



IBM Global Business Services

Strengthen Enterprise Architecture Governance with Brownfield Development

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Brownfield Development

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recession constrains IT spending

increasing maintenance costs due to complexity

increasing levels of legislation and regulation

integration and migration become more complex

more demand for ongoing cost reduction

inability to react to market forces

unlock new business value from existing systems

rekindle client innovation

keep ahead of the competition

decrease integration costs

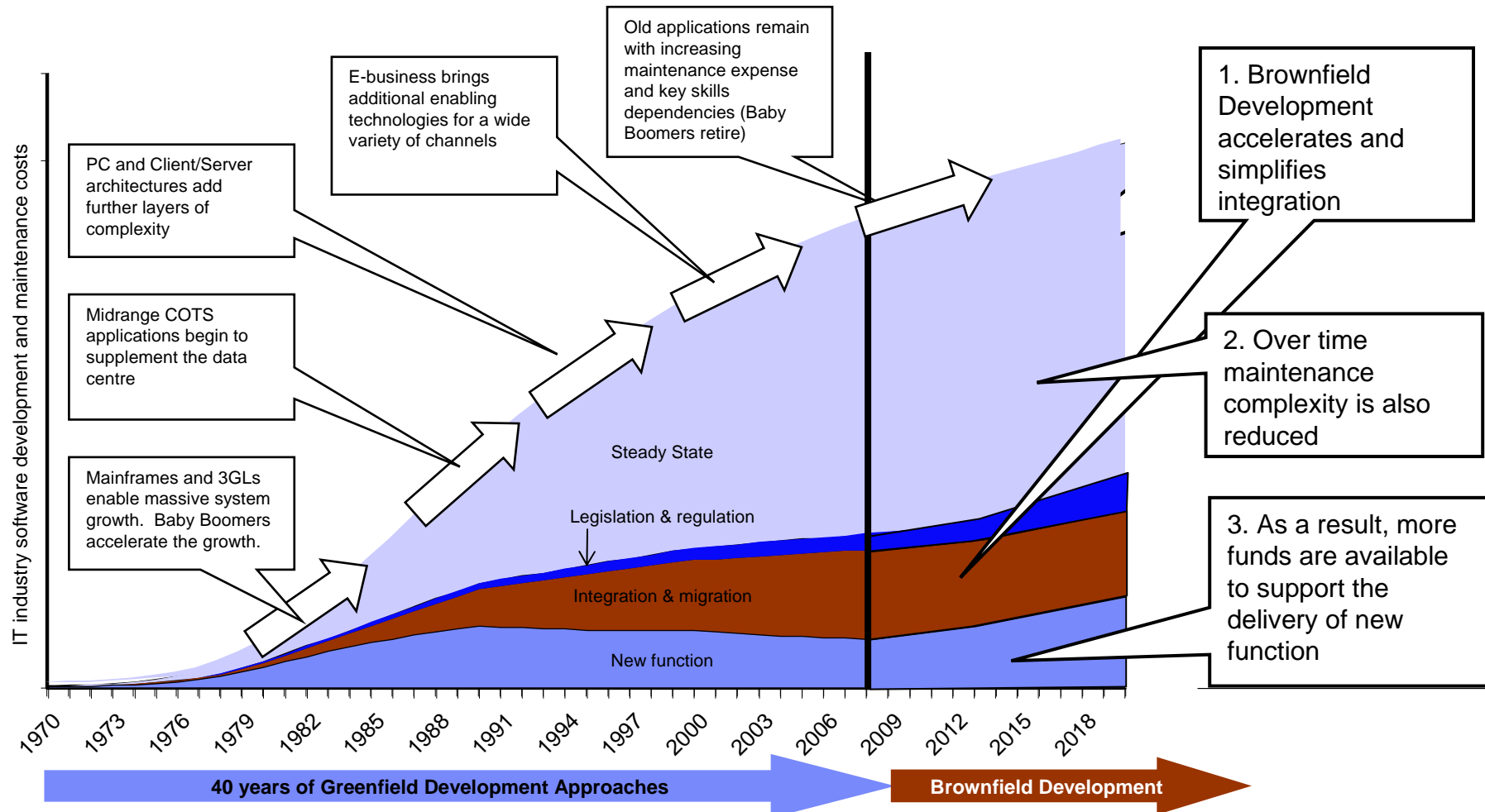
decrease long term maintenance costs

After 40 years of investment, IT runs the world, but its legacy is crushing innovation

