Innovate2010

The Rational Software Conference

Let's build a smarter planet.

# *Delivering Innovations with the Labs*

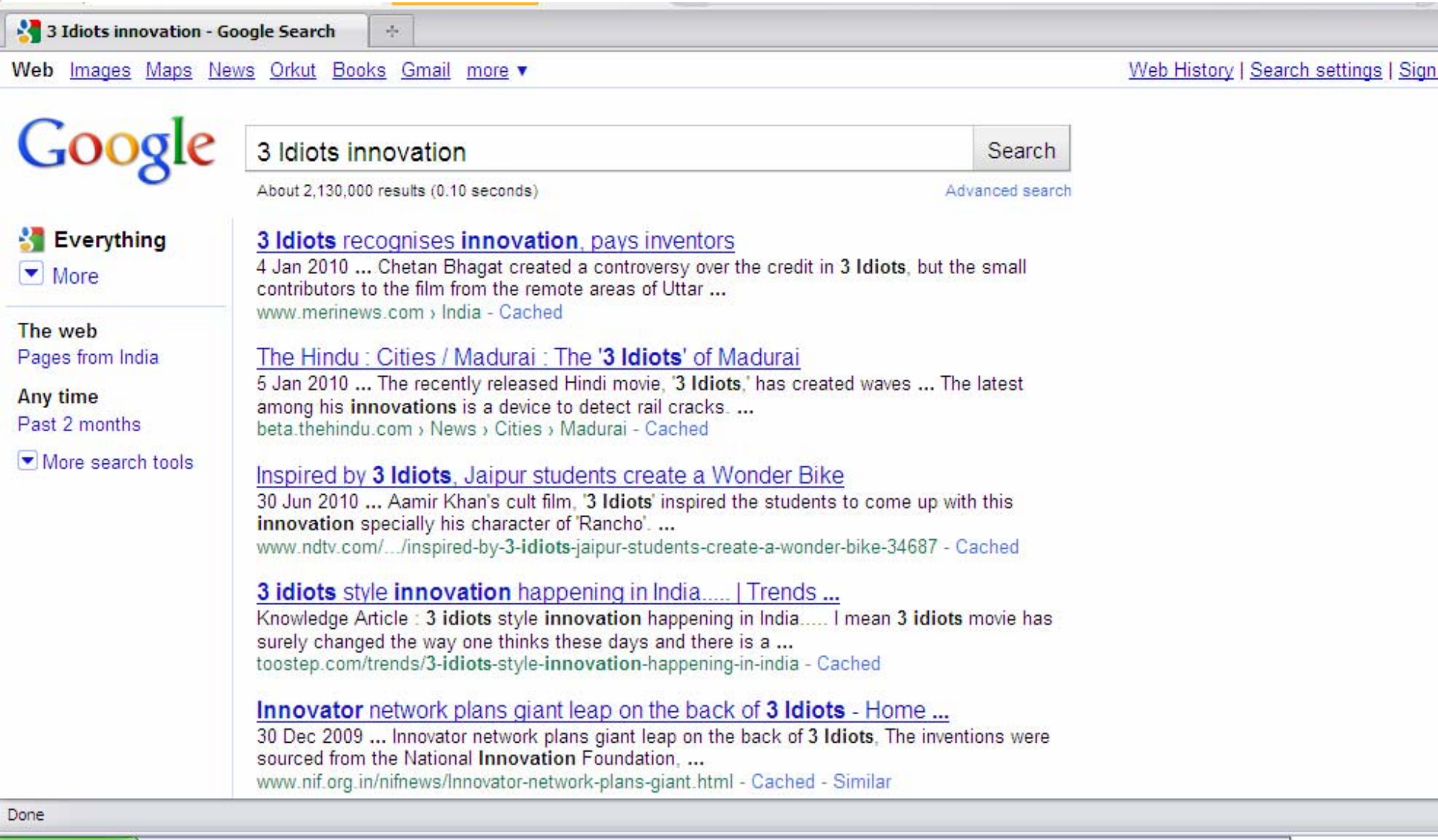
**Dr P. Gopalakrishnan,**

***Vice President , IBM India Software Labs***

# Innovation Defined

Innovation resides at the intersection of invention and insight, leading to the creation of social and economic value.

National Innovation Initiative


3 Idiots innovation - Google Search
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About 2,130,000 results (0.10 seconds)
Advanced search
Everything
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3 Idiots recognises innovation, pays inventors
4 Jan 2010 ... Chetan Bhagat created a controversy over the credit in 3 Idiots, but the small contributors to the film from the remote areas of Uttar ...
www.merinews.com › India - Cached
The Hindu : Cities / Madurai : The '3 Idiots' of Madurai
5 Jan 2010 ... The recently released Hindi movie, '3 Idiots,' has created waves ... The latest among his innovations is a device to detect rail cracks. ...
beta.thehindu.com › News › Cities › Madurai - Cached
Inspired by 3 Idiots, Jaipur students create a Wonder Bike
30 Jun 2010 ... Aamir Khan's cult film, '3 Idiots' inspired the students to come up with this innovation specially his character of 'Rancho'. ...
www.ndtv.com/.../inspired-by-3-idiots-jaipur-students-create-a-wonder-bike-34687 - Cached
3 idiots style innovation happening in India..... | Trends ...
Knowledge Article : 3 idiots style innovation happening in India..... I mean 3 idiots movie has surely changed the way one thinks these days and there is a ...
toostep.com/trends/3-idiots-style-innovation-happening-in-india - Cached
Innovator network plans giant leap on the back of 3 Idiots - Home ...
30 Dec 2009 ... Innovator network plans giant leap on the back of 3 Idiots, The inventions were sourced from the National Innovation Foundation, ...
www.nif.org.in/nifnews/Innovator-network-plans-giant.html - Cached - Similar
Done

# The Changing Nature and Scope of Innovation

Open

Collaborative

Product and Services Innovation

Process Innovation

Business Model Innovation

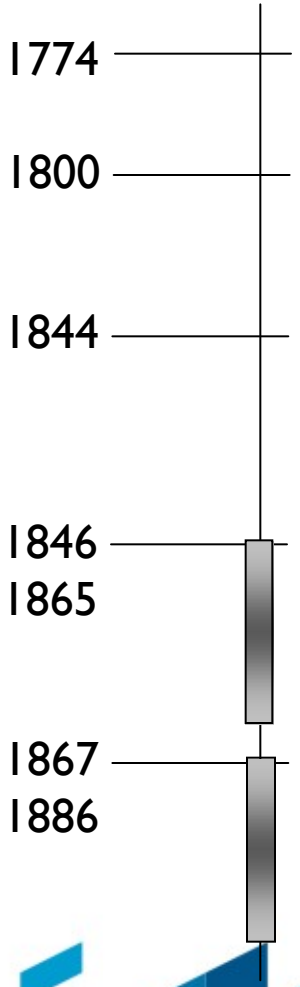
Societal Innovation

Multi-disciplinary

Global

# Technology Maturity: Historical pattern

***Example: The Telegraph***



1774 — Lesage builds first telegraph

1800 — Volta's battery

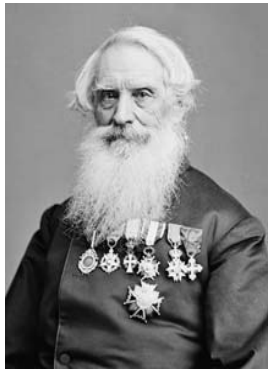
1844 — U.S. Government experimental telegraph line between Washington D.C. & Baltimore. Morse sends the first message

