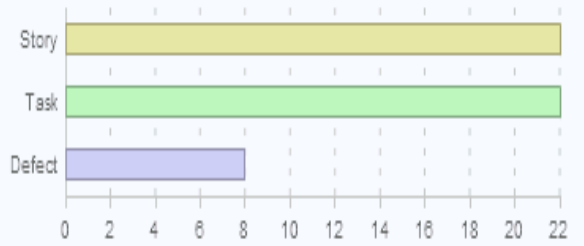
TWS 9.1 - SMC Usability Stories (1)

TWS 9.1 - SMC Interaction (Beta) Defects (6)

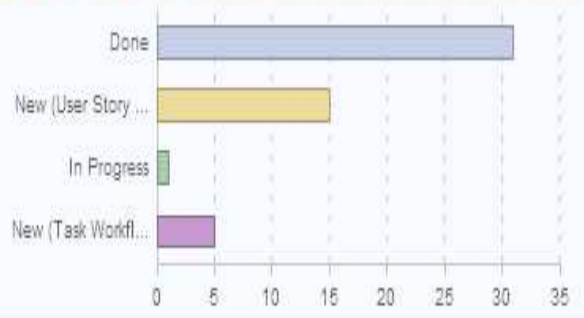
TWS 9.1 - SMC Interactions (Beta) Stories (1)

Feedback by Type and Status:

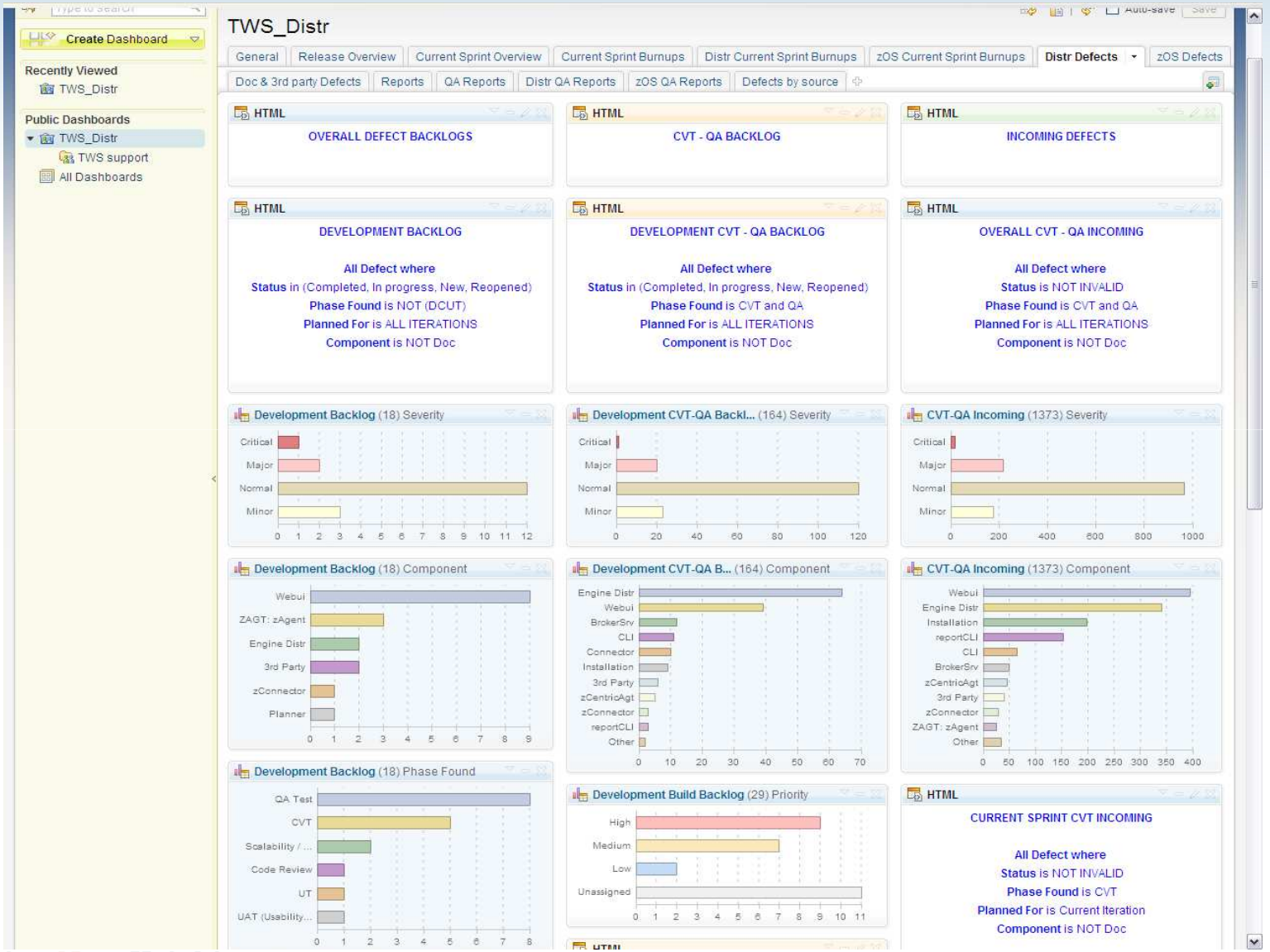
SMC Work Items (52) Type



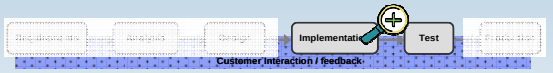
SMC Work Items (52) Status



Defects Distribution tab



Release Contents Outlook



Rational Team Concert — Anna Maria

Dashboards | Project Areas | Work Items | Plans | Source Control | Builds | **Reports** | Admin

Create Report

My Reports

Shared Reports
- Build
- Custom Reports
  - Defect Cumulative Incoming
  - Defect Fixing For Current Sprint
  - Defect Incoming by
- Work Items
  - Work Items by Owner

Include Archived

Admin
Administer Data Warehouse
Administer SCM Snapshot

Where we'll fall

ID	TYPE	SUMMARY	STORY POINT	PRIORITY	PLANNED FOR
3312	Epic	FN01: Support new job types out-of-the-box	85	1-High	TWS 8.6
3313	Epic	FN15: Standard Agent for z/OS (aka Distributed Driven)	5	2-Medium	TWS 8.6
3315	Epic	FN02: Cross-dependencies between TWSz-TWSd and	110	1-High	TWS 8.6
6122	Epic	FN03: Dynamic Scheduling from TWSz	40	1-High	TWS 8.6
11080	Epic	US02 Primary ISPF improvements	53	1-High	TWS 8.6
6125	Epic	FN01: New executors driven by Z	60	1-High	TWS 8.6
3315	Epic	FN02: Cross-dependencies between TWSz-TWSd and TWSz-TWSz	73	1-High	TWS 8.6
3518	Epic	Installation	100	2-Medium	TWS 8.6

Total story points: 781.0

Done story points: 445.0

Total **TO DO** story points: **336.0**
Total **green** story points: **103.0**
Total **yellow** story points: **60.0**
Total **red** story points: **173.0**

Transparent Development

- Ongoing, open engagement between external users and development on the development of products.
- Provides a view of release information, access to early designs, code downloads, sprint demos, and product roadmaps.
- No approval process for external users to access transparent development content.
- The platform for transparent development is Service Management Connect.