500 million years of programming effort

IBM will lead the reversal of this trend with Brownfield Development

Brownfield Development provides a way out of this 40-year old complexity trap.

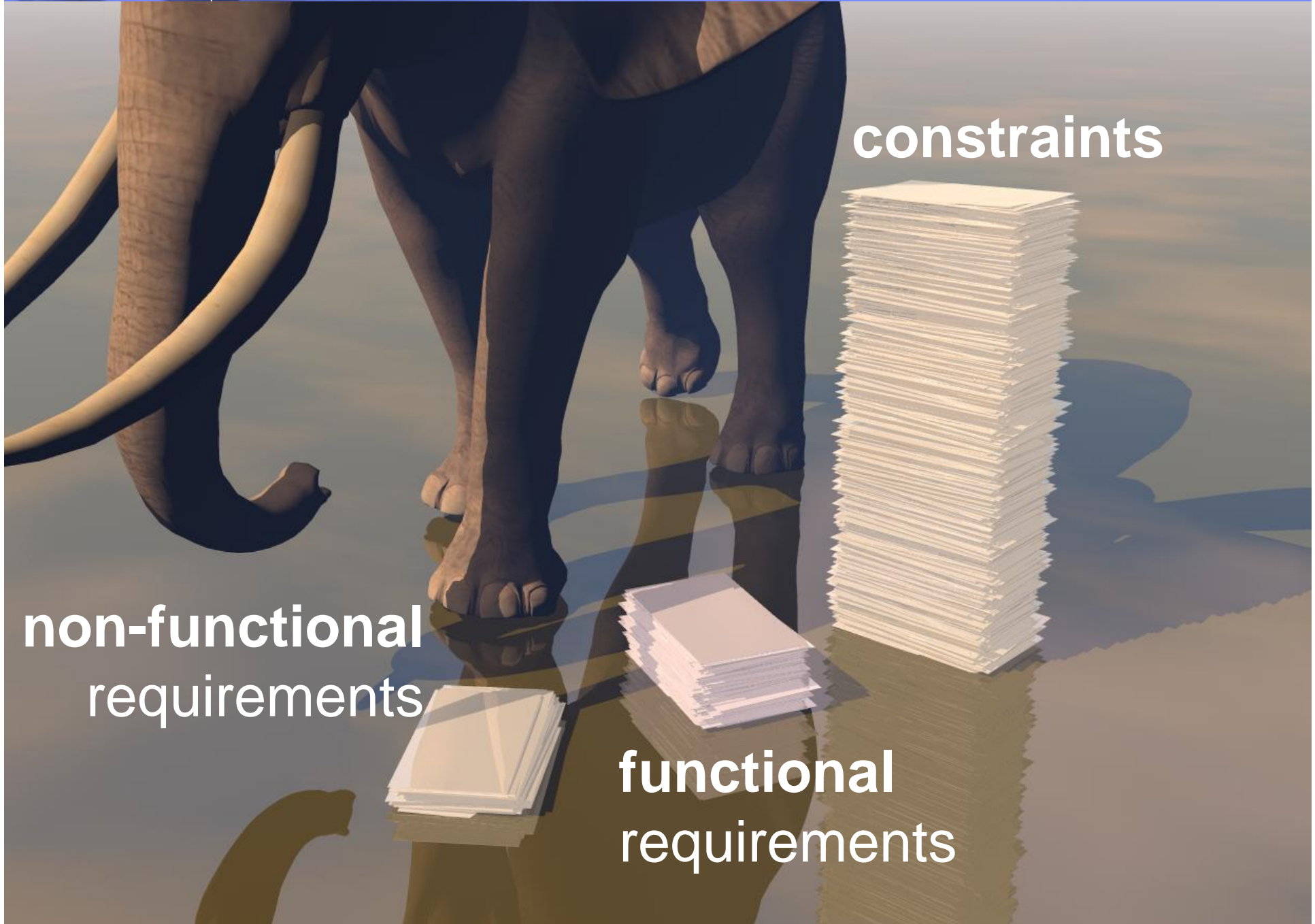


Sources: Capers Jones, *SW Repair and Renovation in 21st Century*; Forrester *IT Spending Benchmark*, *Brownfield Study Findings*

