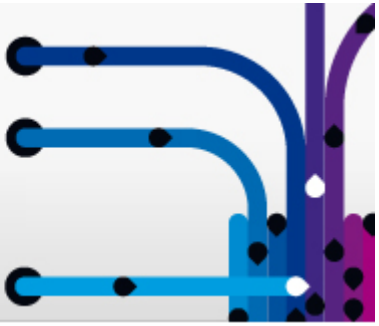
Les particularités de la gestion des exigences dans un environnement de systèmes de systèmes

Corinne Bacle corinne.bacle@fr.ibm.com

Cette présentation mettra en évidence les spécificités du passage d'une stratégie orientée produit à une stratégie orientée solutions ainsi que les méthodes et outillages proposés par IBM Rational pour une définition efficace de systèmes de systèmes et de programmes :
IBM Rational Focal Point et IBM Rational System Architect



© 2012 IBM Corporation

Content

1. Introduction
2. Qu'est-ce qu'un systèmes de systèmes ?
3. Passage d'une stratégie orientée produit à une stratégie orientée solutions
4. Les méthodes : particularité de la gestion des exigences dans un contexte SOS
5. La solution Rational
6. Démonstration
7. Conclusion

Corinne Bacle

© 2012 IBM Corporation

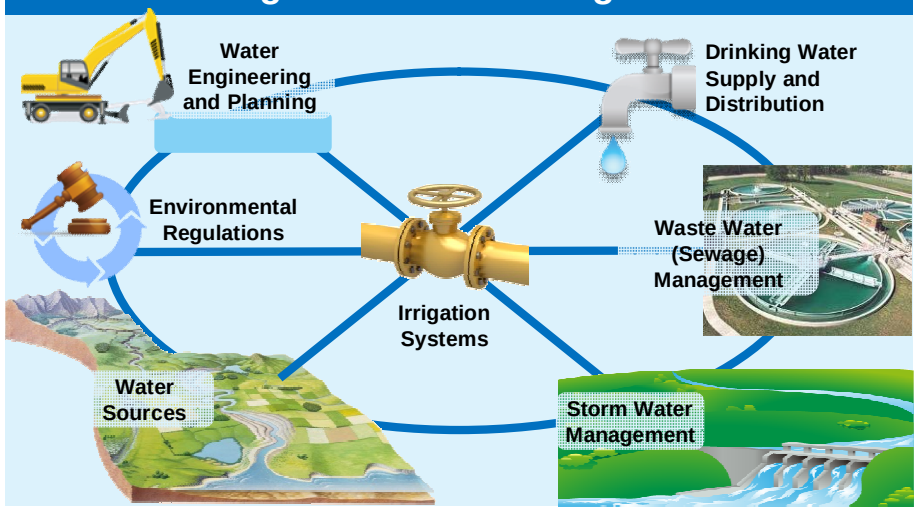
Content

1. Introduction
2. Qu'est-ce qu'un systèmes de systèmes ?
3. Passage d'une stratégie orientée produit à une stratégie orientée solutions
4. Les méthodes : particularité de la gestion des exigences dans un contexte SOS
5. La solution Rational
6. Démonstration
7. Conclusion

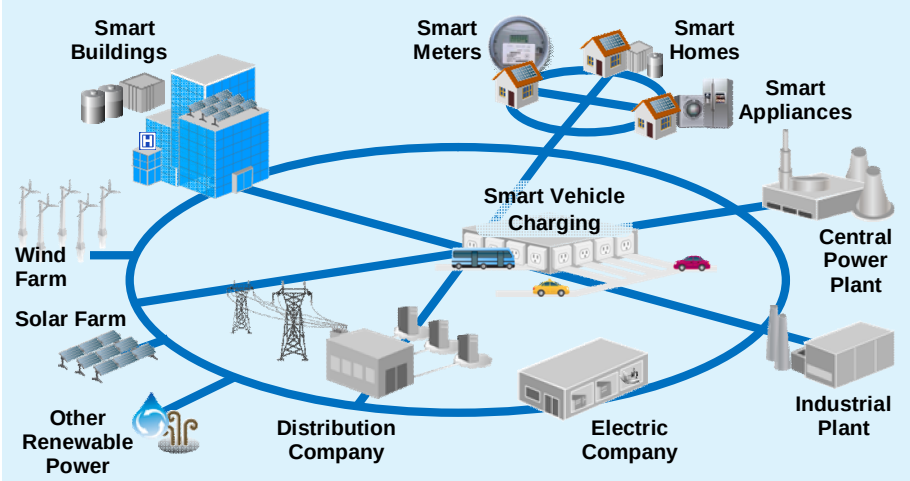
© 2012 IBM Corporation

Our world runs on complex systems of systems

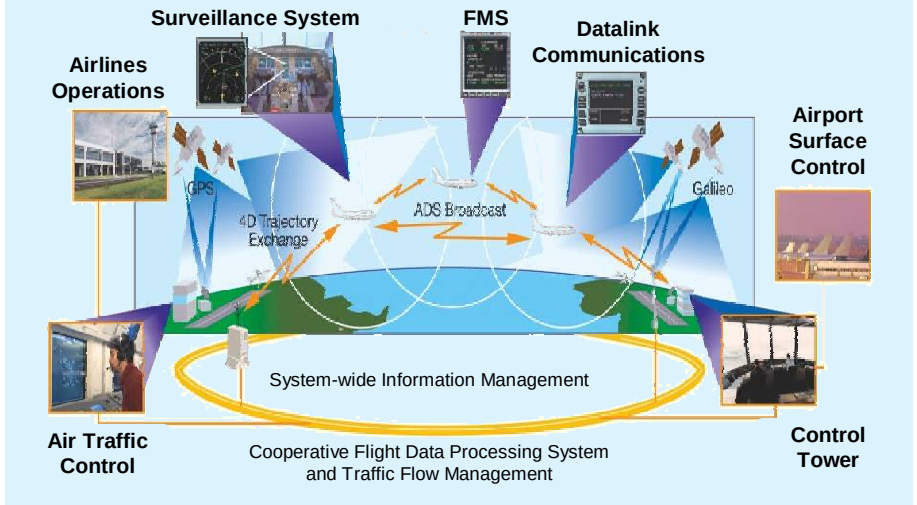
Integrated Water Management



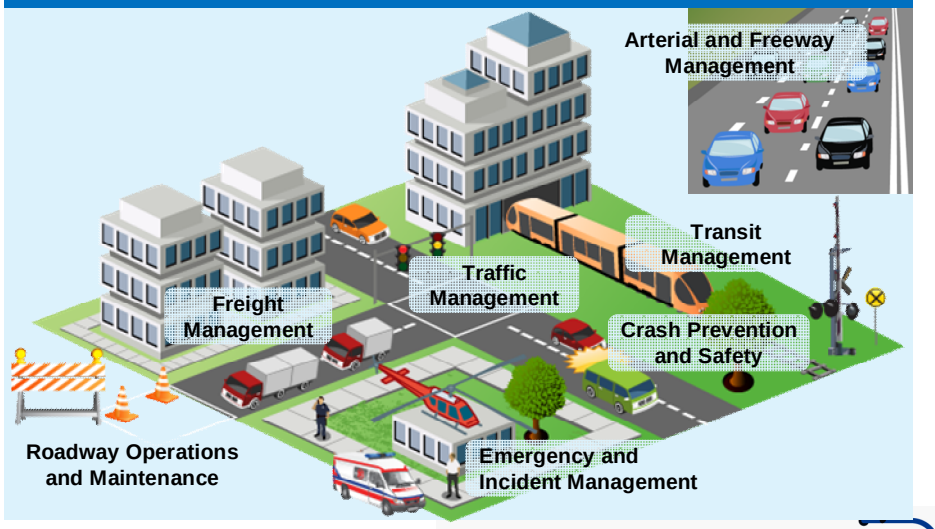
Integrated Energy and Utilities



Air Traffic Control



Intelligent Transportation



© 2012 IBM Corporation

Organizations developing smarter products aspire to be innovative

Product innovation enables companies to leapfrog their competition, grow demand, and increase value

INSTRUMENTED

They have the ability to measure, sense and see the exact condition of everything

INTERCONNECTED

They enable people, systems and other products to communicate and interact with each other in entirely new ways

INTELLIGENT

They can respond to changes quickly and accurately, and get better results by predicting and optimizing for future events

Hint: **think software**

Smart products transcend “one-size-fits-all” products enabling customers to get exactly what they want – tailored to their unique needs