View Real-Time Status

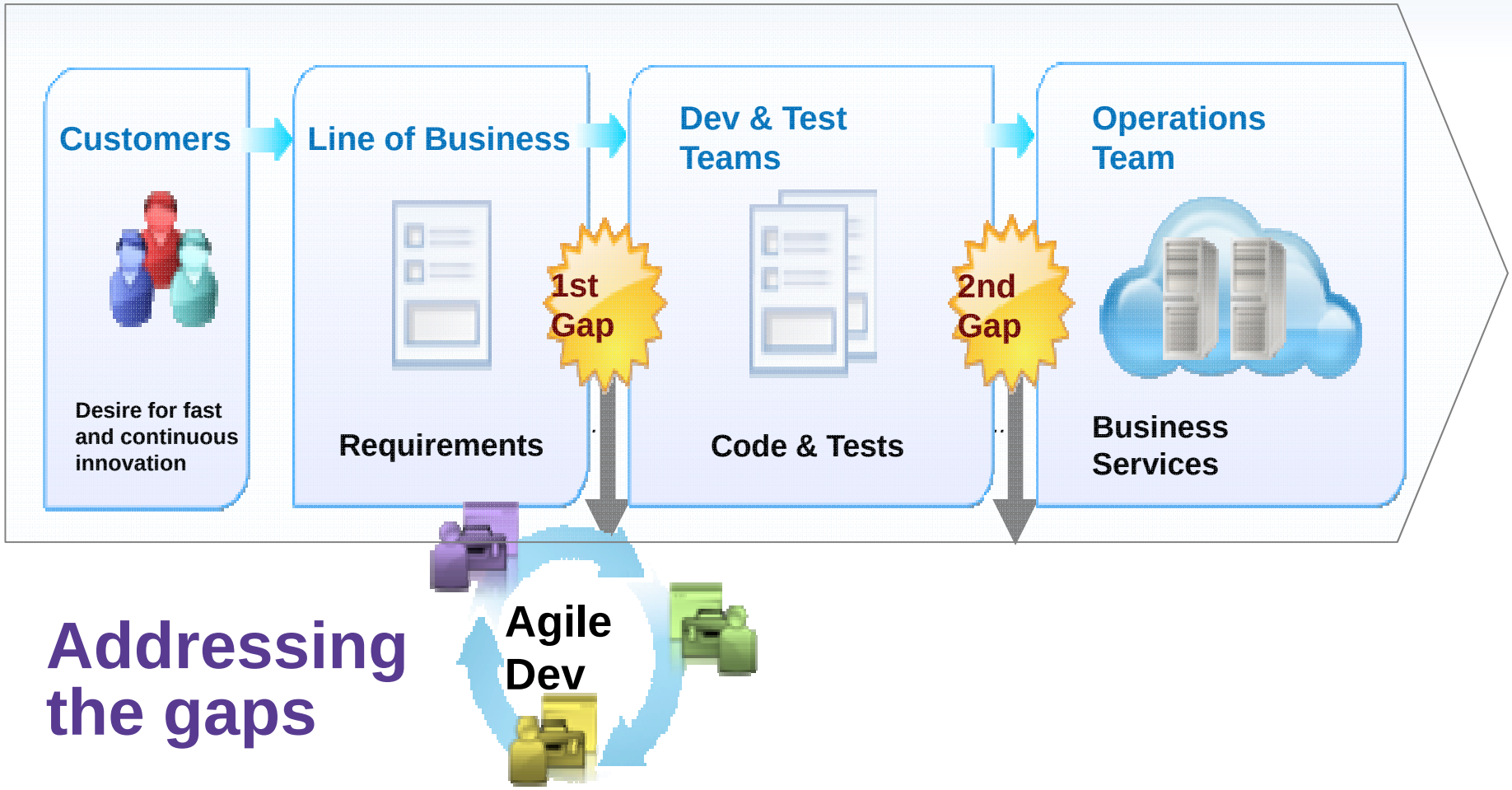
- Priority of development plan item
- Updates to the plan item description
- Progress of the development
- Comments from clients and development team

Make an Impact

- Provide comments to the development team
- Vote on plan items
- Report defects on product forums