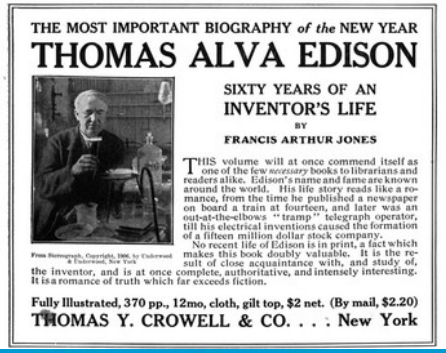
1846
1865 — U.S. Government, Army & Railroads build telegraph infrastructure

1867
1886 — Patenting doubles, Thomas Edison and others develop & patent improvements, new applications (e.g., sending pictures over a telegraph, controlling devices via telegraphy)

**Other Examples:**

- Automobiles
- Fixed Wing Flight
- Electrical Utilities
- Semiconductors
- Networking





# Historical pattern of technology adoption

**Invention**

- Research scientists
- Experimental
- Fundamental scientific investigations

**Implementation**

- Technology demonstration
- Emergence of early pioneers ad adopters
- Customized solutions
- New designs enable volume production
- Process improvements
- Infrastructure build up to support growth
- Incremental product innovation
- Yield optimization
- Standardization
- Ubiquity

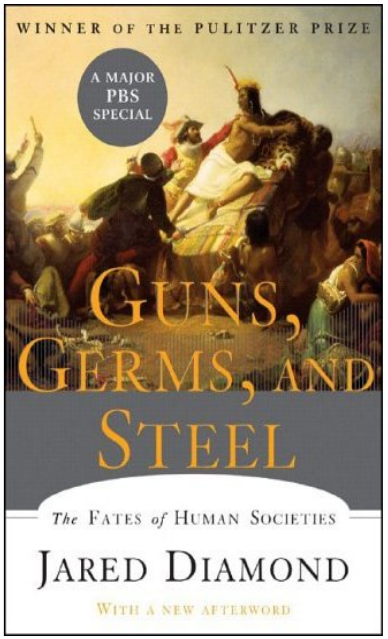
**Proliferation**

- Applications and solutions
- Technology utilized in fundamentally new ways
- New value models built on ubiquitous technologies

# Invention is the mother of necessity?

"*My two main conclusions are that technology develops cumulatively, rather than in isolated heroic acts, and that it finds most of its uses after it has been invented, rather than being invented to meet a foreseen need .*"

Jared Diamond, *Guns, Germs, and Steel*




## Factors influence the acceptance of an innovation

1. Relative economic advantage
2. Social value and prestige that might override economic benefit
3. Compatibility with vested interest
4. Ease with which their advantage can be observed