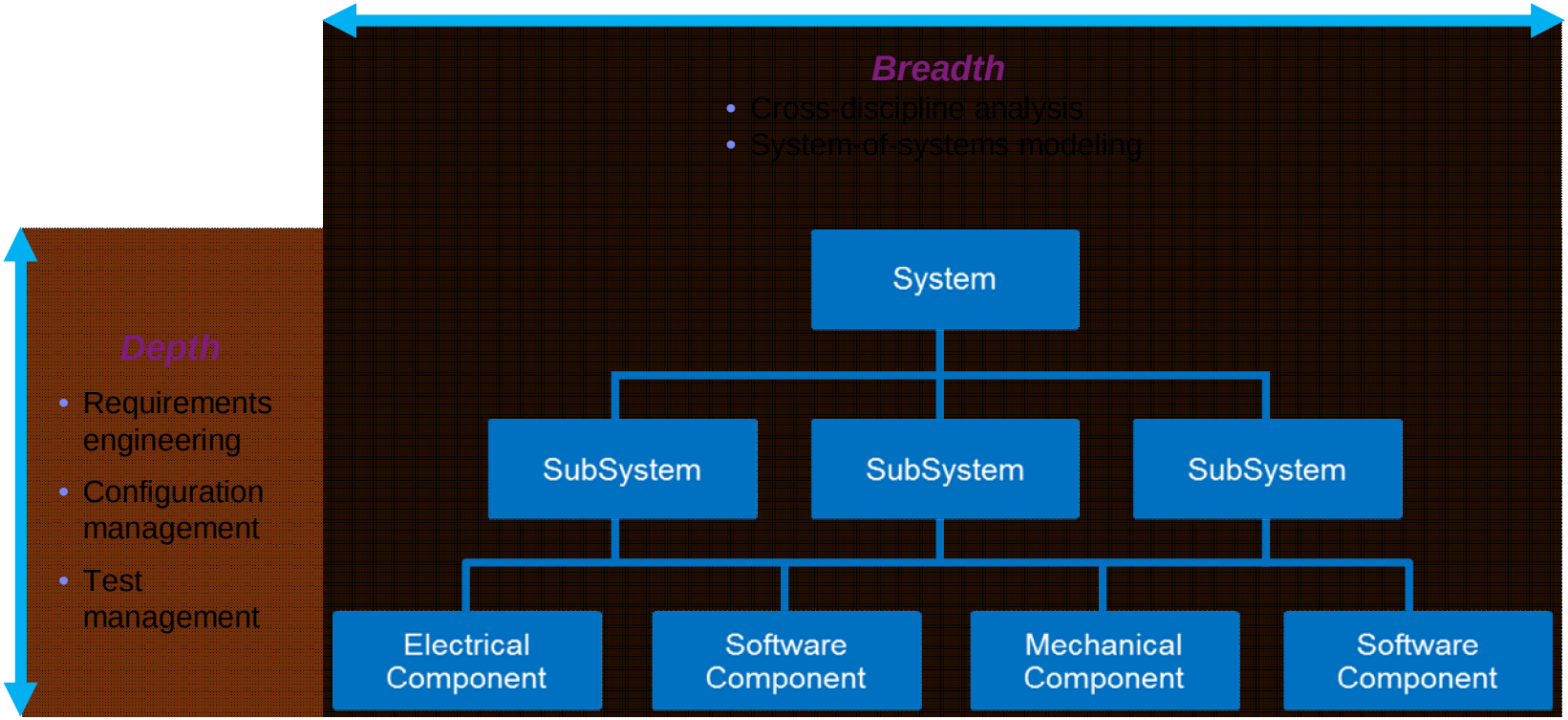
The breadth and depth of systems engineering

Breadth of systems engineering

- Systems engineering is a profession, a role, even a job title, for those who work exclusively at a system-of-systems level.

Depth of systems engineering

- Systems engineering also names a set of methods, skills and techniques that can be applied both at a system-of-systems level and within specific engineering disciplines.



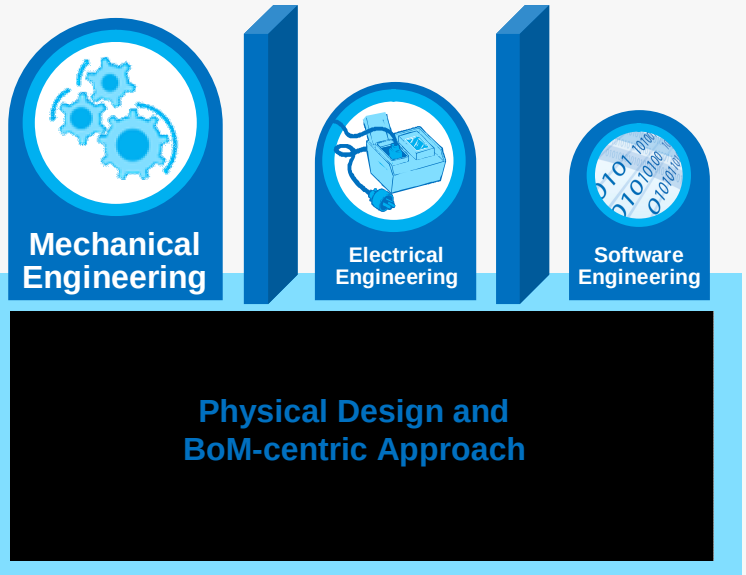
Systems Engineering

© 2012 IBM Corporation

Smarter products need a systems approach to product development

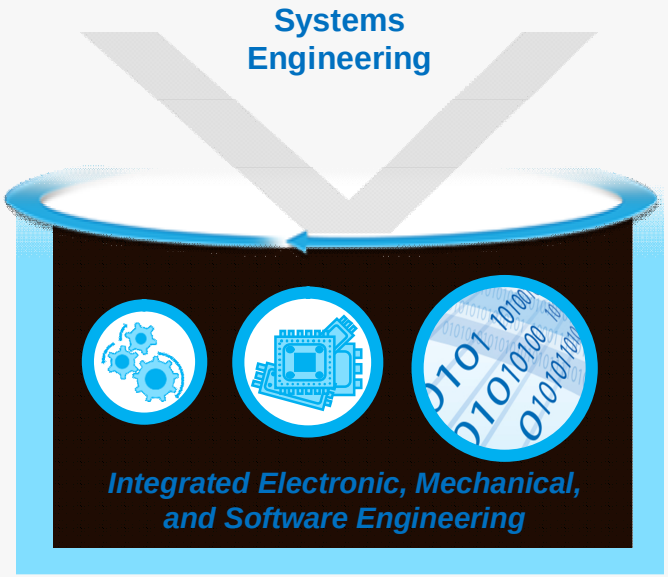
Make the change or get left behind

Traditional Product Development



- Used for product but not systems of systems design
- Siloed engineering disciplines
- Not ready for the software explosion

Systems Engineering Approach to Product Development



- Optimized for product, system and systems of systems design
- Systems approach encourages engineering collaboration
- Excels in software design management