New Delivery Challenges : The new age of DevOps

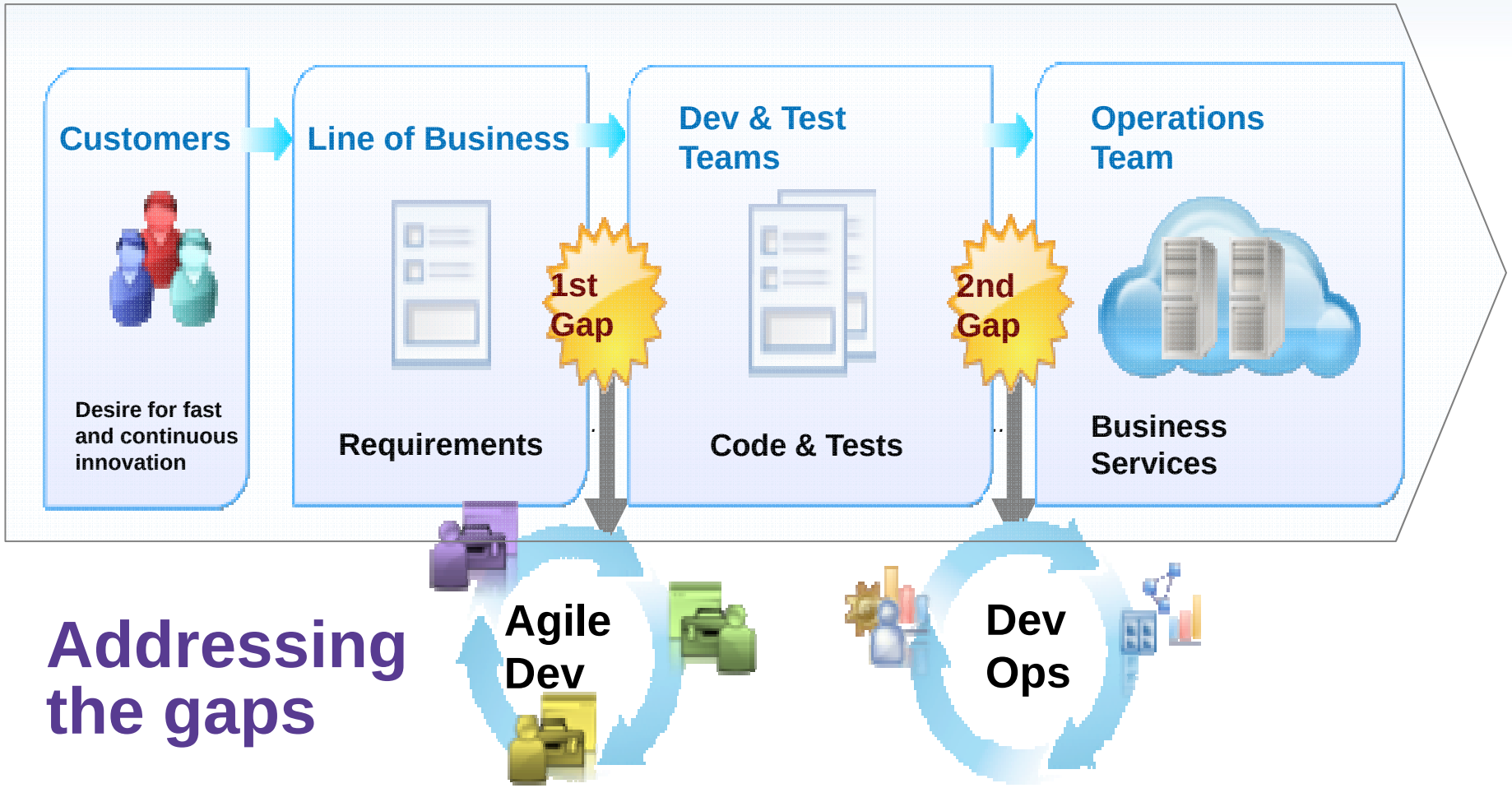
Today's business and technical needs are pushing traditional delivery approaches to the breaking point



