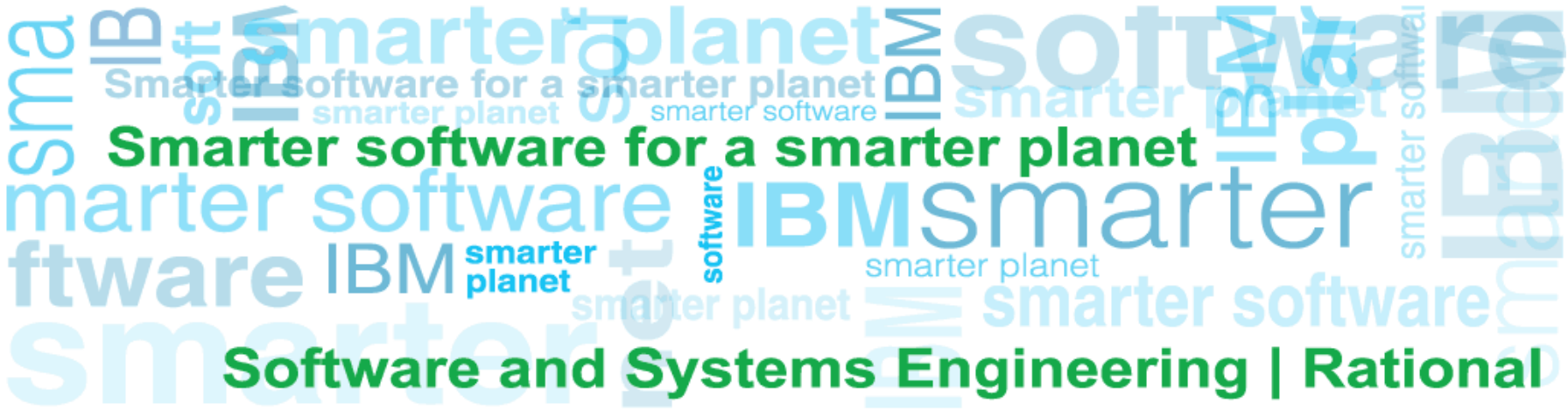
Rational Engineering Lifecycle Manager

Unite Engineering Teams and make faster and better informed decisions with immediate access to all engineering data



Smarter products mean that complexity is rising Engineering effort multiplies.

Aerospace and defense

Today's F35 has 10 million lines of code on board, twice the amount on the F-22, another stealth fighter.

Energy and utilities

Smart meters for water utilities will lead to $29.9 million in sales by 2017 compared with $10.3 million in 2011.

Automotive

Electronics drives 80 percent of the automotive industry's functional innovation — software is the key to most of it.

Telecom

Between 2012 - 2016, mobile data traffic will multiply tenfold, with video content acting as the biggest driver.

Electronics

By 2014, 230 million Smart TVs will be installed with 57 million homes watching web-based streams over broadband.

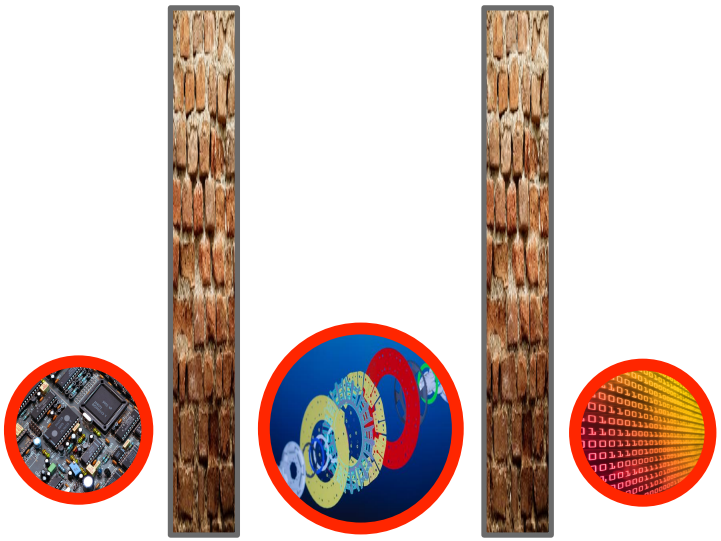
Medical devices

The da Vinci S surgical robotic system:

- 1.4 million lines of code
- Computing power of 7 laptops
- 10,000 individual parts

Gaps/walls between engineering disciplines impact productivity and capacity to innovate

Traditional Product & Systems Development



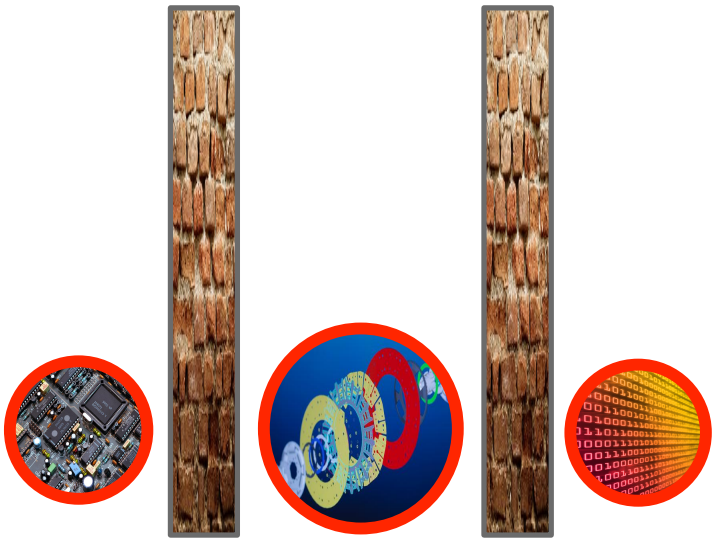
Physical Design and Bill of Materials (BoM) Centric Approach