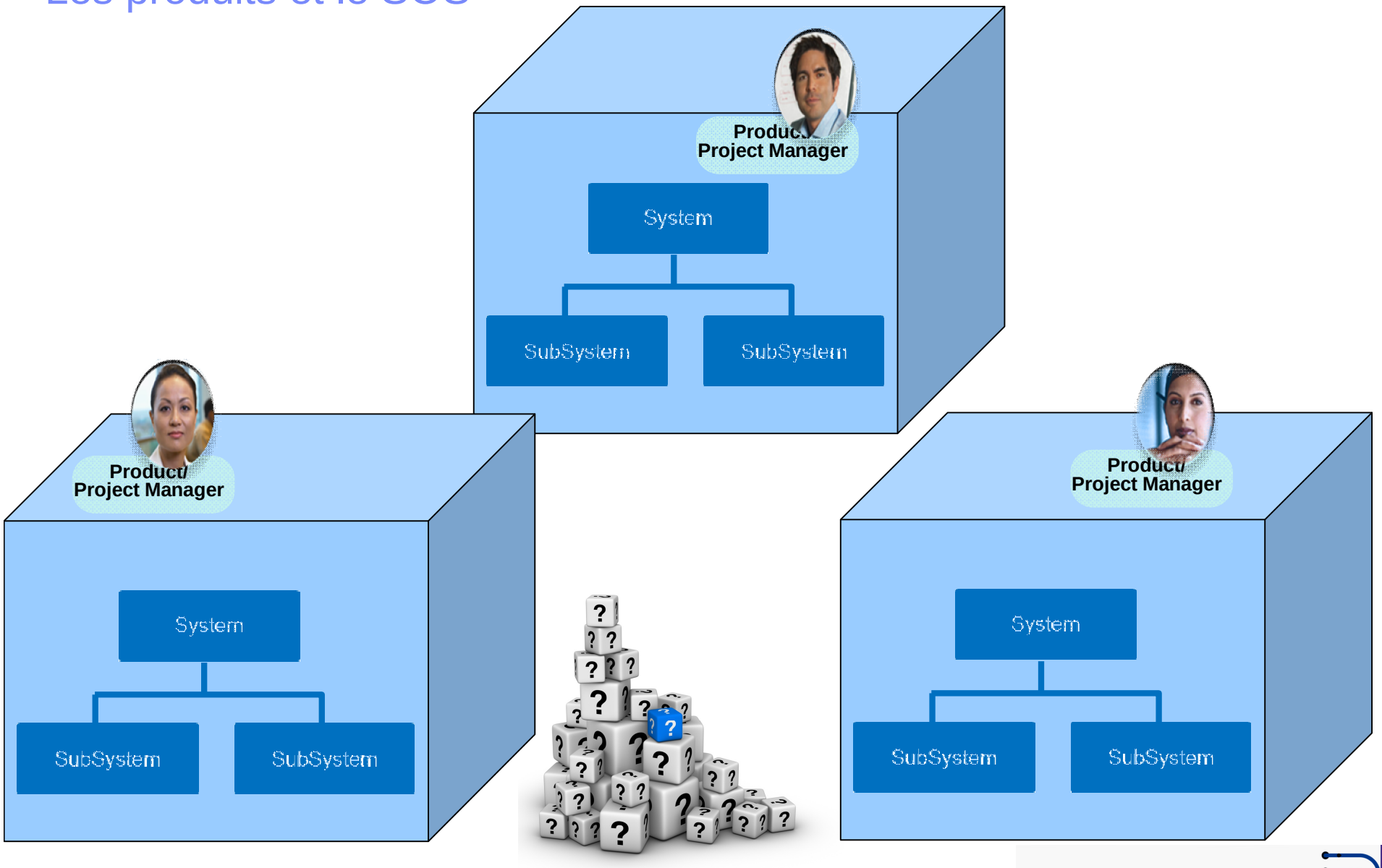
© 2012 IBM Corporation

Content

1. Introduction
2. Qu'est-ce qu'un systèmes de systèmes ?
3. Passage d'une stratégie orientée produit à une stratégie orientée solutions
4. Les méthodes : particularité de la gestion des exigences dans un contexte SOS
5. La solution Rational
6. Démonstration
7. Conclusion

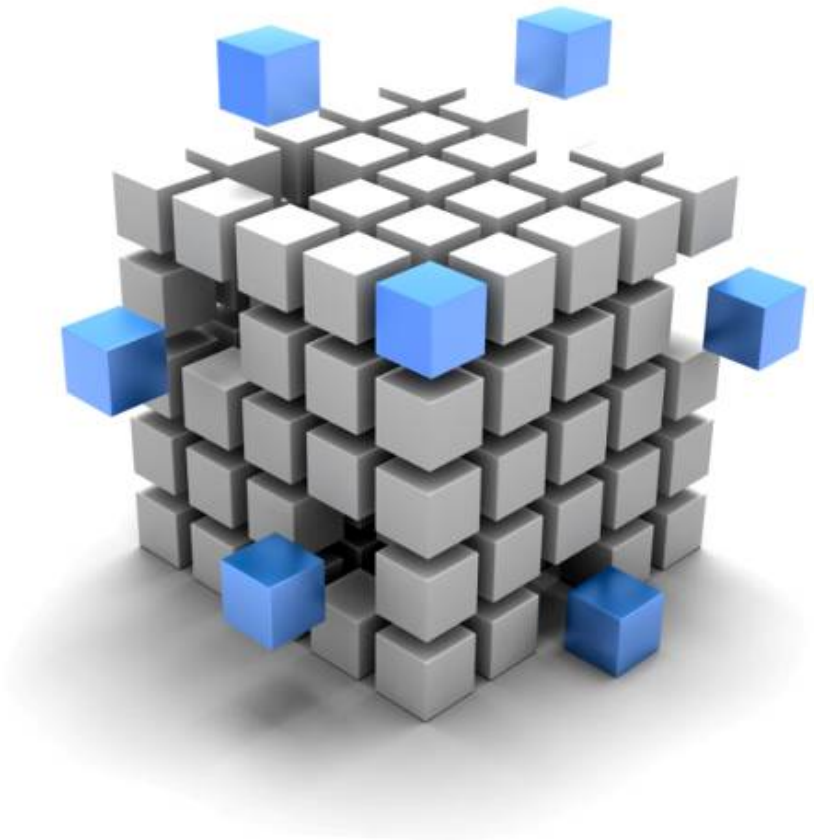
© 2012 IBM Corporation

Les produits et le SOS



© 2012 IBM Corporation

La solution



La solution peut être composée
- de produits techniques internes à l'entreprise
- de services associés
- de services rendus par d'autres produits, d'autres entreprises

Elle prend en compte des contraintes :
- techniques
- de planning
- financières
- humaines
- d'alignement avec la stratégie

© 2012 IBM Corporation

Objectifs différents, parfois contraires

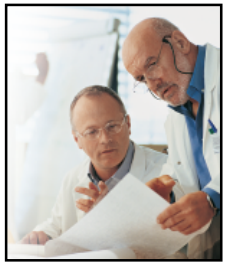
Collaboration

Between customers …

…Product Mangers…

…the business…

…Engineering…



and Test

© 2012 IBM Corporation

Is there an absence of a clear link between approved projects and the strategic plan?

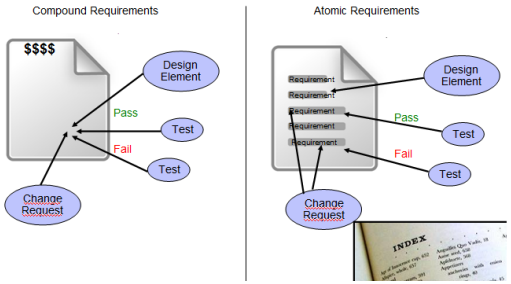
© 2012 IBM Corporation

Content

1. Introduction
2. Qu'est-ce qu'un systèmes de systèmes ?
3. Passage d'une stratégie orientée produit à une stratégie orientée solutions
4. Les méthodes : particularité de la gestion des exigences dans un contexte SOS
5. La solution Rational
6. Démonstration
7. Conclusion