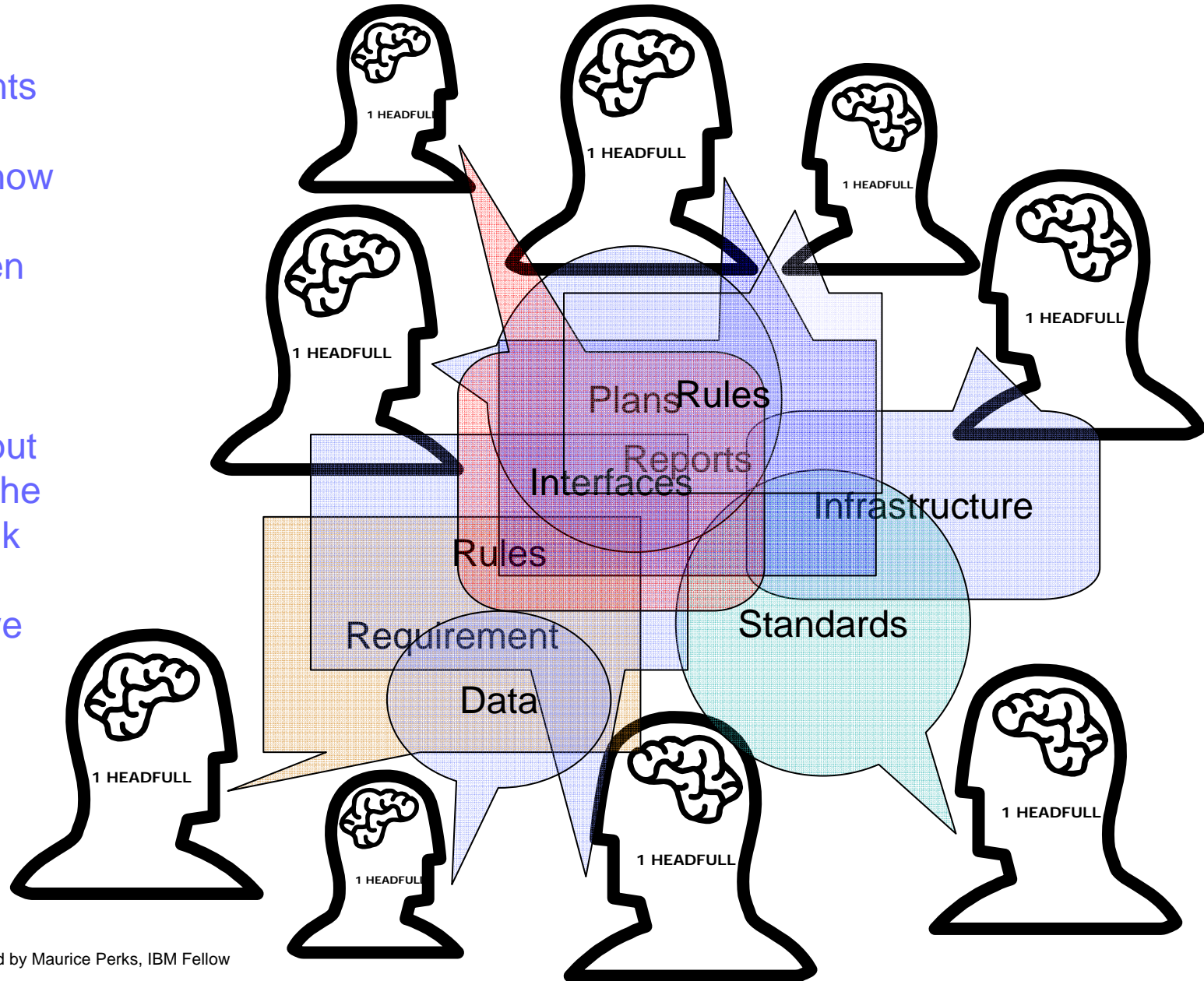
constraints

**non-functional
requirements**

**functional
requirements**

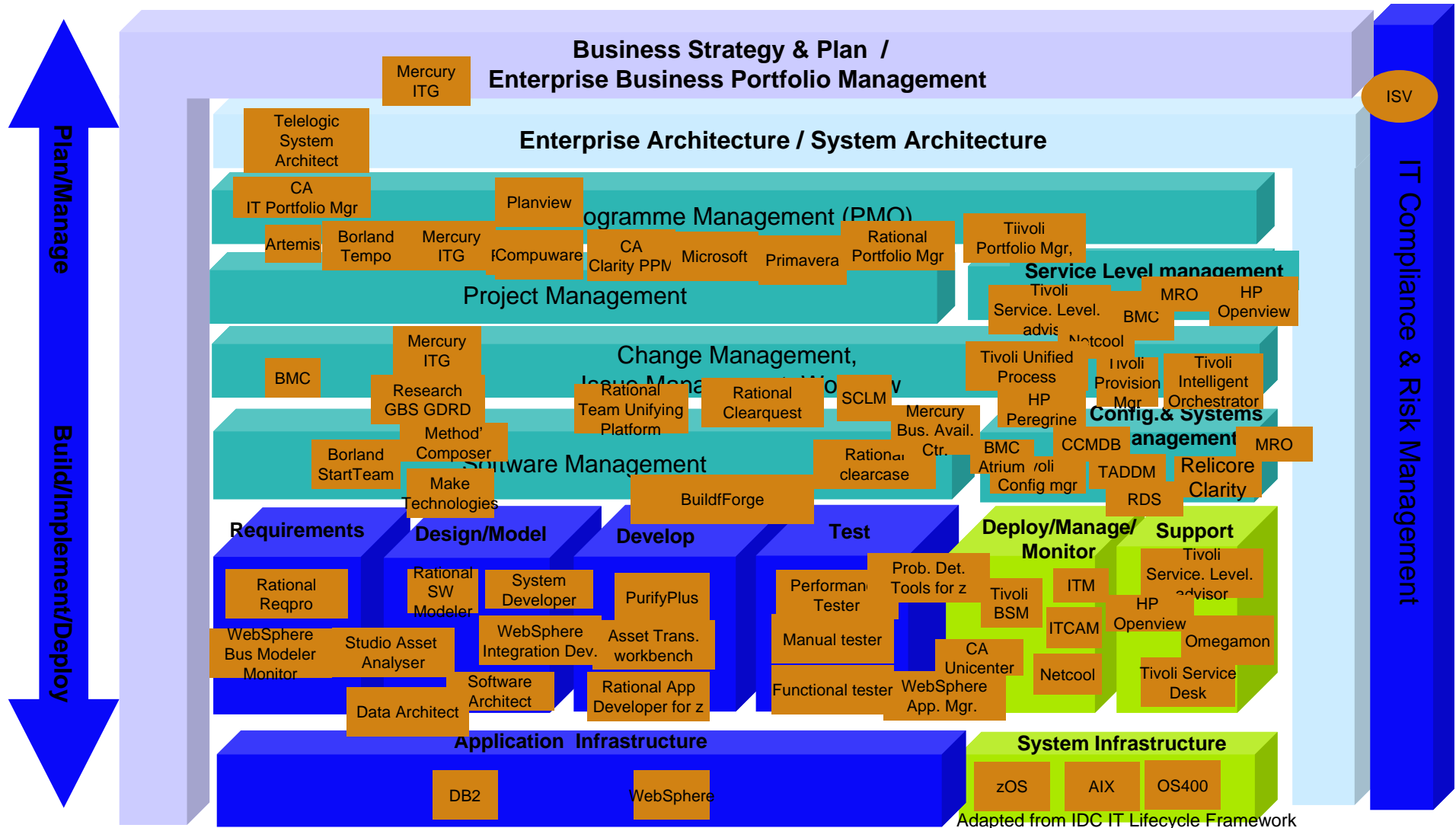


Knowledge of these constraints and the knowledge of how to deliver the project are often in many independent headfulls™. Not only