- Silos of engineering disciplines with no connection and visibility of data between disciplines
- Proprietary formats and closed architecture
- Linear, with focus on CAD/CAM and BoM
- Slow to react to change

1. **Inability to find the right information when it's needed**
2. **Inability to quickly understand and react to change**
3. **Inability to effectively co-ordinate strategic re-use**

Smarter products require smarter development

Traditional Product & Systems Development



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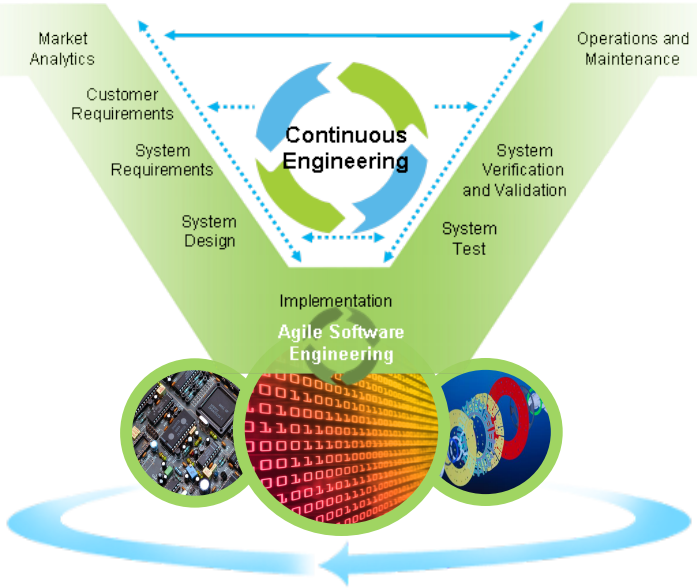
Smarter Product & Systems Development



Integrated Electronic, Mechanical, and Software Engineering

- United engineering teams with access to all engineering information
- Efficiency through strategic re-use and continuous verification
- Systems engineering methods optimize designs and collaboration
- Open standards via Linked Data
- Increased engineering agility

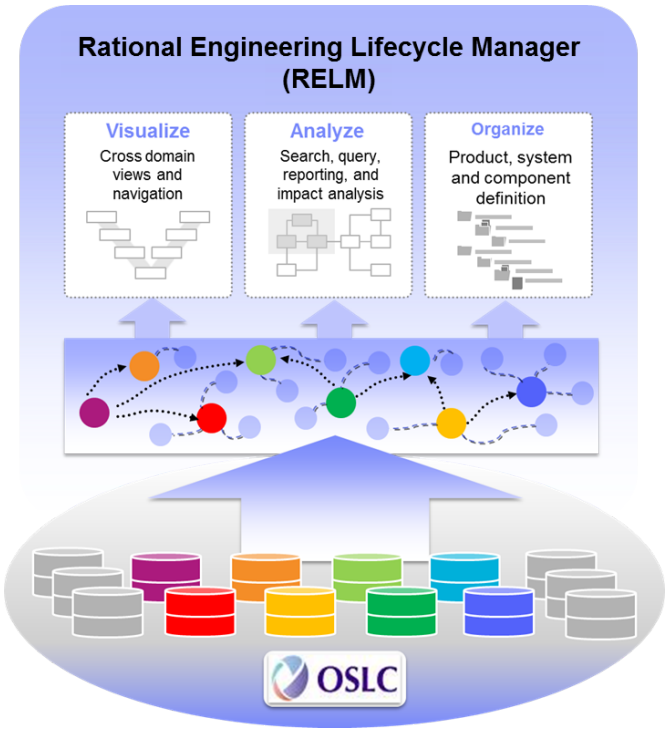
Rational Engineering Lifecycle Manager (RELM)

Extending the Rational solution for systems and software engineering

- Uniting engineering teams through:
  - **Visibility** – across many engineering disciplines
  - **Organization** – of information in context
  - **Analysis** – to answer lifecycle engineering questions

- Allows product development teams to:
  - Find the right information when it's needed
  - Understand and react to change quickly
  - Co-ordinate strategic re-use

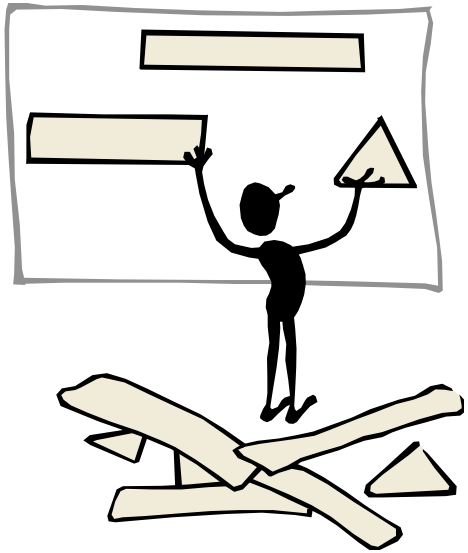
- A Linked Data approach means no disruption to current engineering environments