© 2012 IBM Corporation

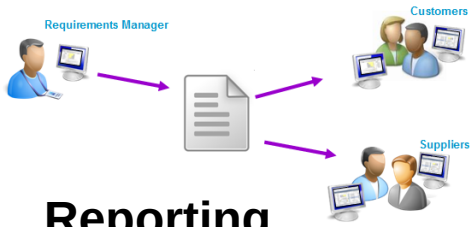
Key requirements for an RM system



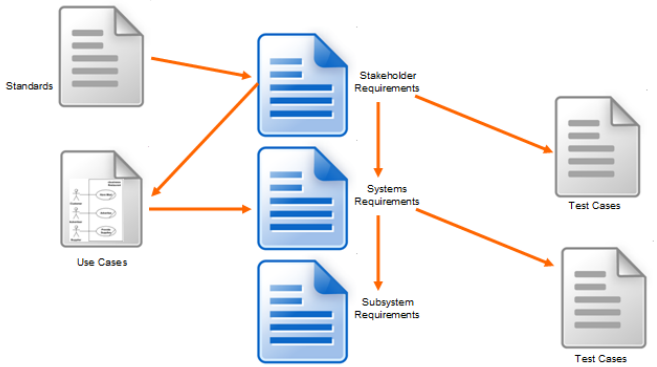
Granularity

History and Security

Hierarchy

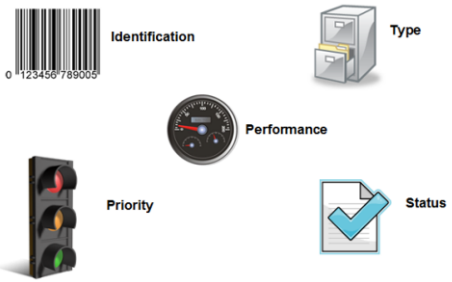


Reporting



Traceability

Collaboration

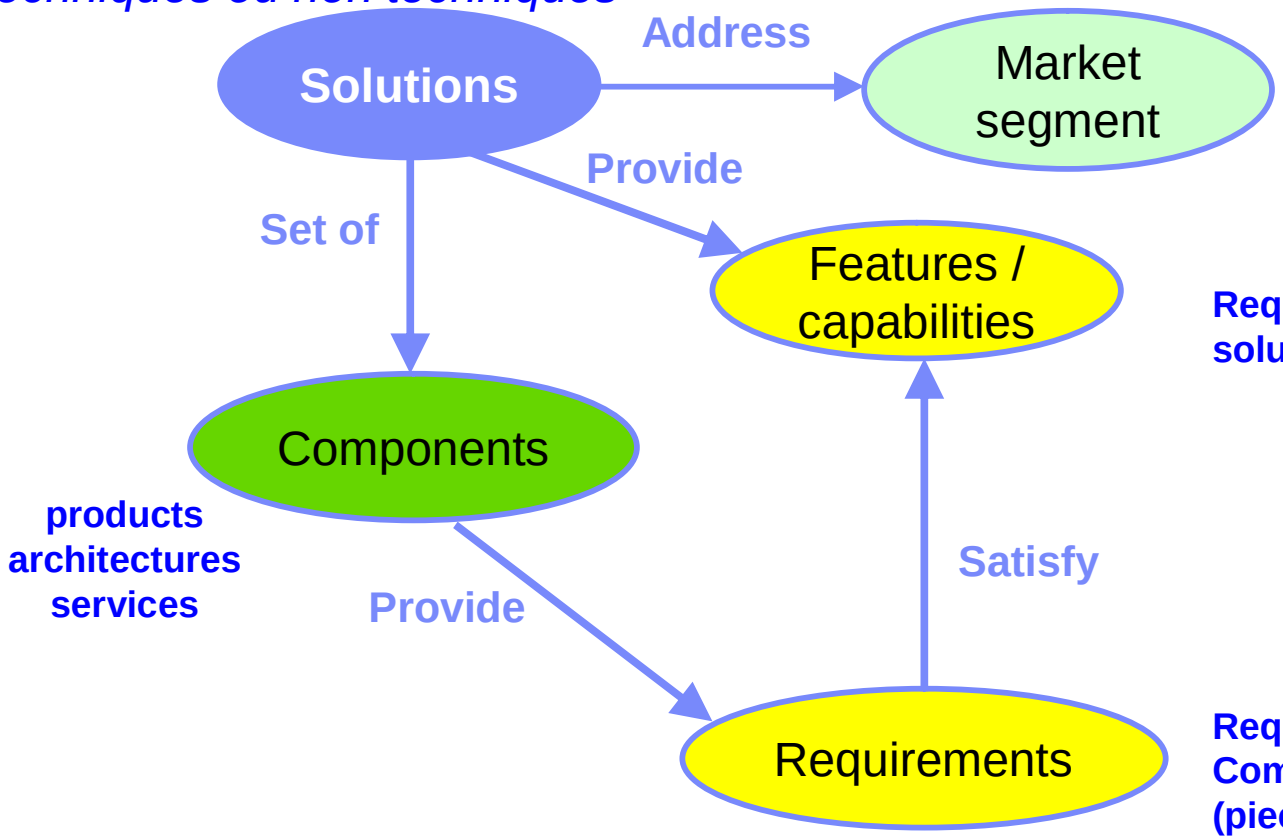


Attributes

© 2012 IBM Corporation

Modèle de données simplifié pour les Systèmes de systèmes

Système de systèmes =
solution composée de composants
techniques ou non techniques



Examples of market segments
- Buildings
- Data Center
- Hospital
- Oil & Gas
- Industry & Infrastructure
- Electrical Energy

Requirements for a solution (puzzle)

Requirements from Components (pieces of the puzzle)