that, but the owners of the headfulls all talk different languages... we often use imprecise abstractions to get our heads around the problem...



™ – Headfulls were invented by Maurice Perks, IBM Fellow

The tools and skills to manage this complexity are similarly fragmented, making it difficult to manage and change the Brownfield environment.



An effective Enterprise Architecture function must recognise there is an **“abstraction gap”** that must be filled to help understand and control this complexity

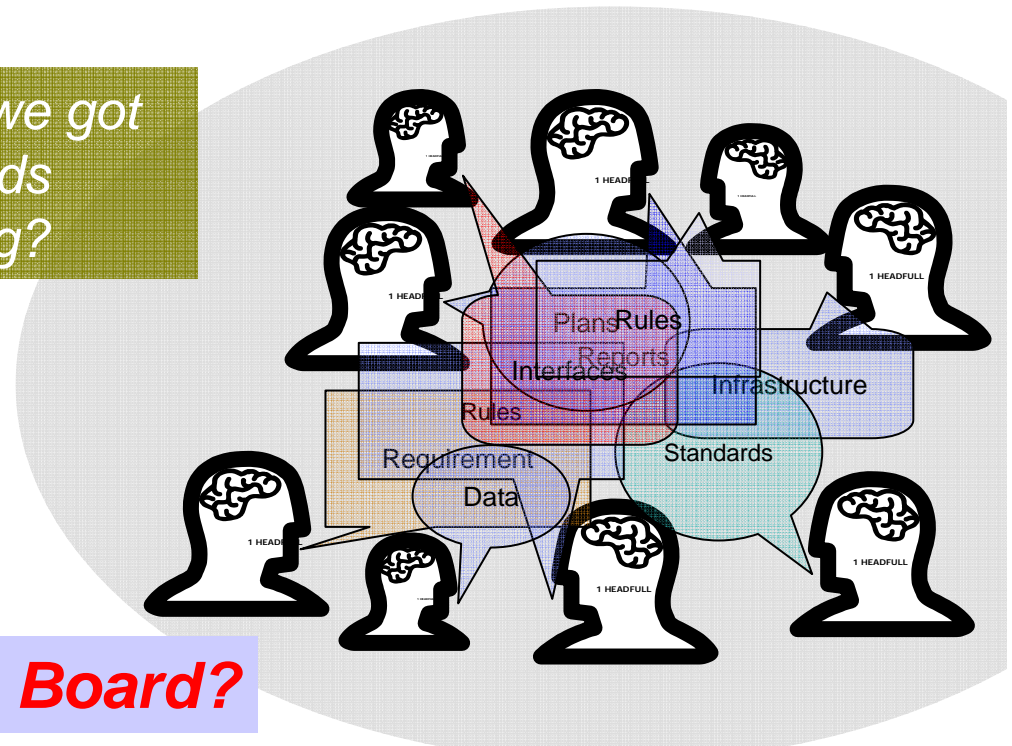


How do we operate today?