# Technology Innovations from IBM

MCIF

System of Systems

Workbenches

Automated Process Lifecycle

Measured Improvement

Productivity Analytics

Cloud Computing

Collaborative Lifecycle Management

Collaborate Automate Improve

Asset Reuse

Security and Compliance

Business Planning and Transformation

Agility @ Scale

Asset Management and Operations

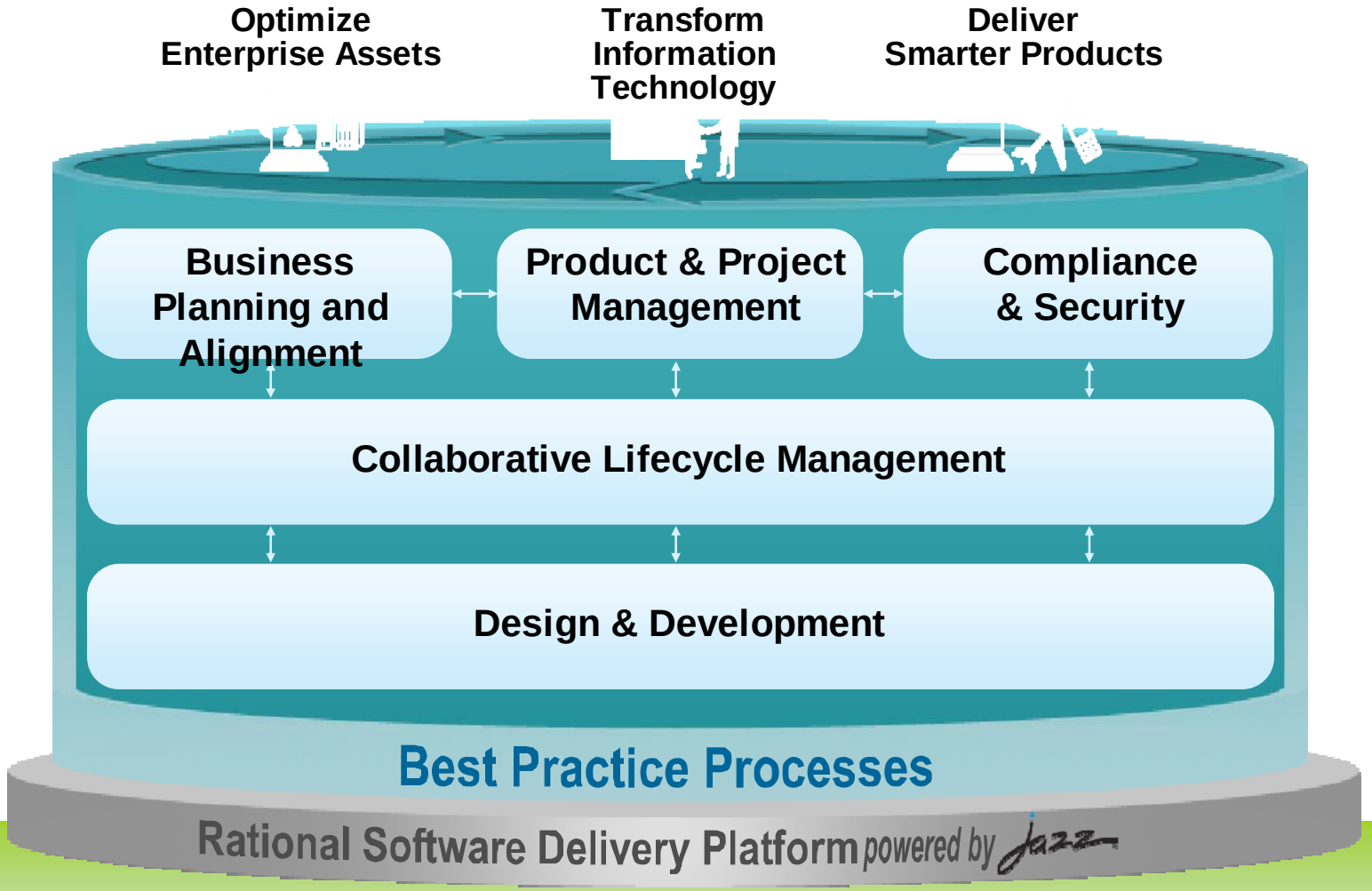
Asset management

Business Planning and Alignment

Jazz

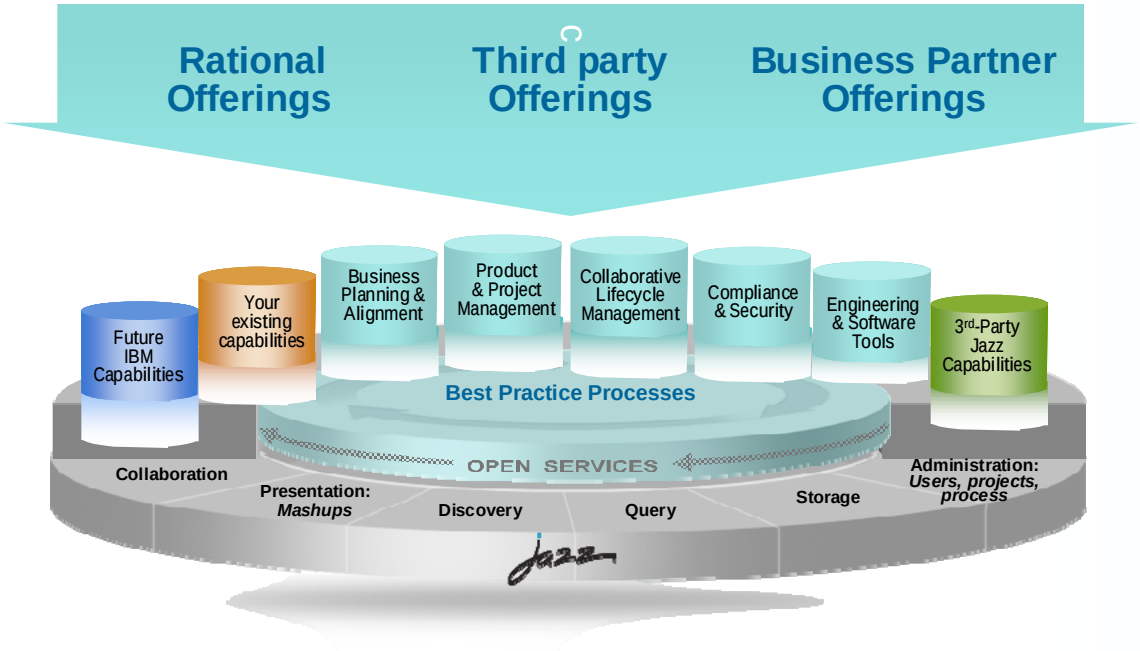
Enterprise Architecture

# IBM Rational Software Delivery Platform




*IBM and Business Partner Ecosystem*

# An Integrated Delivery Community & Lifecycle for desired outcomes

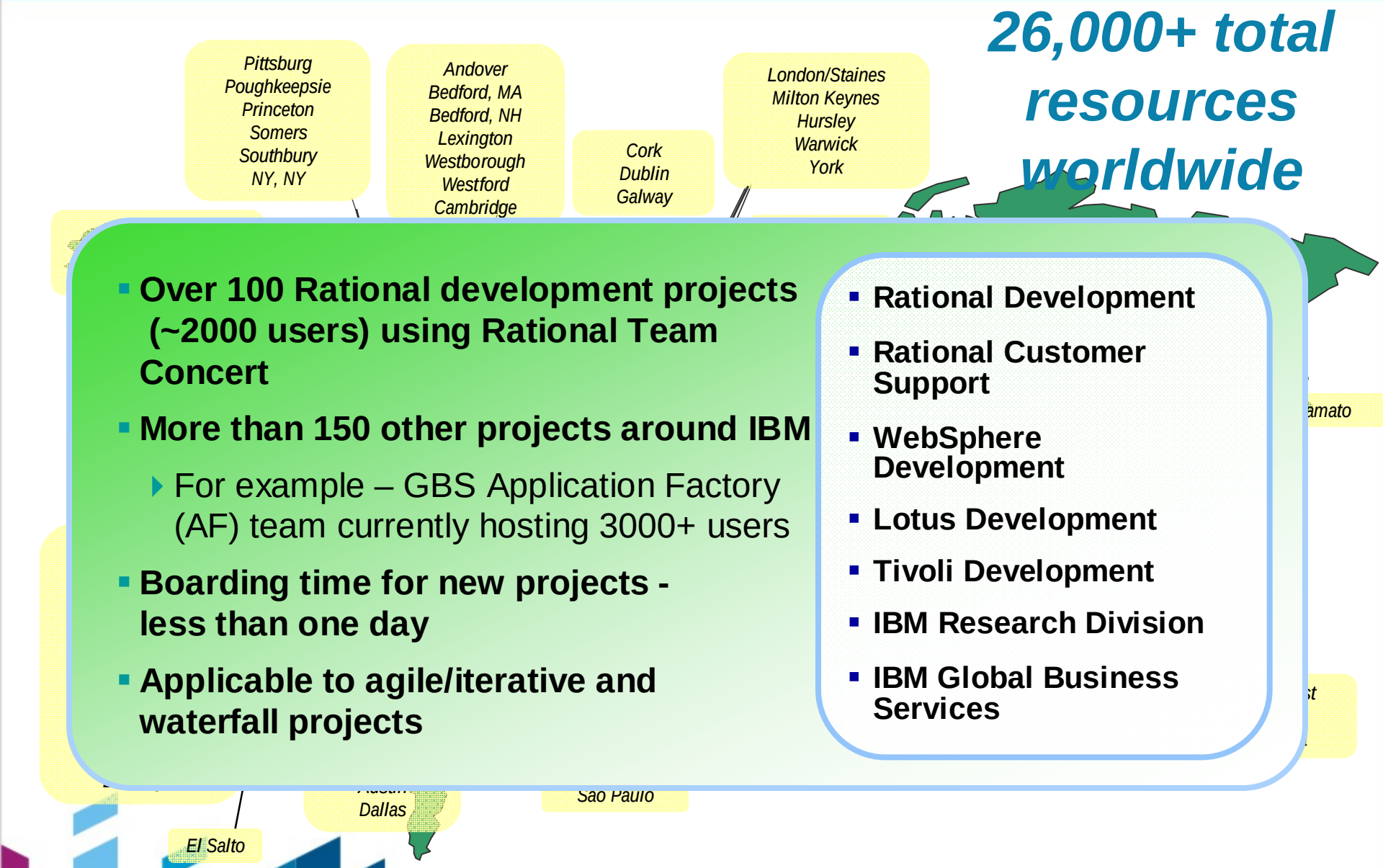



***Collaborate, Automate, Report / Analyze***

## •*Jazz is…*

- Open Services for Lifecycle Collaboration (OSLC)
- "Eclipse for the Team" on the web
- Integration of ANYTHING across the lifecycle
- Integration architecture enabling mashups and non-Jazz products to participate
- A community at Jazz.net where Jazz products are built