© 2012 IBM Corporation

Acteurs et cas d'utilisation dans une approche Systèmes de systèmes

System Marketers

System requirements & priorities

System Architects

System capabilities & architectures

Requirements on contributing products

Product Marketers

Product & capabilities scheduling

Project Managers

Deliverable status & agenda

Information System

- Products
- Services
- Reference architectures
- Requirements
- Projects…

Validation of system level decisions

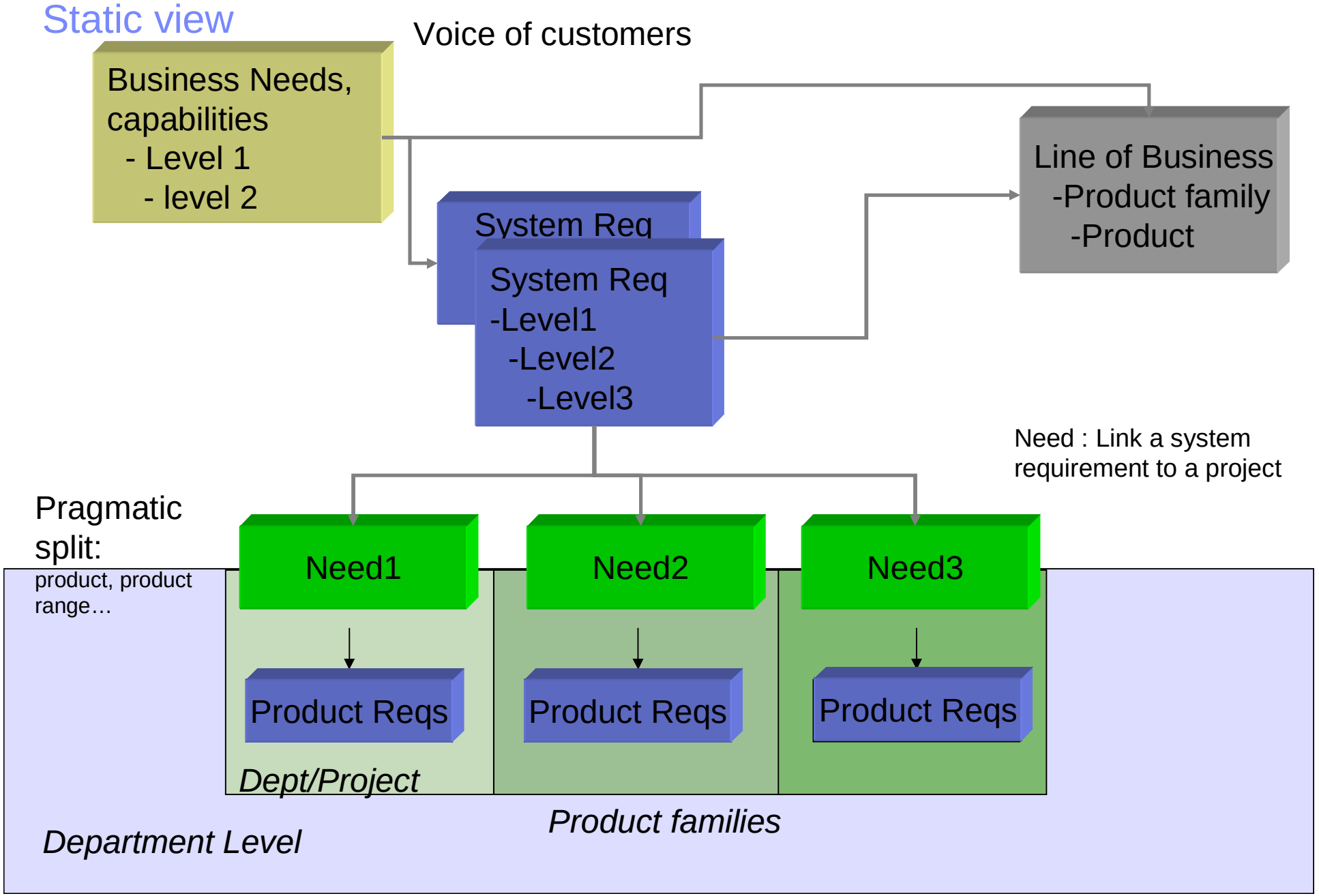
Program Manager

System Roadmap users
- Management
- Segment mkt

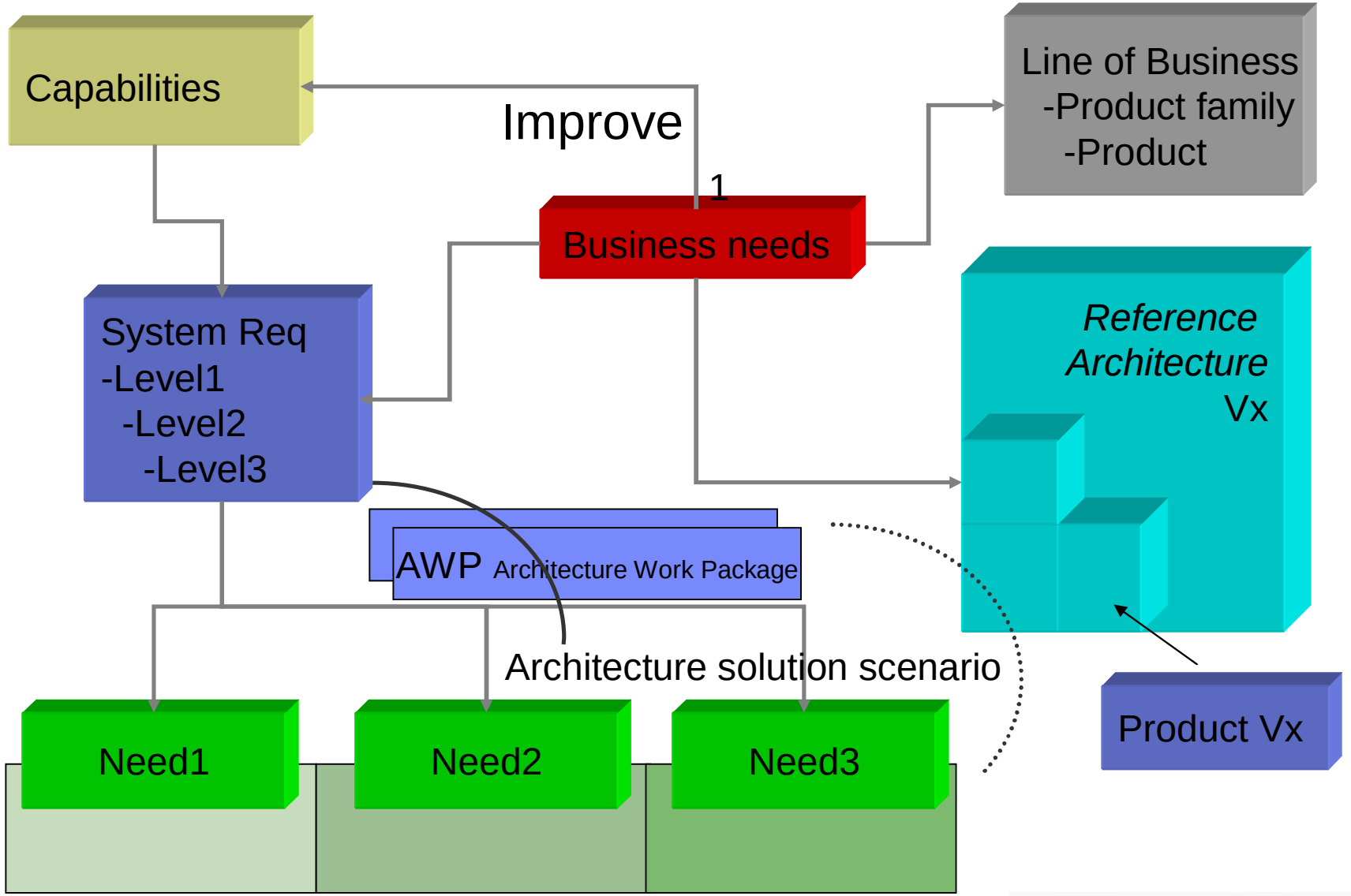
System Offer users
- Launch/sales
- System Support

© 2012 IBM Corporation

Static view

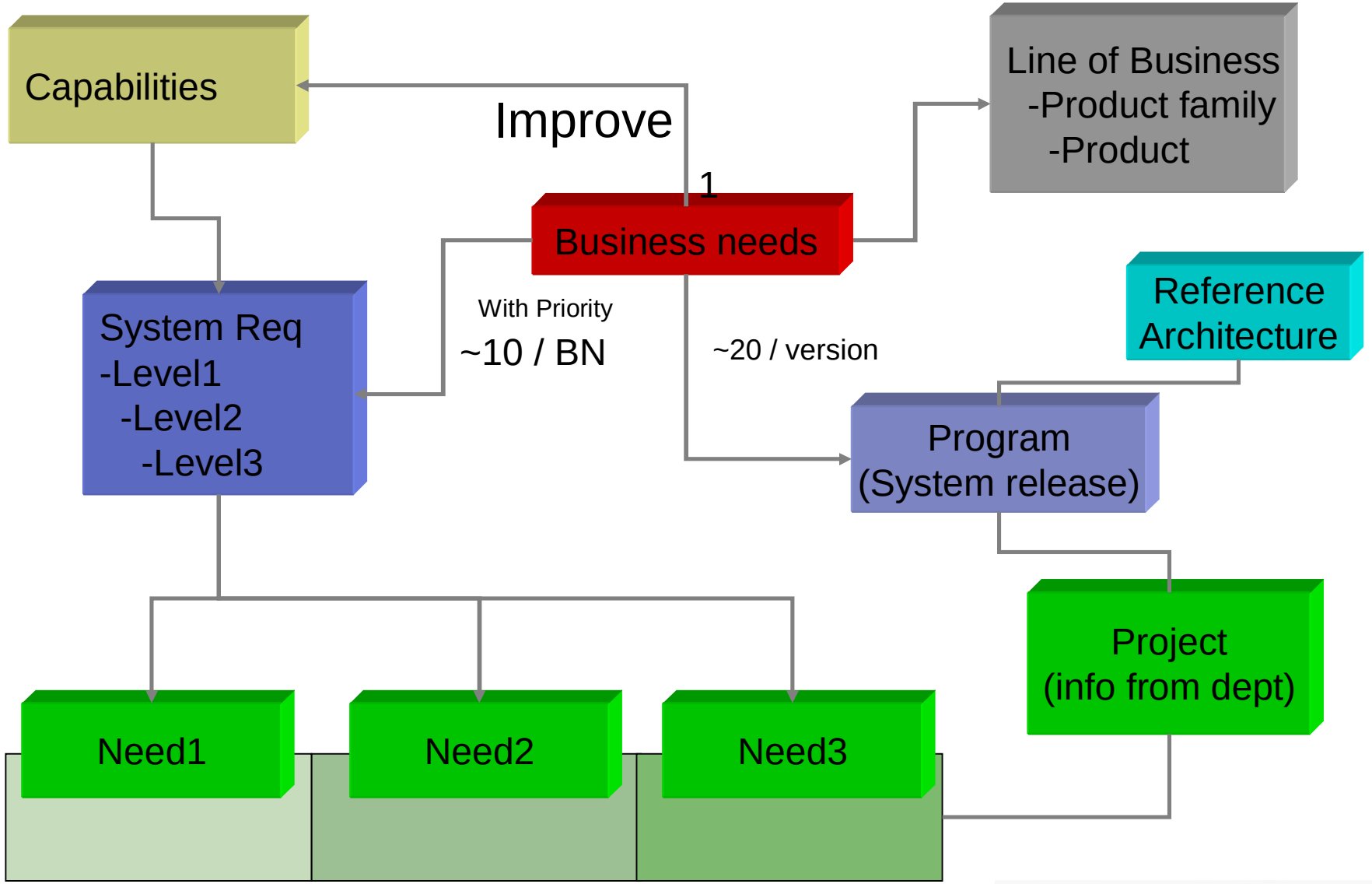

Voice of customers
Business Needs, capabilities
- Level 1
- level 2
System Req
System Req
-Level1
-Level2
-Level3
Line of Business
-Product family
-Product
Need : Link a system requirement to a project
Pragmatic split:
product, product range…
Need1
Need2
Need3
Product Reqs
Product Reqs
Product Reqs
Dept/Project
Product families
Department Level

Scenario : Architecture development process



© 2012 IBM Corporation

Scenario : Project setting / Program management / Roadmap update



© 2012 IBM Corporation

La négociation !