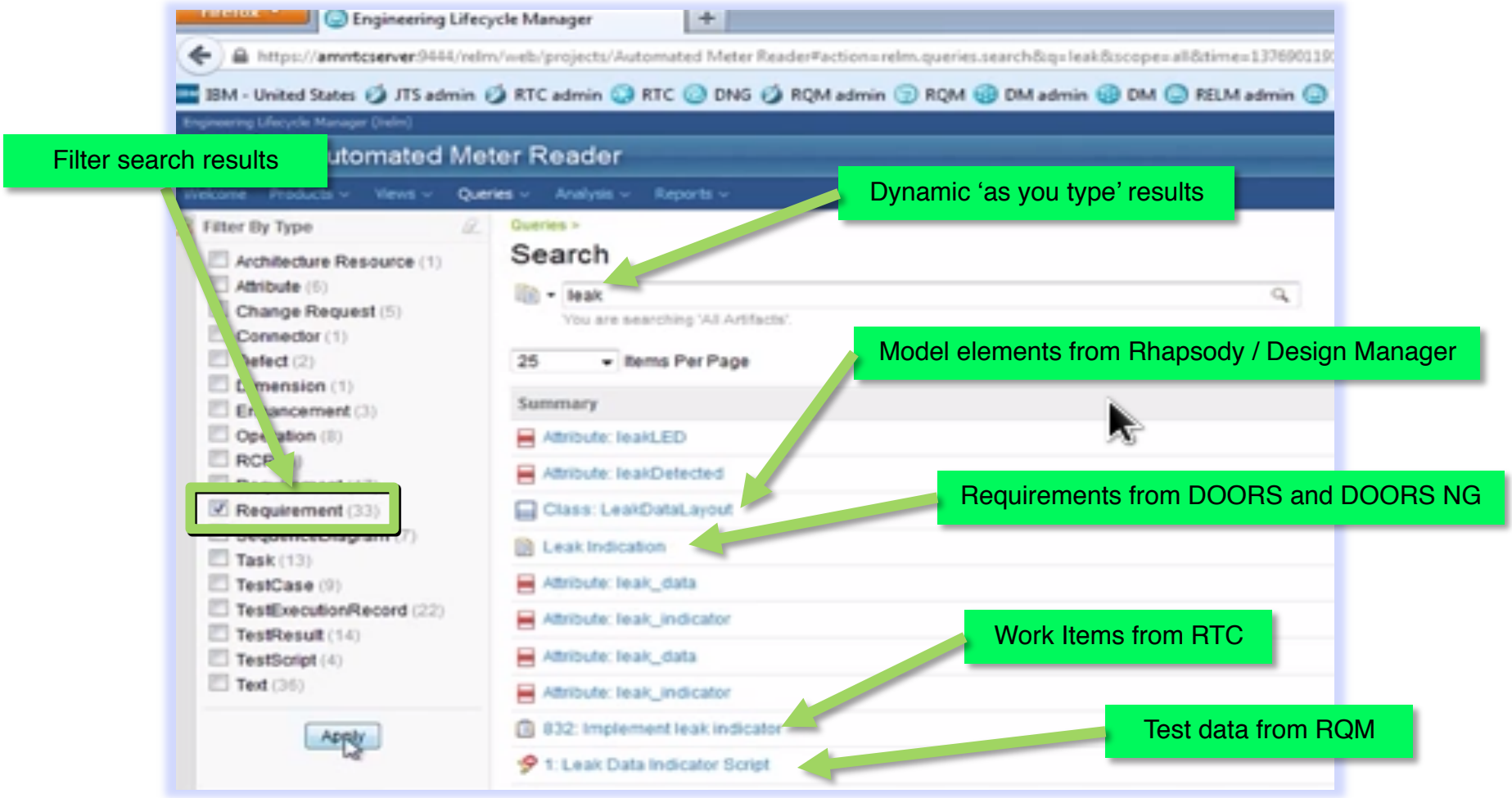
"RELM demonstrates the power of linked data and provides an enterprise a new way to integrate tools and project tasks in one interface."

Systems Engineer

Inability to find the right information when it's needed



Using RELM to find the right information when it's needed



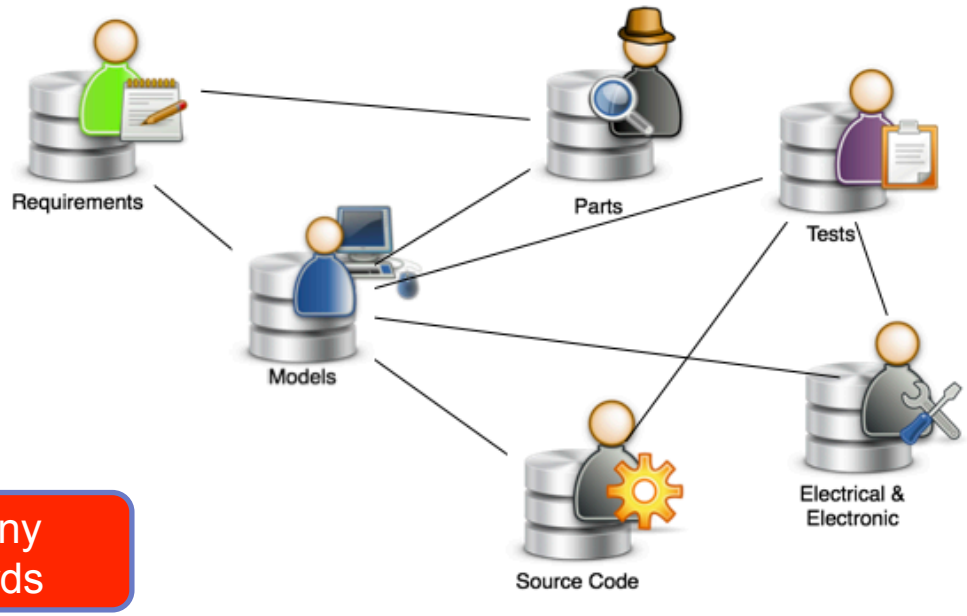
Search and query across all engineering disciplines