Addressing the gaps

Delivery Challenges

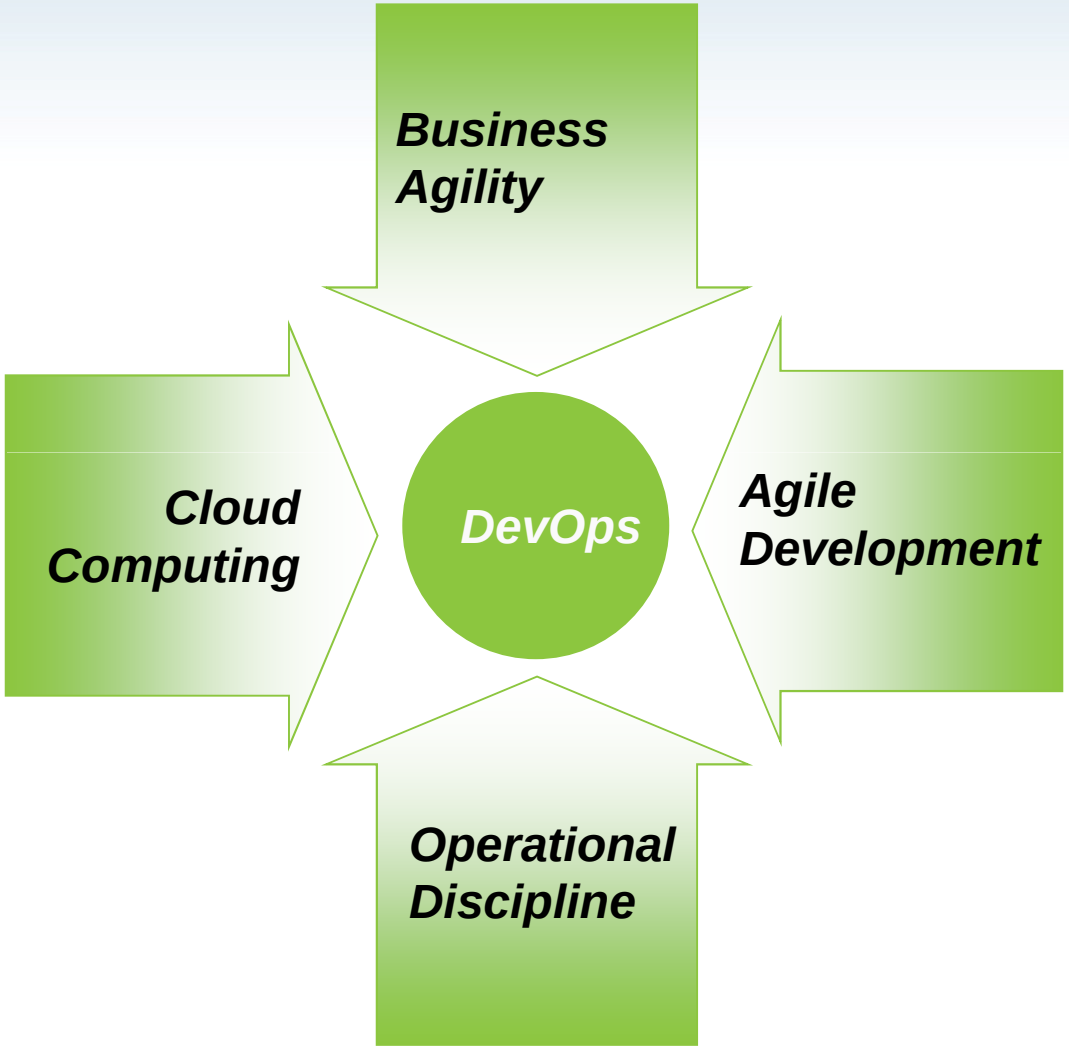
Today's business and technical needs are pushing traditional delivery approaches to the breaking point



Addressing the gaps

DevOps: The time is now

Four key drivers are making DevOps an imperative for all organizations.



How do we make this happen?