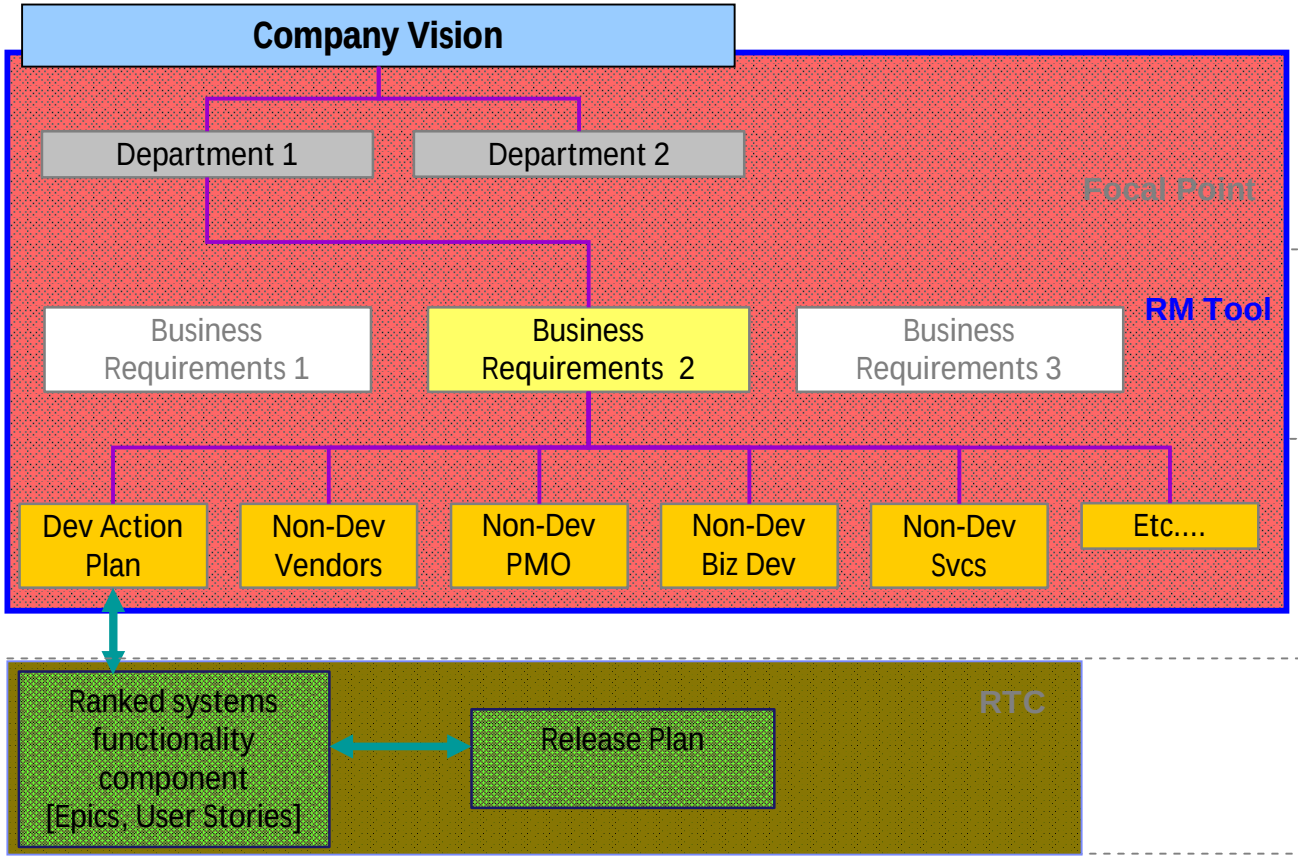
© 2012 IBM Corporation

Content

1. Introduction
2. Qu'est-ce qu'un systèmes de systèmes ?
3. Passage d'une stratégie orientée produit à une stratégie orientée solutions
4. Les méthodes : particularité de la gestion des exigences dans un contexte SOS
5. La solution Rational
6. Démonstration
7. Conclusion

© 2012 IBM Corporation

Support for planning, prioritization and execution



Organization-level business goals and objective

Business objectives that contribute to achieving one or more department-level objectives.

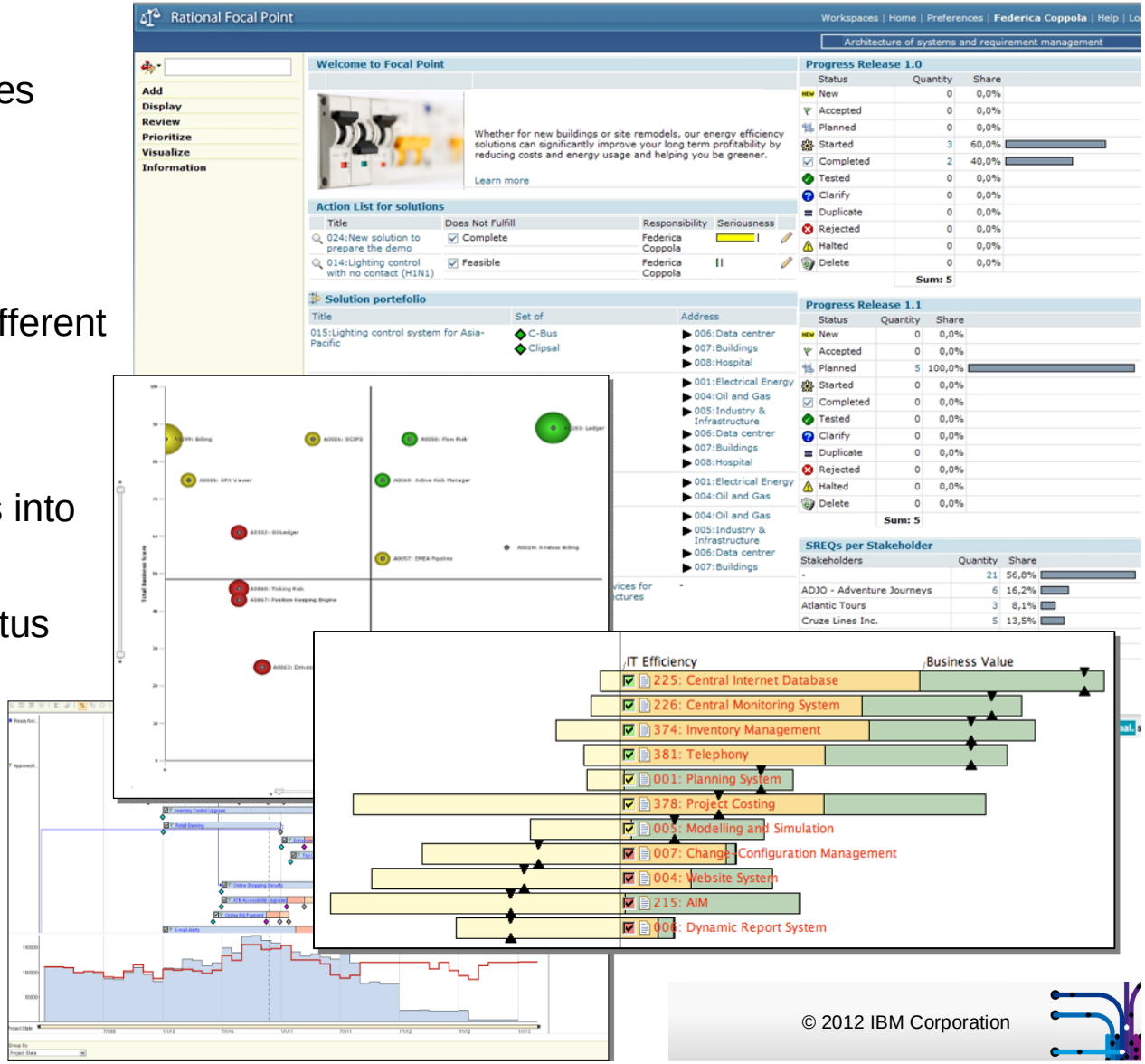
Specific dev and non-dev actions

Execution in RTC

© 2012 IBM Corporation

Focal Point pour le Project and Product Portfolio Management

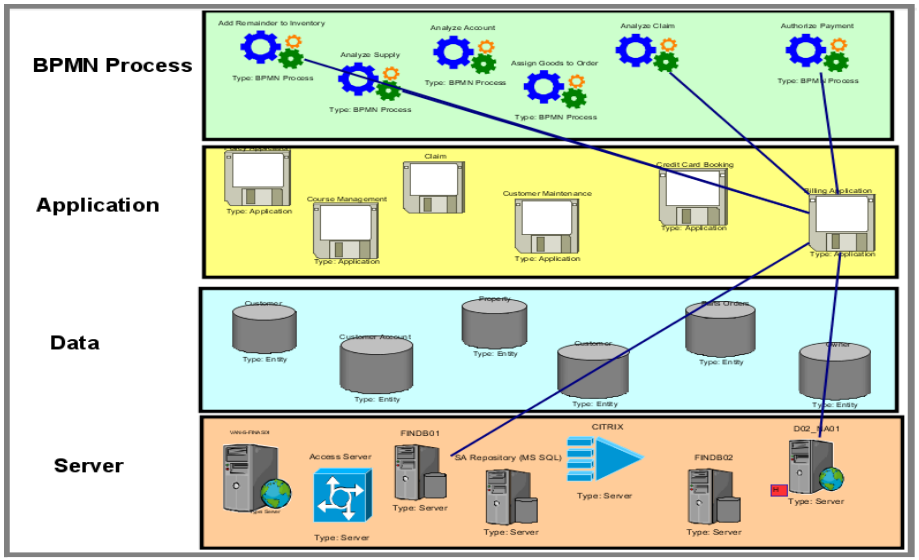
- Help Utilities to prioritize projects/architectures/capabilities based on gap analysis
- Capture what's important to stakeholders
- Show cost vs. benefit across different solutions
- Simulate roadmap
- Incorporate intangible variables into analysis
- Visualize and communicate status