Inability to quickly understand and react to change

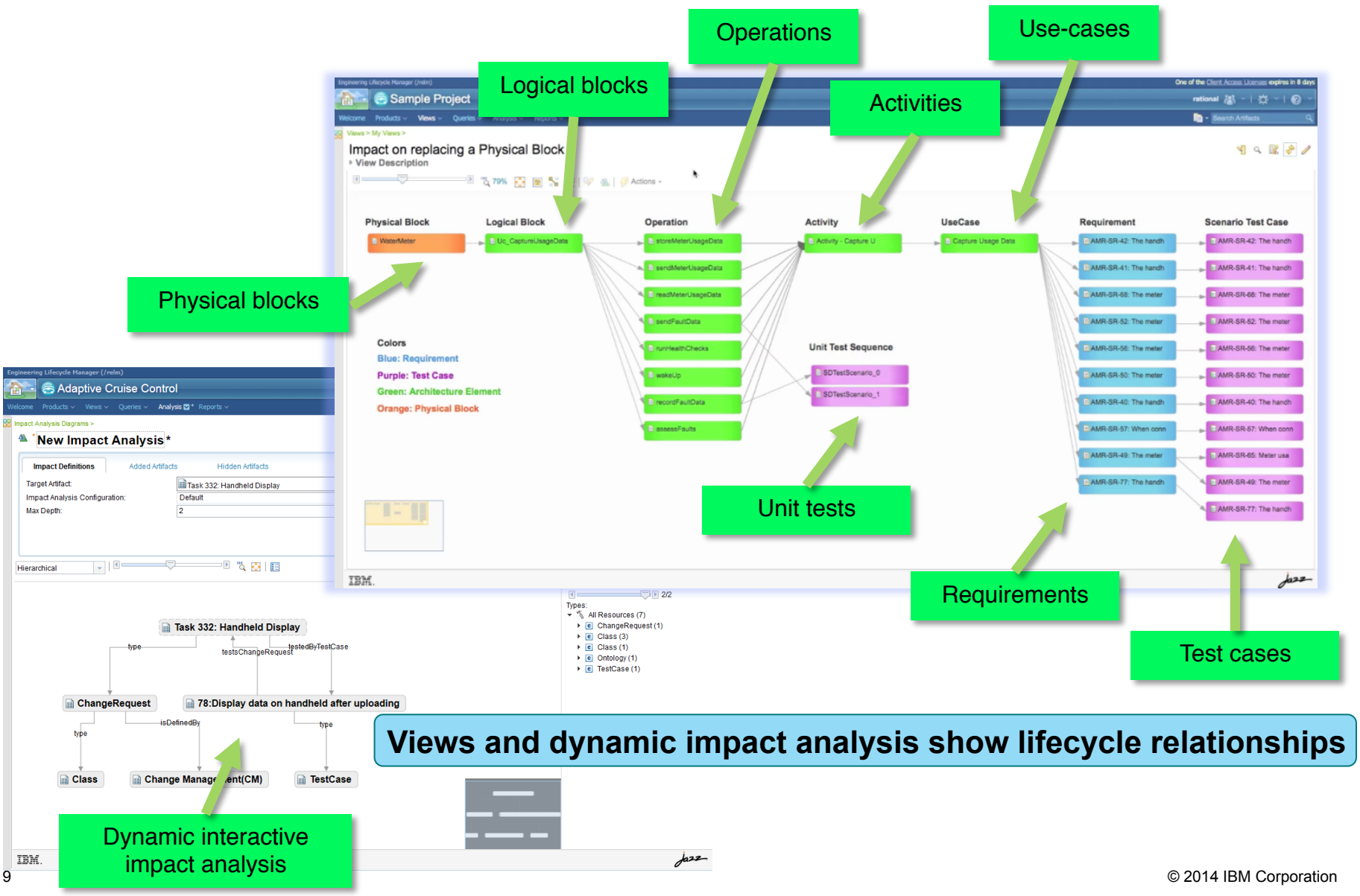
"If anything is certain, it is that change is certain."

- Philip Crosby (Quality Expert)