Automate *Everything*

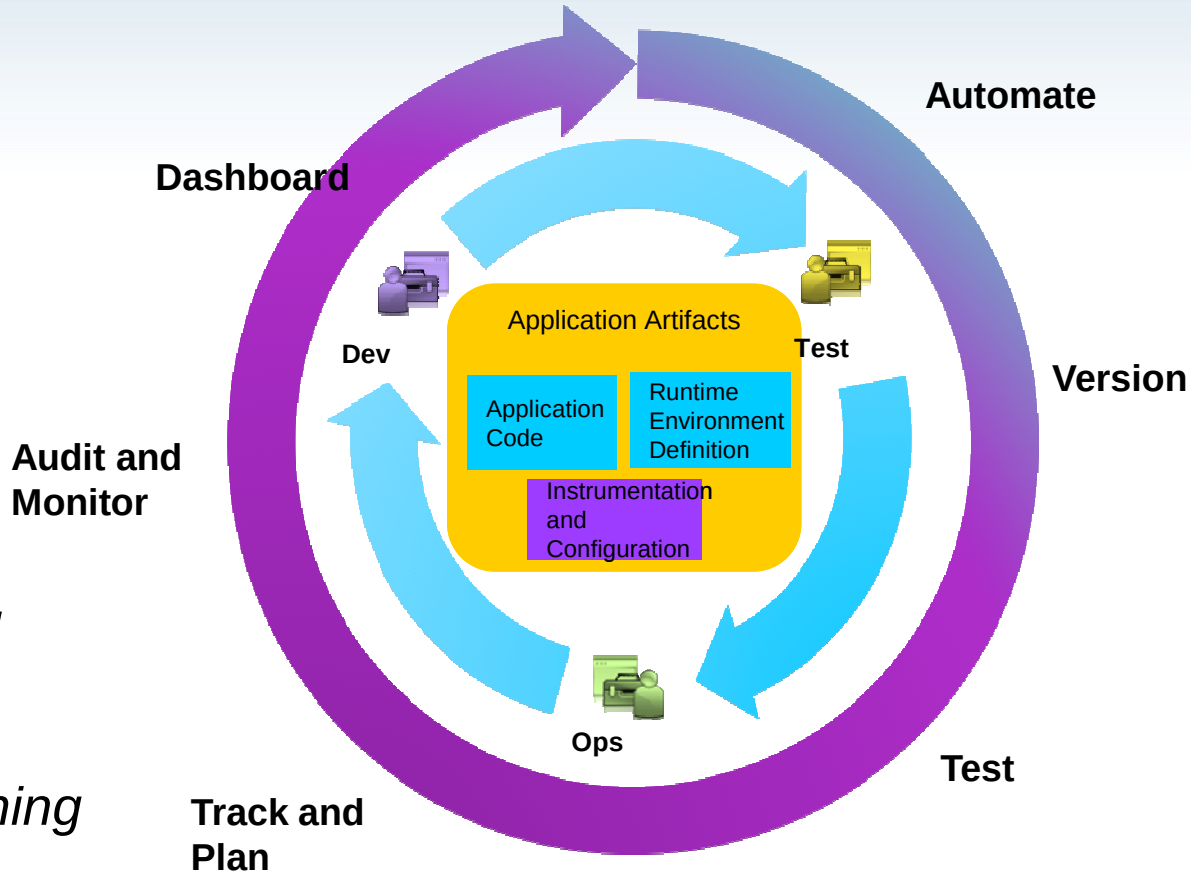
Version *Everything*

Test *Everything*

Track and Plan *Everything*

Audit and Monitor *Everything*

Dashboard *Everything*



AGENDA

1. Breve introduzione del Laboratorio SW di Roma
2. Evoluzione dell' Industria del SW
3. Sviluppo applicazioni per grandi aziende
4. **Progetti di collaborazione con le Università**

Reaching New Heights

IBM

Progetti di collaborazione Con le Università

01

Collaborazione

02

Research as a service

01

Collaborazione

Progetti di sviluppo con le Università

- *IBM collabora anche in progetti di ricerca con le Università a livello mondiale*

IBM worldwide programs

IBM Academic Initiative
IBM Academic Initiative is a global program that offers no-charge access to resources to help faculty strengthen their educational programs so their students can compete in the job market of any industry. Become a member today.

University research, collaboration, and awards
IBM has a strong tradition of research collaboration with academia in universities around the world. IBM can help you advance your academic research, explore new opportunities, and connect with colleagues and programs worldwide.

IBM Watson
With its historic victory on Jeopardy!, IBM Watson ushered in breakthrough technology involving cognitive systems that can transform how organizations think, operate and decide. Prepare your students for this new era in computing.