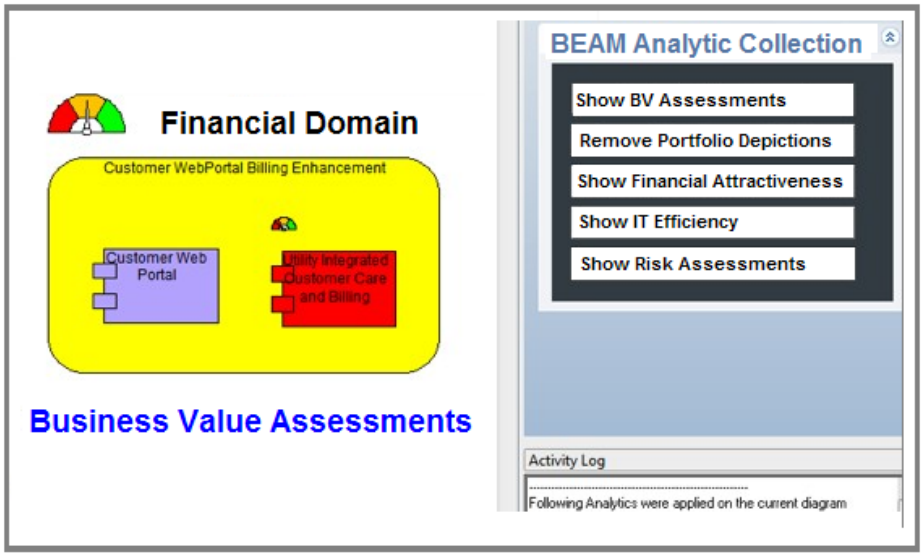


© 2012 IBM Corporation

System Architect pour l'Architecture d'entreprise et de systèmes de systèmes

- Helps government agencies and energy firms plan their transformation and mitigate risks, achieving maximum ROI
- Understand the current state of business, strategy and IT blueprint
- Collaborate with stakeholders on goals and resources
- Analyze and plan with impact analytics
- Road map energy transformation
- Identify gaps and candidates for change
- Create and analyze: Trade-off studies through "what-if" scenarios