# IBM Practices - Agility @ scale at IBM




***26,000+ total resources worldwide***

- **Over 100 Rational development projects (~2000 users) using Rational Team Concert**
- **More than 150 other projects around IBM**
  - For example – GBS Application Factory (AF) team currently hosting 3000+ users
- **Boarding time for new projects - less than one day**
- **Applicable to agile/iterative and waterfall projects**

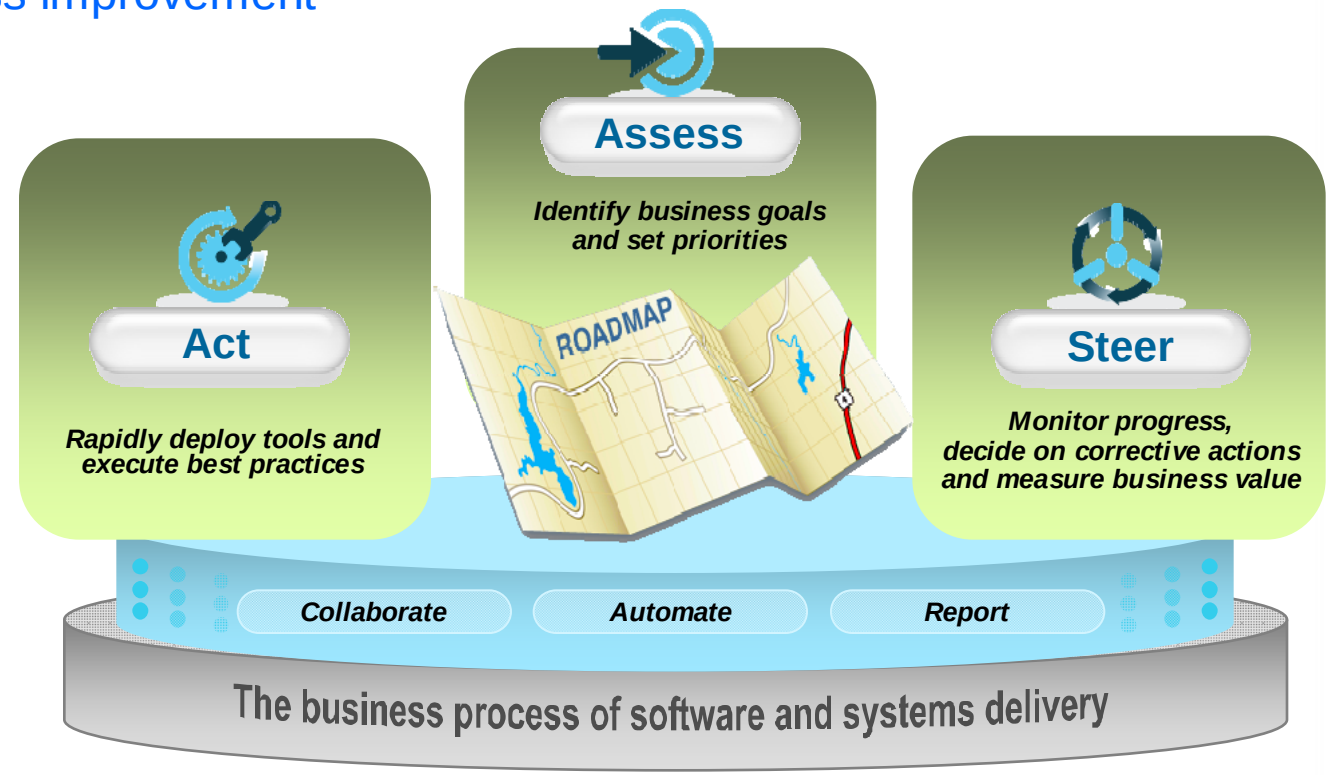
- **Rational Development**
- **Rational Customer Support**
- **WebSphere Development**
- **Lotus Development**
- **Tivoli Development**
- **IBM Research Division**
- **IBM Global Business Services**

Understand, quantify, measure and predict business outcome

# Measured Improvement - Drive business innovation and reduce costs through measured and continuous process improvement

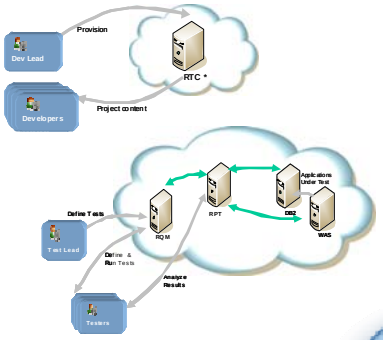
Captures over 10 years of Rational experiences in incremental adoption

- Used in over 80 IBM agile projects
- Used in conjunction with RUP, XP, Scrum and other processes
- Demonstrated in the Rational Executive Dashboard

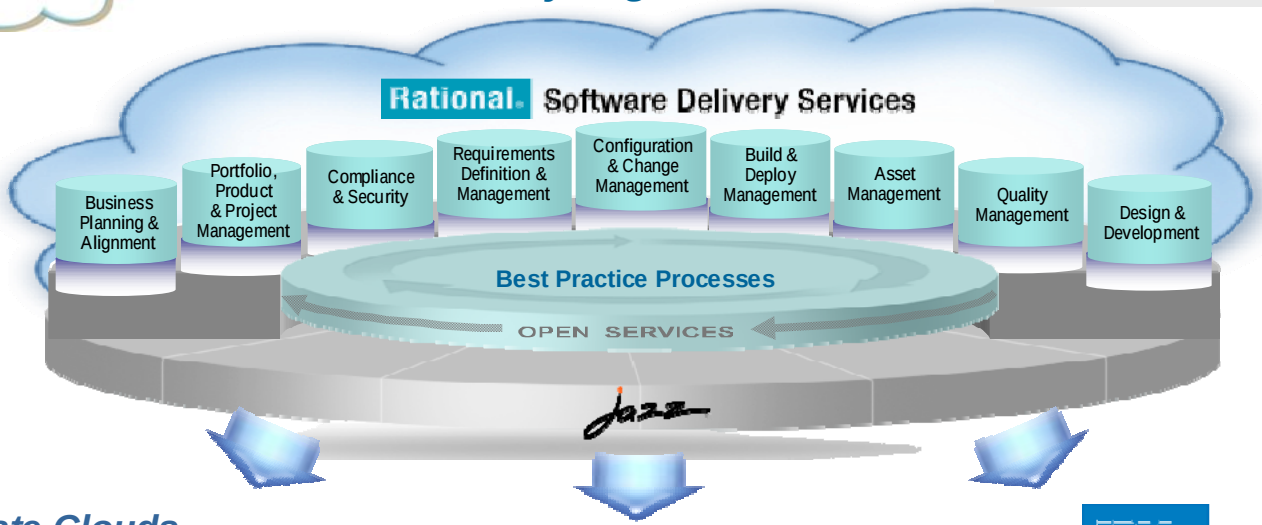


# Software delivery services for cloud computing

## Transforming development and test with cloud




***The move to a cloud infrastructure drive standardization, automation and process improvement in your software delivery organization***