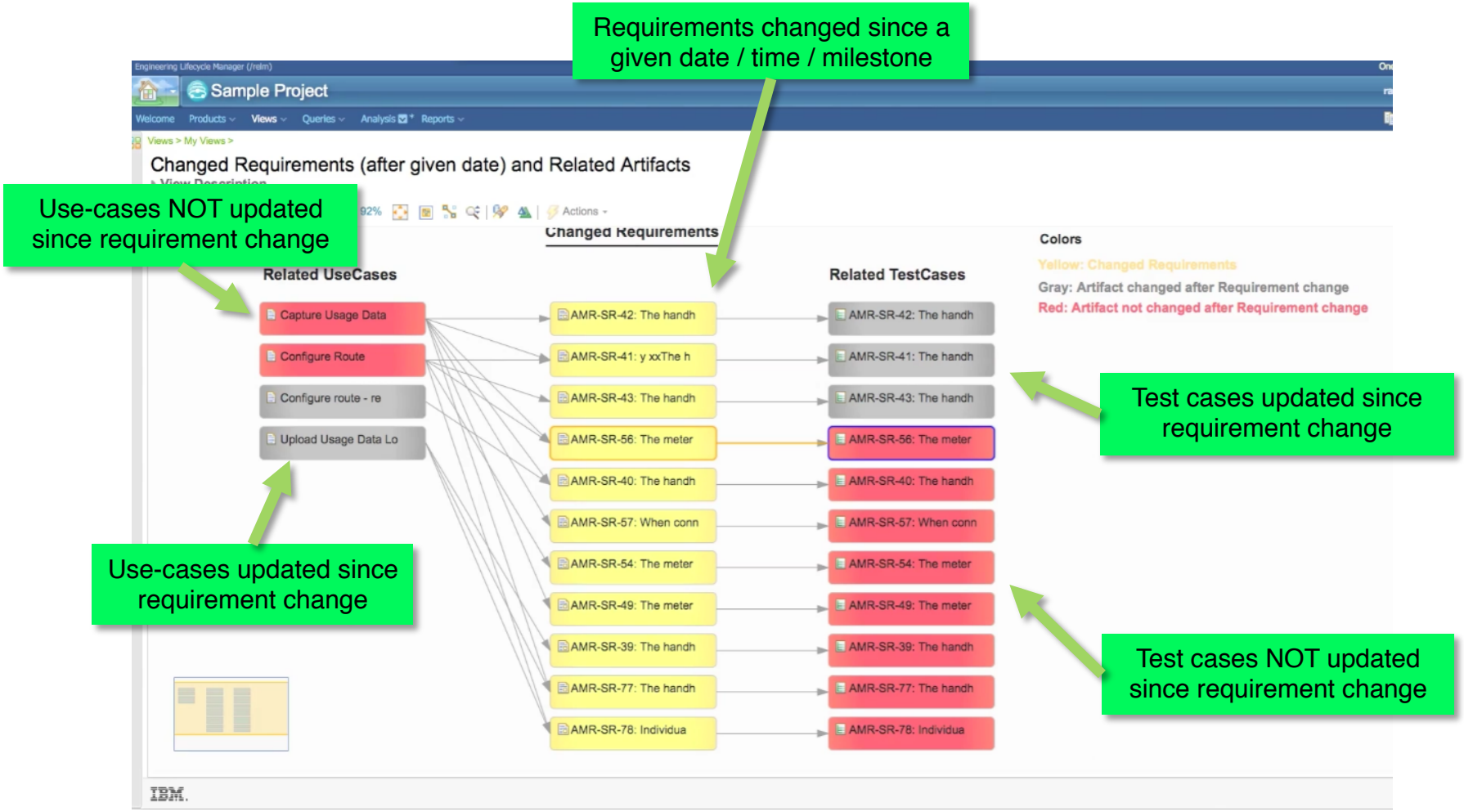
- Defects & Problem Reports
- Customer Requirements
- Regulatory Requirements
- Component availability
- Optimization (cost/weight etc)
- Company standards