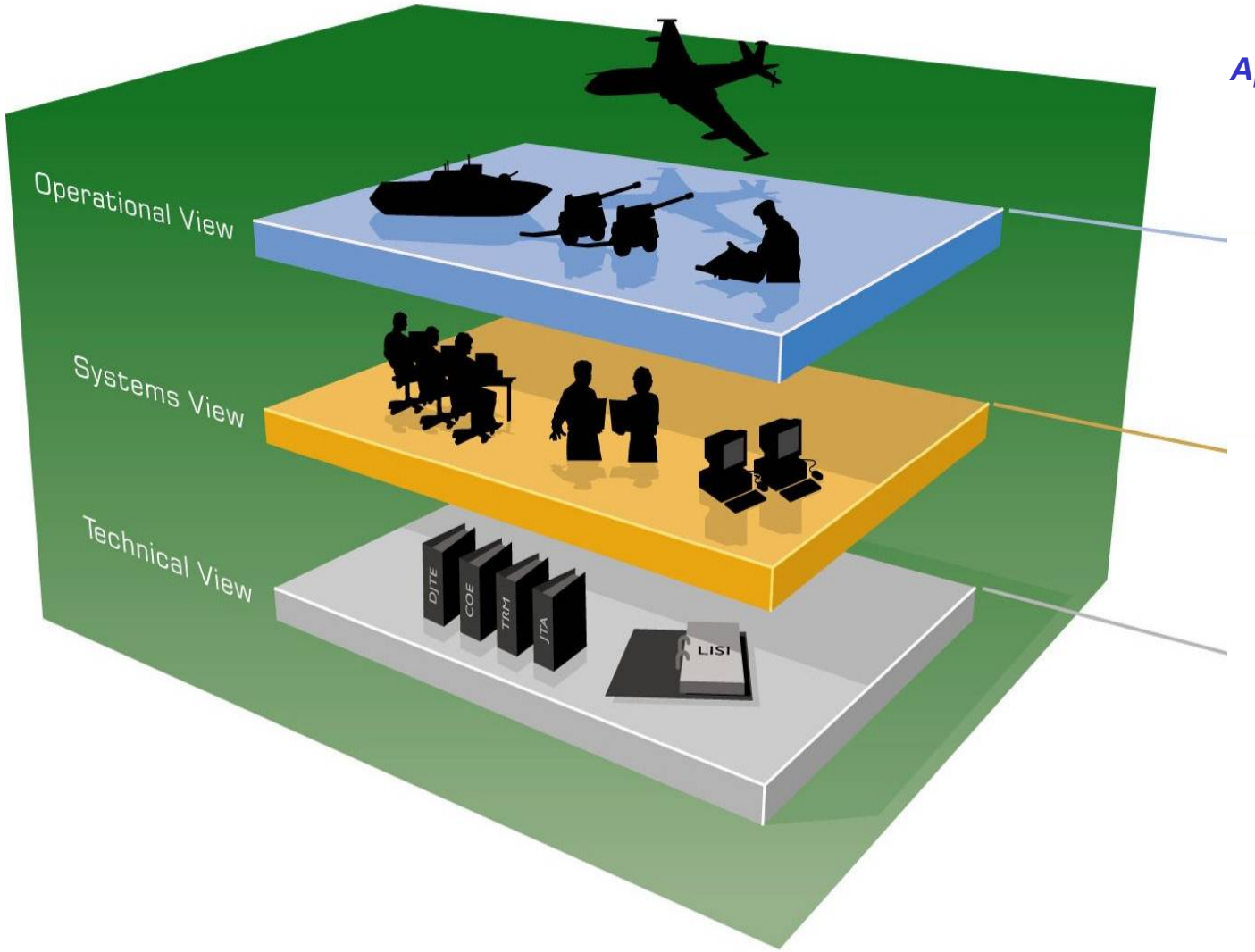




© 2012 IBM Corporation

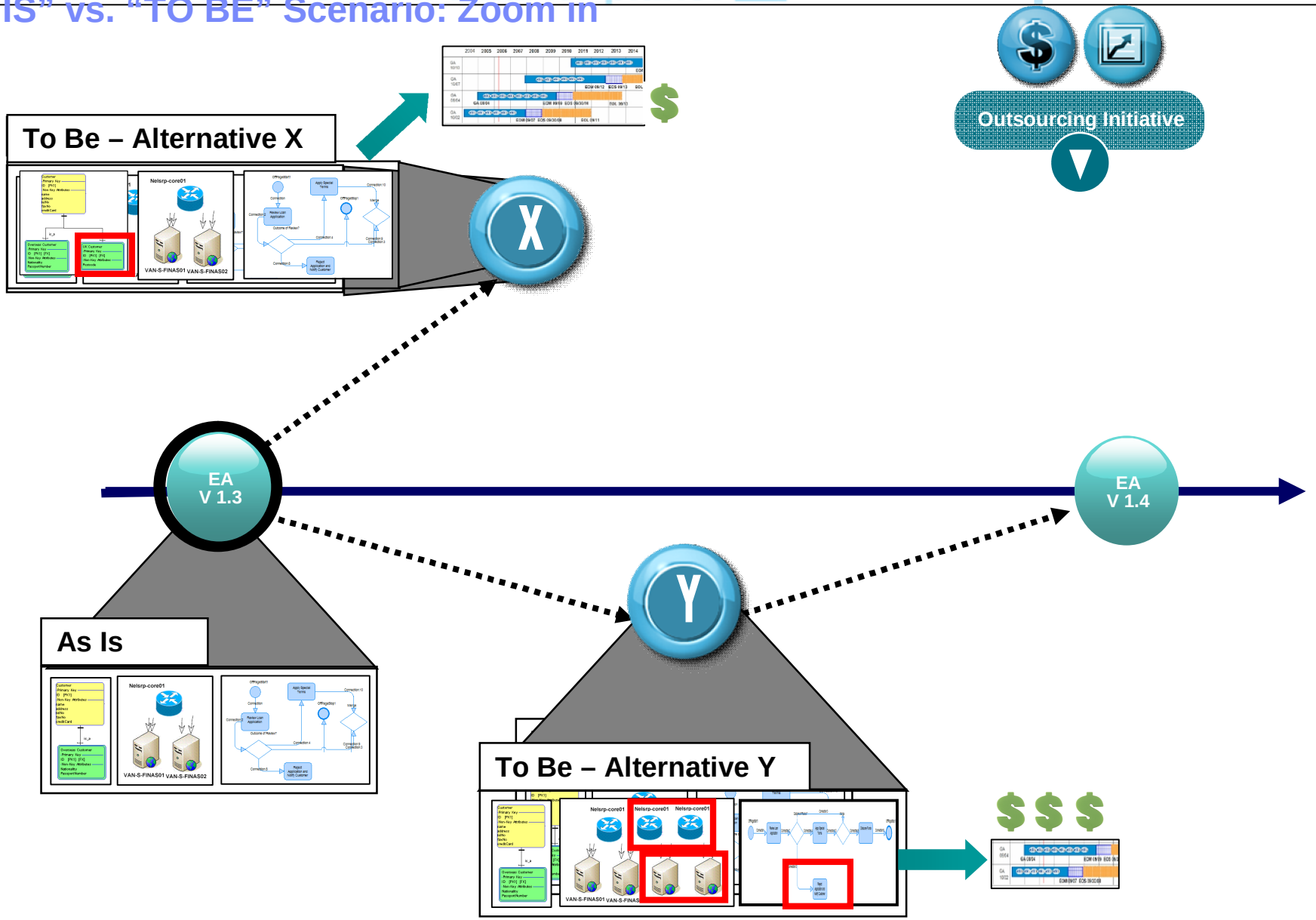
Supp SoS modelling with NAF

"the ***structure*** of ***components***, their ***relationships***, and the ***principles*** and ***guidelines*** governing their ***design*** and ***evolution*** over ***time***"



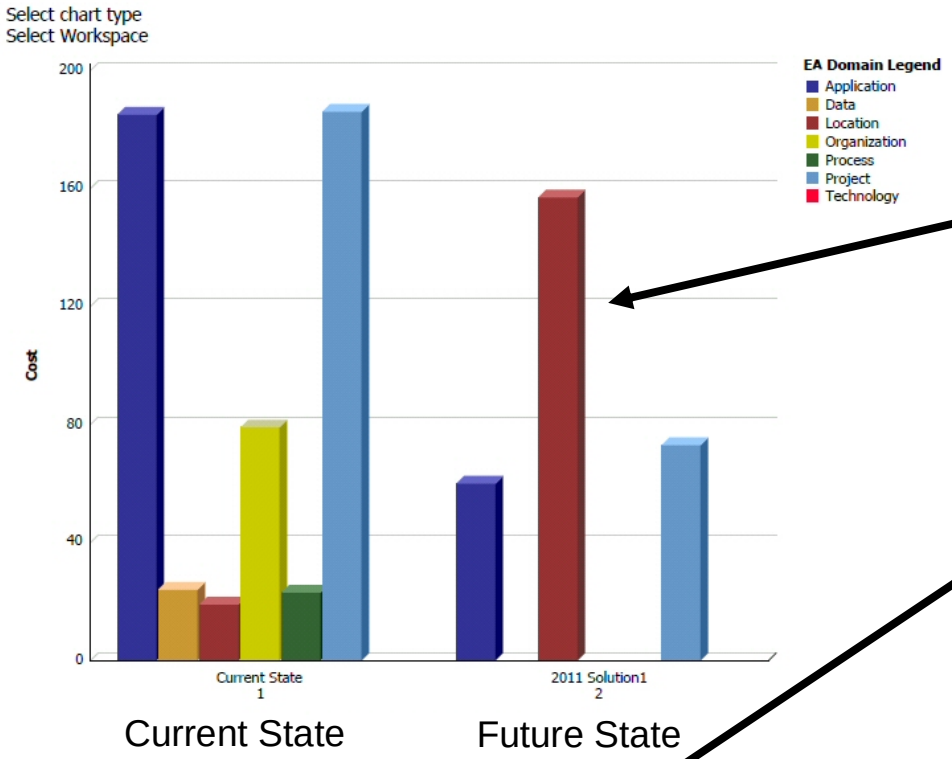
Applied to the Enterprise
across:

"AS IS" vs. "TO BE" Scenario: Zoom in



© 2012 IBM Corporation

Plan and Execute Transformation:
Reporting better visualizes the risk and impact of change



Compare current and future state architectures (across workspaces)

Identify impact of proposed changes

Avoid risk of transformation

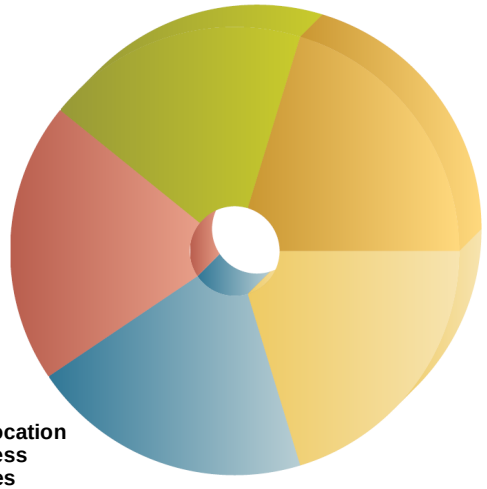
Impact Analysis Details | **Related Issues**

WorkspaceId	Name	Identity	Description	WorkspaceId	Identity	Name	Issue Type	Priority
1	Impact1	1		1	1	Issue1		High
	Impact2	2		2	3	Issue3		High
2	Impact3	3		1	2	Issue2		Medium

Issues are highlighted in color based on severity

© 2012 IBM Corporation

Plan Future Direction and Identify Innovation Needs:
Enhanced reporting of business dependencies and direction



Total Allocation of Business Resources

Report on business status, and build a change plan

Drill down into specific details in the business architecture

Map business functions to supporting roles, locations & technologies

Business Service Name	Description	Stereotype	Is Owned by Organization Unit	Is Governed by Organization Unit	Consumed by Actor
Account Administration		Business Service Depiction	Accounts		Customer Services Representative
Archive Account		Business Service Depiction	Accounts		
Assess Risk		Business Service Depiction	Finance		Sales Manager,Customer Services Representative
Campaign launch control		Business Service Depiction	Marketing		Marketing Manager
Campaign Management		Business Service Depiction	Marketing		

Business service dependency on Technology Components

Name	Identity	WorkspaceId	Description	Name	Identity	WorkspaceId	Description	Hosted at Location
BS1	1	1		1	1	1		

© 2012 IBM Corporation

Content

1. Introduction
2. Qu'est-ce qu'un systèmes de systèmes ?
3. Passage d'une stratégie orientée produit à une stratégie orientée solutions
4. Les méthodes : particularité de la gestion des exigences dans un contexte SOS
5. La solution Rational
6. Démonstration
7. Conclusion

Corinne Bacle

© 2012 IBM Corporation

Rational Focal Point value

- Capture Ideas and proposals
- Manage the details of architectures, capabilities, projects and portfolios
- Prioritize and compare based on qualitative and quantitative data
- Make sensible decisions on where to invest based on facts
- Plan future projects to avoid resource bottlenecks
- Gain visibility of on-goin projects to easily identify problems before they occur

© 2012 IBM Corporation

Liens vers des présentations web de Rational Focal Point

- Gestion des business cases :
- http://www.youtube.com/watch?v=EBYs2w_292Q

- Gestion des priorisations
- http://www.youtube.com/watch?v=7LjZQ7fp6Vo

- Focal Point project portfolio 7 minutes demo
- http://www.ibm.com/developerworks/offers/lp/demos/summary/r-focalpointppm.html?S_CMP=rnav

- Exemple d'intégration Rational System Architect / Rational Focal Point
- http://www.youtube.com/watch?v=0VWjOwKANV0&feature=uploademail
- *More Focal Point case-studies, visit –*
- *http://www-01.ibm.com/software/success/cssdb.nsf/softwareL2VW?OpenView&Count=10&RestrictToCategory=default_RationalFocalPoint&cty=en_us*

© 2012 IBM Corporation