### *Private Clouds*

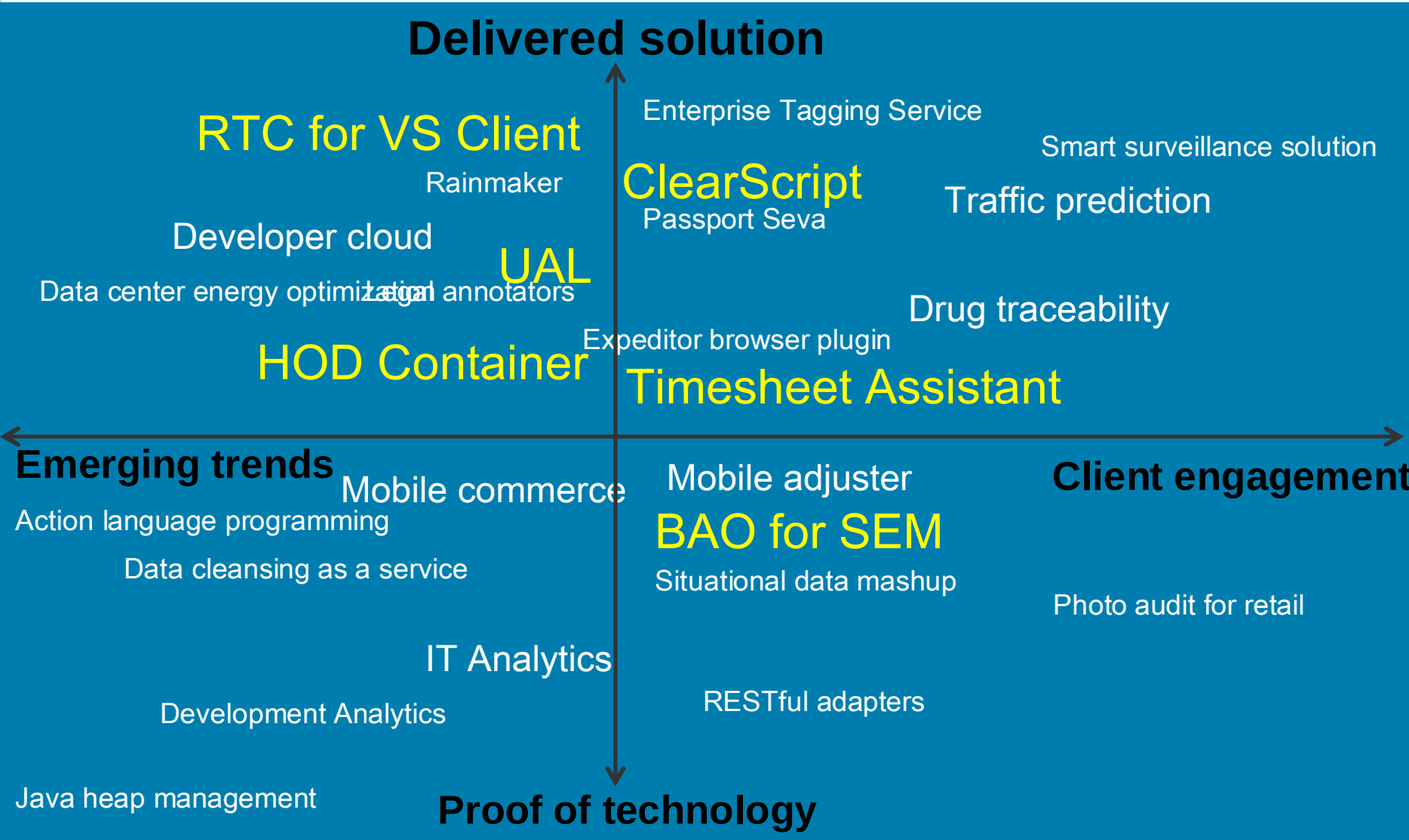
**IBM Smart Business Services**
**IBM CloudBurst Appliance**

### IBM *Cloud*

**IBM Smart Business Services**

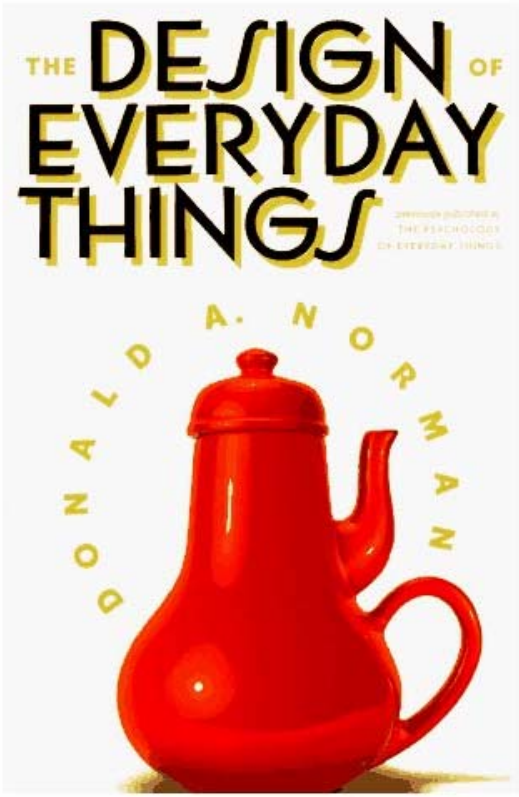
### *Clouds*

# Technology innovations from the India Software Lab



# Keep it simple

*"Technology changes very fast. But human beings evolve much more slowly…"*



# ClearScript

Extensible easy-to-understand language for testers

## Business challenge

- Bulk of testing is still manual causing schedule risks, lack of agility and increased costs

## Solution

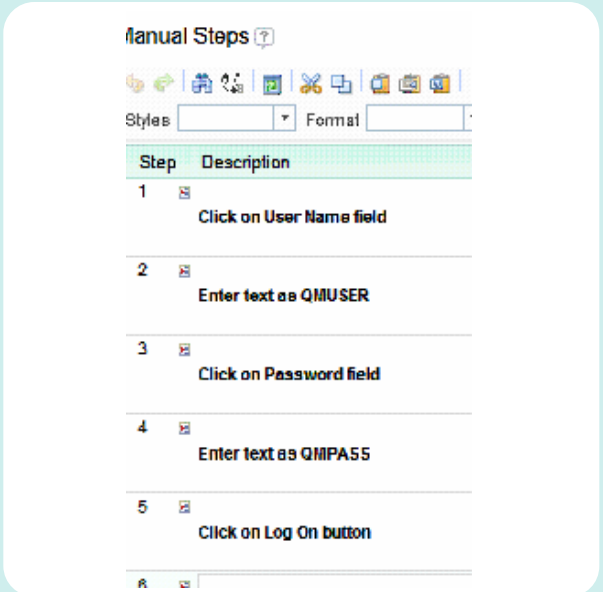
- Designing an extensible easy-to-understand language for testers, using which they could write automated scripts

## Benefits

- Accelerated automation
- Improved coverage and tracking with requirements
- Enable business analysts to write automated tests

## Solution components

- IBM Rational Quality Manager
- IBM Rational Functional Tester with collaboration from IBM Research



# BAO ( Business Analytics and optimization ) for SEM ( Sustaining Engineering & Maintenance )

Framework for measuring & improving efficiency of Sustaining Engineering and Maintenance projects