Using RELM to quickly understand and react to change

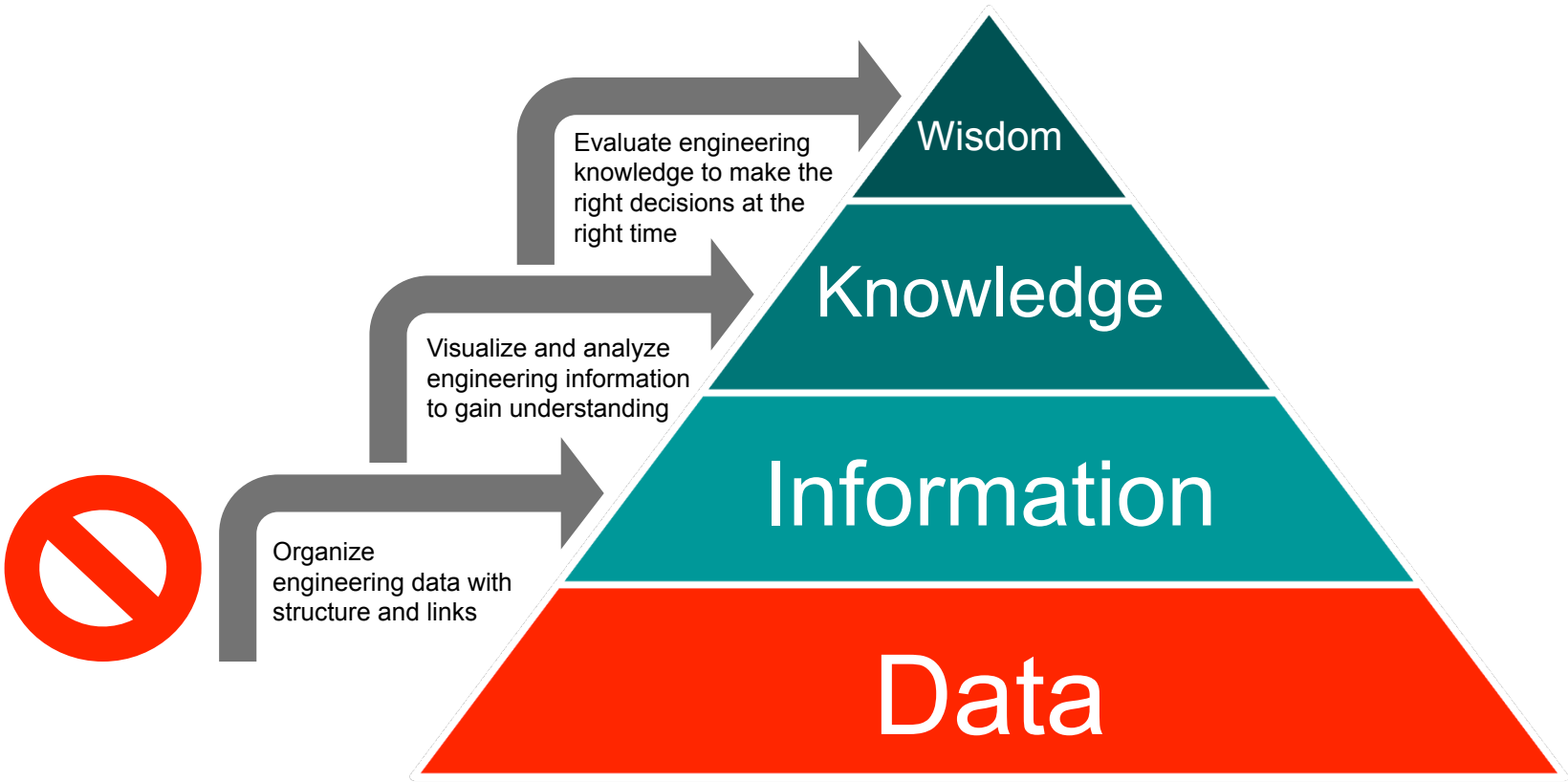


Using RELM to quickly understand and react to change

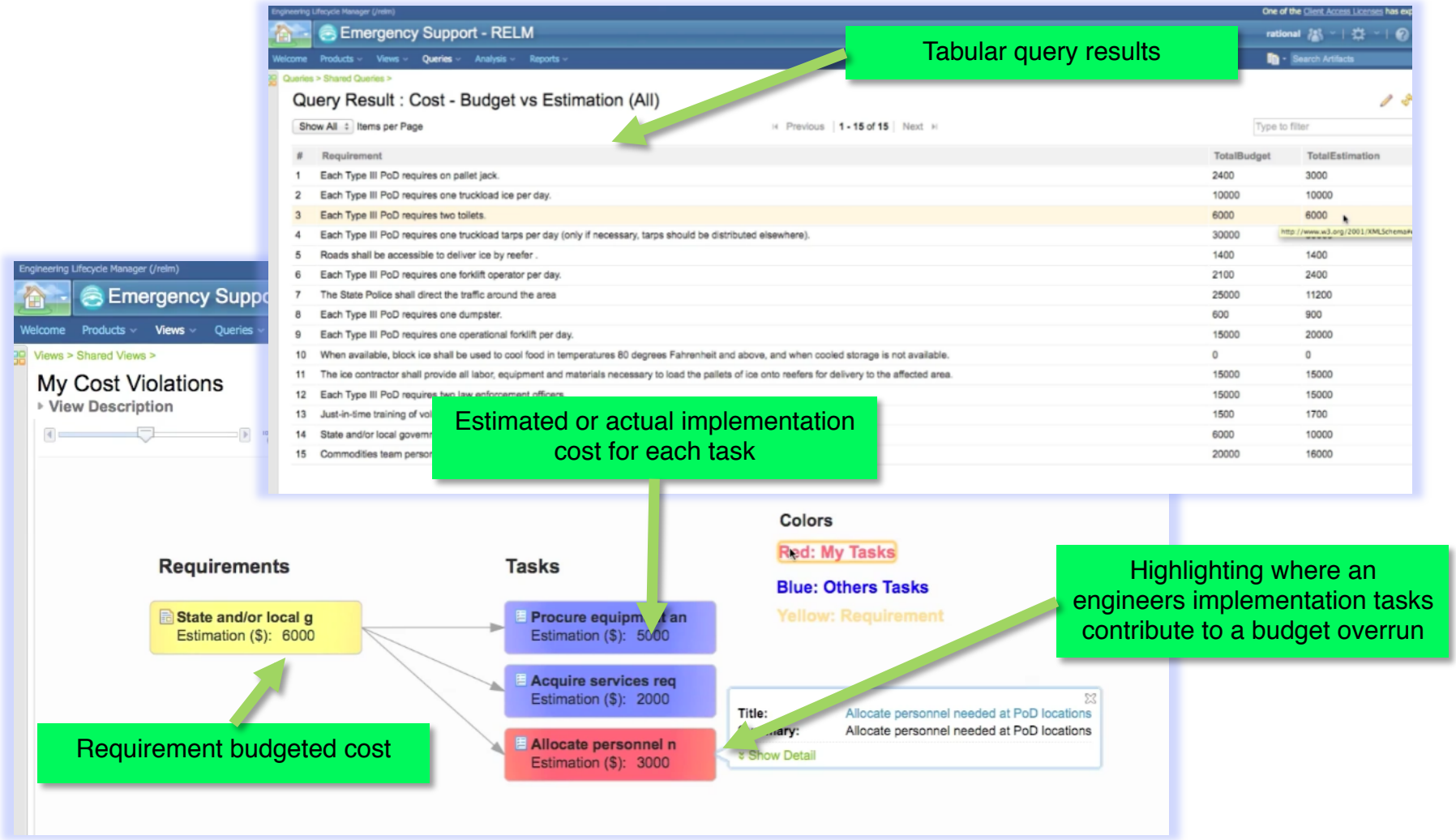


Suspect link views support effective change propagation

Inability to gain actionable insight from engineering data

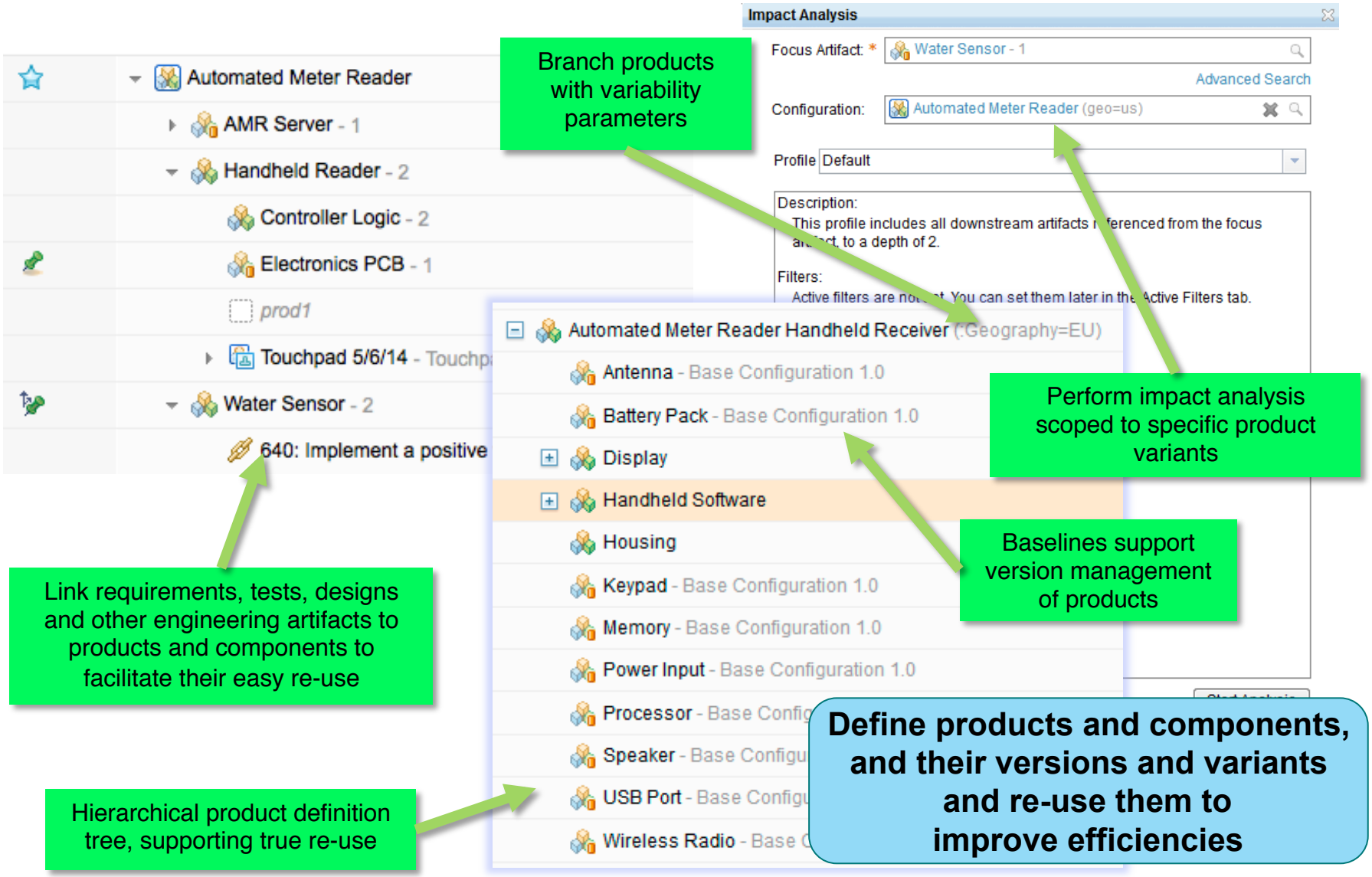


Using RELM to gain actionable insights from engineering data



Queries and views uncover actionable insights

Using RELM to co-ordinate strategic re-use



IBM Rational Engineering Lifecycle Manager Data Sources

Rational DOORS

Rational Team Concert

Rational DOORS NG

Rational Quality Manager

Rational Rhapsody

Rational Design Manager

Rational Asset Manager

Rational Focal Point

Rational. software

A core set of data sources from IBM Rational

Mentor Graphics

NATIONAL INSTRUMENTS

hp

Bugzilla

MathWorks

A growing ecosystem of 3rd party data sources

OASIS
The Organization for the Advancement of Structured Information Standards

OSLC

Eclipse Lyo
Enabling tool integration with OSLC

eclipse

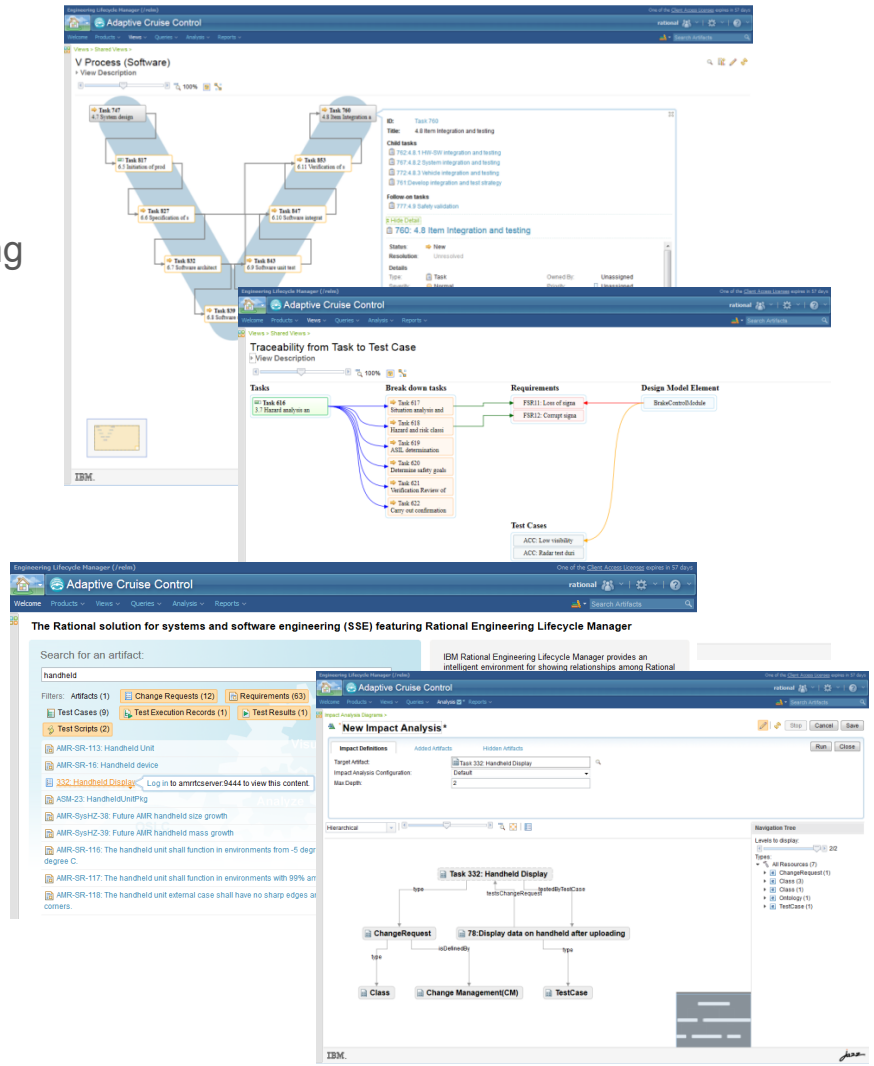
Extensible via open specifications and toolkits

Open & federated, not proprietary & monolithic

Unite engineering teams with RELM

And make faster and better informed decisions with immediate access to all engineering data

- **Enhance collaboration and visibility**
  - By understanding interaction and dependencies between development disciplines