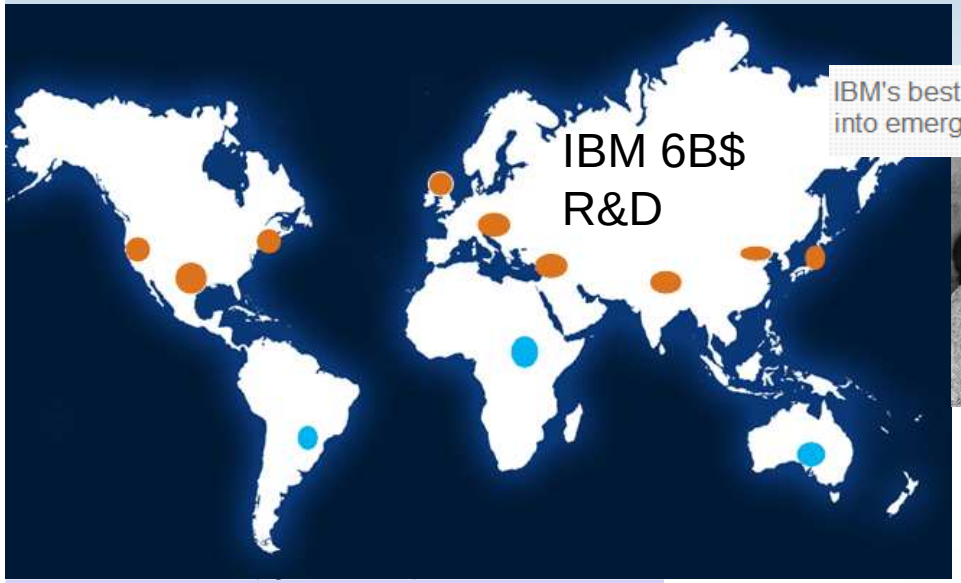
Students for a Smarter Planet
Locally-based and student-led, these organizations are collaborating with other student groups, professionals, and policy makers to develop and implement innovative solutions that impact the world around us.

Business solutions for education
Meet education's toughest challenges: budget cuts, demand for specialized skills, and complexity created by alternative learning paths. Transform your institution with IBM hardware, software, and services.

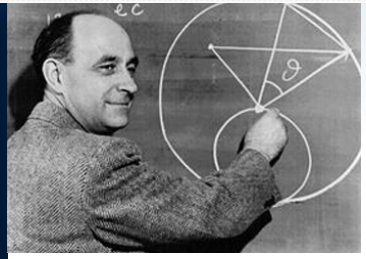
02

Research as a service

Research as a Service



IBM's best and brightest share insights into emerging subject areas and technologies



CNR & Università

Idee e soluzioni

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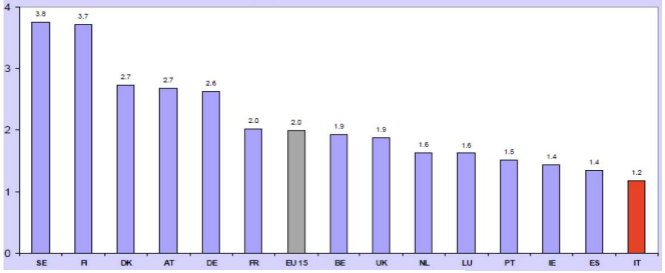

IBM Italy
Research as a
Service unit

Ventur capitalist,
Incubator, banche

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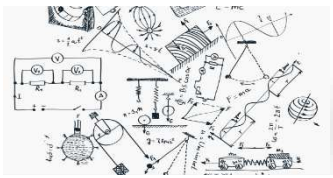
R&D vs PIL
innovation gap
Aziende italiane

Idee e Problemi



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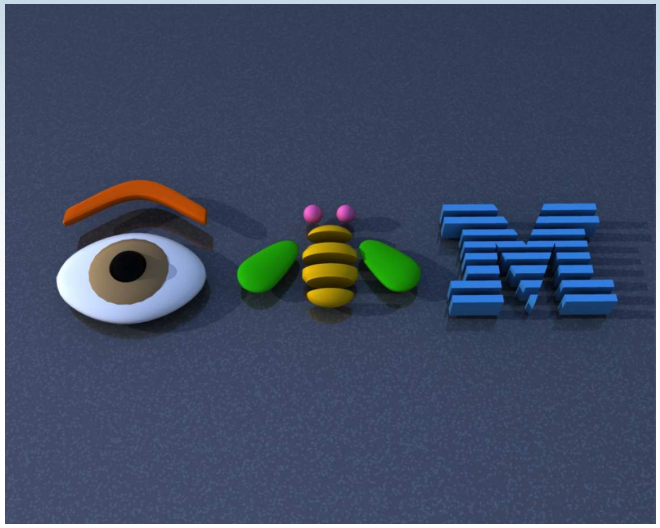
Incentivi
Vouchers



Thank You