## Goal

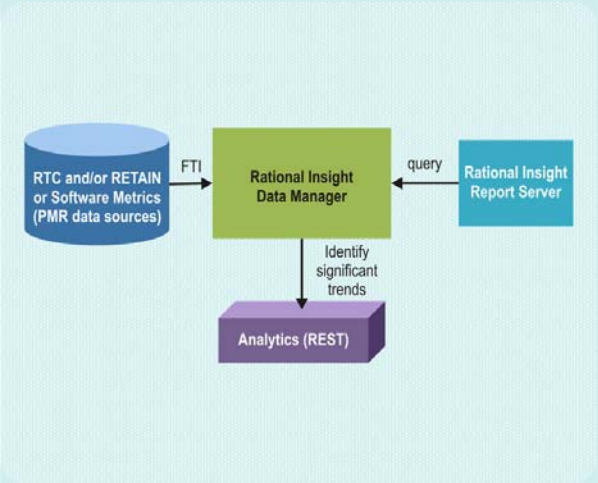
- "Improve efficiency by 10%" - for Sustaining Engineering and Maintenance projects in the lab.

## Solution

- Rational Insight based dashboard with metrics derived from analysis of defect trends.
- Dashboard enables team to efficiently track trend changes in the data to trigger appropriate actions

## Solution components

- IBM Rational Insight



# Activity Tracker & Effort Calculator

Framework for tracking, analyzing & calculating efforts related to a task.

## Goal

- Assist Project managers in validating time submitted by developers
- Assist Project managers in detecting anomalies in activities related to a task
- Assist Developers in submitting timesheets.

## Solution

- Rational Insight based dashboard with metrics derived from analysis of tasks.

### Solution components

# Host on Demand Container

Enables integration of Host applications with other applications in an IBM Composite Application.

## Business challenge

- Optimizing the information needed by the employees of an enterprise to accelerate its business processes and increase productivity.

## Solution

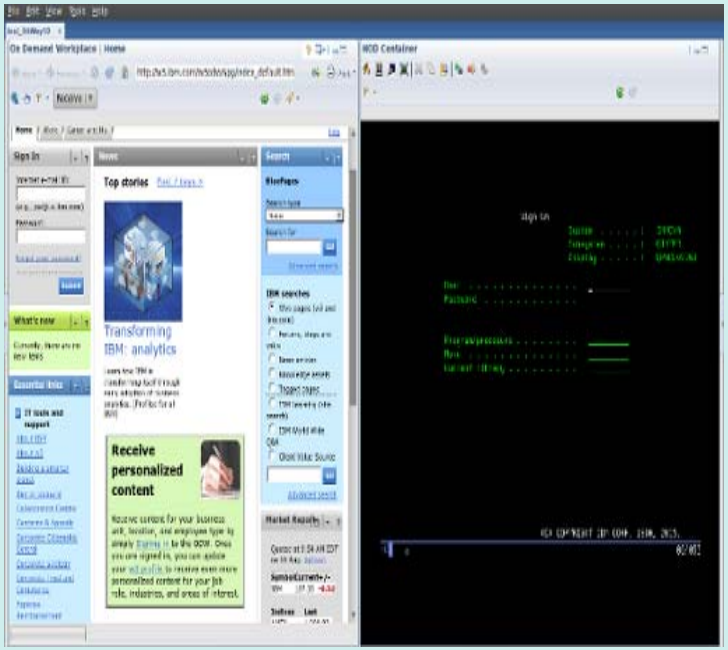
- Plugin for HOD Container, within Lotus Expeditor, to enable interaction with a host of other applications like Web Browser, Spreadsheet etc

## Benefits

- Accelerated business processes.
- Provides an integration hub for transactional messaging for satellite locations of an enterprise.
- Built on standards-based framework and can be integrated with a wide variety of applications.

### Solution Components

- IBM Rational Host On-Demand, IBM Lotus Expeditor



# Extending the reach of IBM Jazz Platform

## IBM Rational Team Concert for Microsoft® Visual Studio IDE

### Business Challenge

- Extend the reach of Jazz platform to Microsoft .NET developers.

### Solution

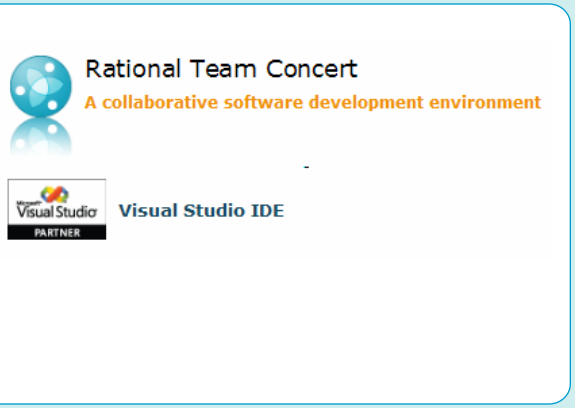
- Implement Rational Team Concert right inside Microsoft Visual Studio IDE.

### Benefits

- Enabled large enterprises to use IBM Jazz Platform for .NET as well as Java development.
- Provided first-class, seamless integration into Microsoft Visual Studio IDE.
- Brought to Microsoft .NET developers the flexibility of Agile development, the power of collaboration, and other benefits of RTC and IBM Jazz Platform.

### In a nut-shell

- First-ever full-fledged Jazz client implemented fully in Microsoft .NET
- Positioned Jazz Platform as a viable collaborative development environment for Microsoft .NET developers.
- Practices open commercial development in true Agile way at http://jazz.net/ where milestone builds are posted for early feedback from stakeholders.



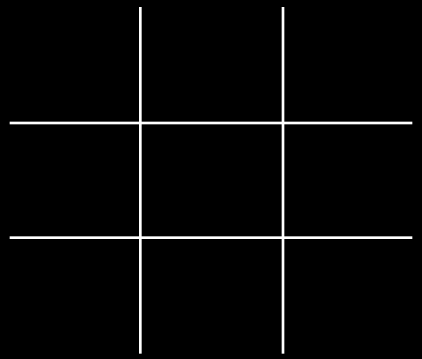
# Innovators know the Power of the “Right” Model

- **Selecting the right model for the job matters**

*Good models go beyond description – they support insight & action*

Example: “Game of 15”
Winner: First one to reach exactly 15 with any 3 chips

First model – A is ▮ and B is ▮ – what is B’s move?

Second model –  – B’s move is 6!