- **Increase engineering agility to reduce costs**
  - By understanding impact of change across engineering disciplines
- **Increase innovative capacity**
  - By making better use of engineering data to improve decision making
- **Improve efficiency and productivity**
  - By managing complexity of data and relationships and enabling strategic re-use
- **Leverage existing tools and infrastructure**
  - Using a federated, linked-data architecture based on open standards
  - Including tight integration with Rational systems and software solutions
  - With extensibility to integrate data from other engineering disciplines (e.g. electrical, electronic, mechanical)



IBM Rational Engineering Lifecycle Manager – Rapid ROI

Rational Engineering Lifecycle Manager + Rational DOORS	→	• Search and query across DOORS Modules and DBs • Visual Requirements impact analysis
Rational Engineering Lifecycle Manager + Rational Team Concert	→	• Search and query across RTC project areas • Visualize WI relationships • Manage SCM streams
Rational Engineering Lifecycle Manager + Rational DOORS or DOORS NG + Rational Quality Manager	→	• Search and query across DOORS Modules and DBs • Visual Requirements impact analysis • Search and query across RQM project areas • Visual Requirements and Test coverage
Rational Engineering Lifecycle Manager + Rational DOORS or DOORS NG + Rational Rhapsody with DM	→	• Search and query across DOORS Modules and DBs • Visual Requirements impact analysis • Search and query across models • Visual Requirements and Design coverage
Rational Engineering Lifecycle Manager + Rational DOORS or DOORS NG + Rational Team Concert	→	• Search and query across DOORS Modules and DBs • Visual Requirements impact analysis • Search and query across RTC project areas • Visualize WI relationships • Manage SCM streams • Visual Requirements and Implementation coverage

IBM Rational Engineering Lifecycle Manager – Rapid ROI

Rational Engineering Lifecycle Manager +

- Rational DOORS Or DOORS NG
- Rational Quality Manager
- Rational Rhapsody with DM
- Rational Team Concert

→

- Search and query across DOORS modules and DBs
- Visual Requirements impact analysis
- Visual Requirements and Test coverage
- Search and query across RTC project areas
- Visualize WI relationships
- Manage SCM streams
- Search and query across models
- Visual Requirements and Design coverage
- Visual Requirements and Implementation coverage
- Cross-lifecycle impact analysis
- Monitor Continuous Verification status

Rational Engineering Lifecycle Manager +

- Homegrown tools
- 3rd party tools

→

- Search and query across any data source
- Visualize relationships between data

Deploy Rational Engineering Lifecycle Manager with zero disruption to other engineering tools and users

www.ibm.com/software/rational