After Don Norman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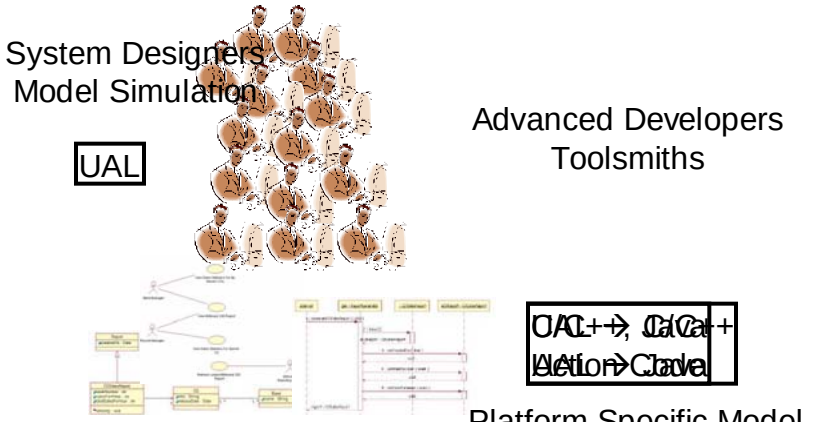
# Executable Models using UML Action Language (UAL)

## Business Challenge

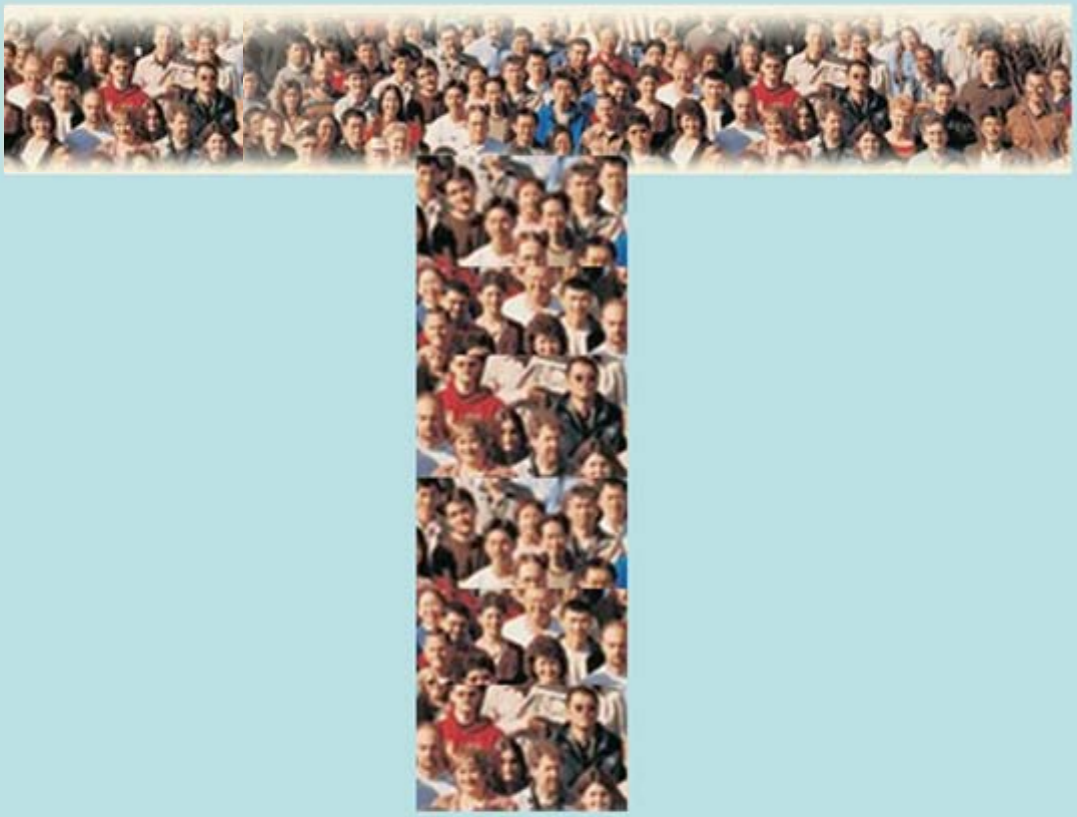
- Model Driven Development (MDD) practitioners follow “Model is Code” philosophy
- Generate fully functional code from UML models with embedded C++/Java code snippets to describe behavior
- Issues:
  - Writing code snippets is not easy: System Designers are domain expert and not C++ or UML Transformation expert
  - Reuse of same model for multiple platform not possible: C++/Java code tuned for a platform
  - Late detection of defects: opaque behavior prevents simulation early in development cycle

## Solution

- UML Action Language (UAL) for encoding behavior in RSA family of products
- Model Simulation, Execution & Debugging: model animation with familiar notions, e.g. breakpoints, step, continue
- Benefits:
  - Increase productivity of engineers by raising the level of abstraction to UAL
  - Increase % of reusability systems/components: generate code for different platforms from same model
  - Reduce cost of defect fixing by detecting them early: Simulation of components as well as full system



# Our innovators have breadth and depth



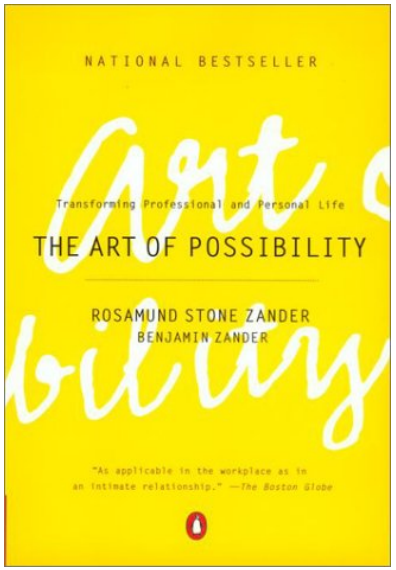
# Our innovators see possibilities …

A shoe factory sends two marketing scouts to a remote region to study the prospects of expanding business. One sends back a telegram saying…

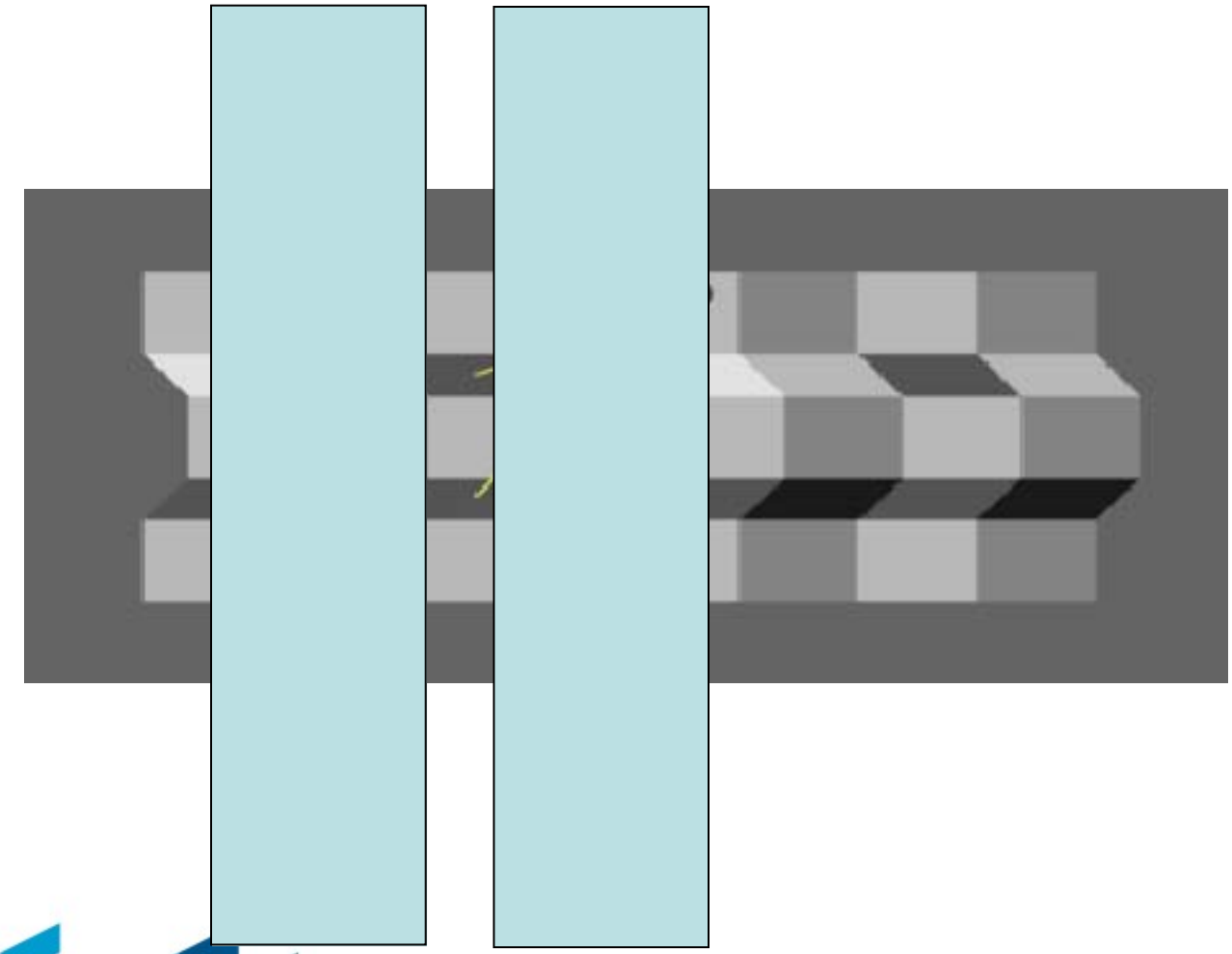
SITUATION HOPELESS NO ONE WEARS SHOES

The other writes back…

GLORIOUS BUSINESS OPPORTUNITY
THEY HAVE NO SHOES



# Our innovators question assumptions …



# Need to connect with our innovators?

*Customer driven design and development*

- Design Partner Program
- Managed Beta
- Open Beta
- VoICE

- Services engagements
- Rational Customer support
- Accelerated Value Program

*Customer Support and service*

*Relationship*

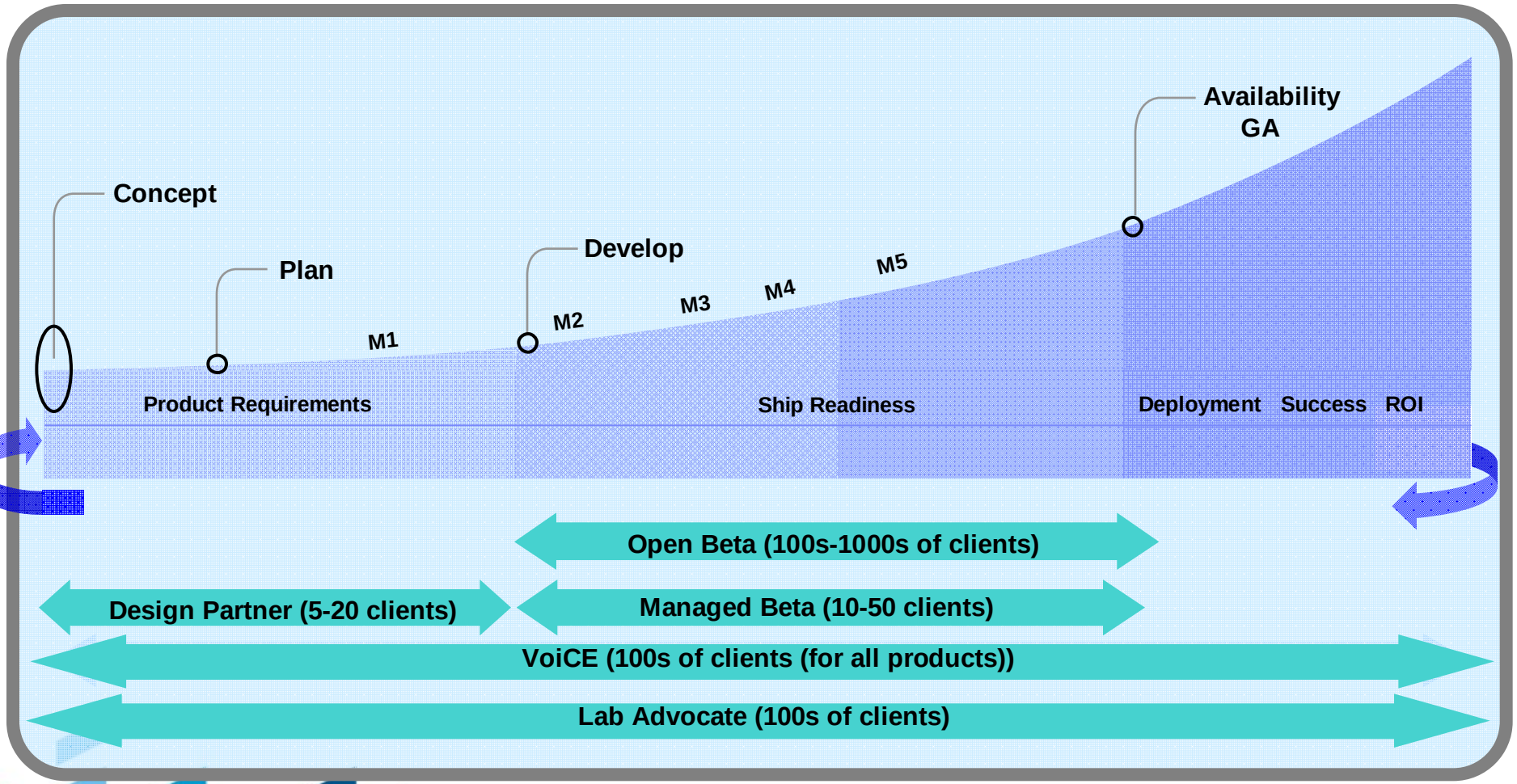
- Lab Advocacy
- Elite Circle

# Rational Client Programs at a Glance

## Involving clients - at all levels – across the product lifecycle

| | |
|---|---|
| *VoiCE* | *Expanded audience Design Partner Interaction* |
| *Lab Advocates* | *Top technical leader assigned to assist the account team* |
| *Design Partner Program* | *Clients become an integral part of our product teams* |
| *Beta Programs* | *Clients receive pre-GA code enablement results in references and leads* |
| *Rational Global User Groups* | *Independent local user groups* |
| *Board of Advisors* | *Senior Executive level interactions on business strategy* |
| *Jazz.net* | *Online community showcasing our Jazz based offerings* |
| *Accelerated Value Program* | *Dedicated support engineer assigned to your account* |
| *Elite Circle* | *A community of Elite IBM customers* |

# Client Programs available during the product development cycle



# THANK YOU