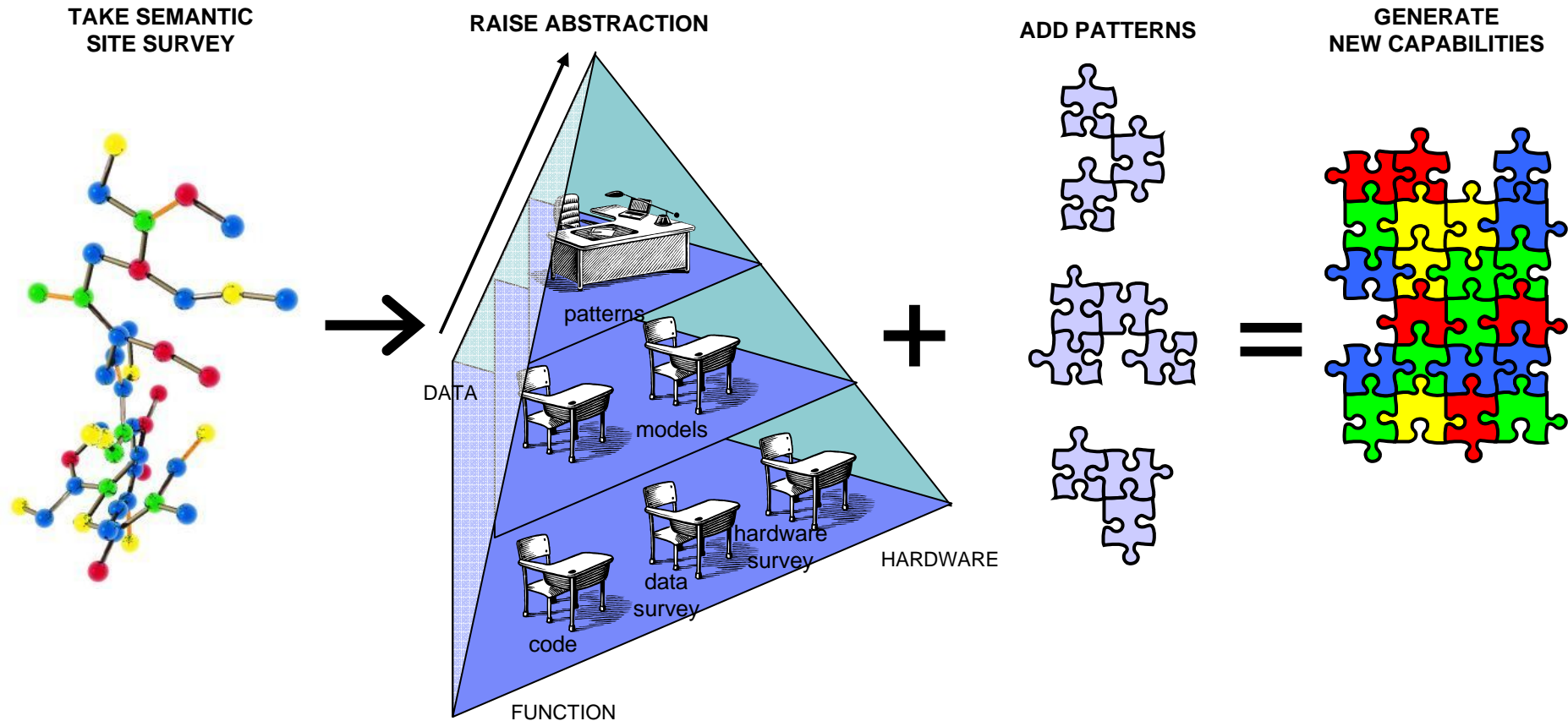
What have we got that needs changing?

Do we know how to change it?

...how shall we advise the Board?



New techniques to provide higher levels of abstraction of complex Brownfield landscapes will provide enhanced understanding; combined with best practice patterns this will generate new capabilities that fit.

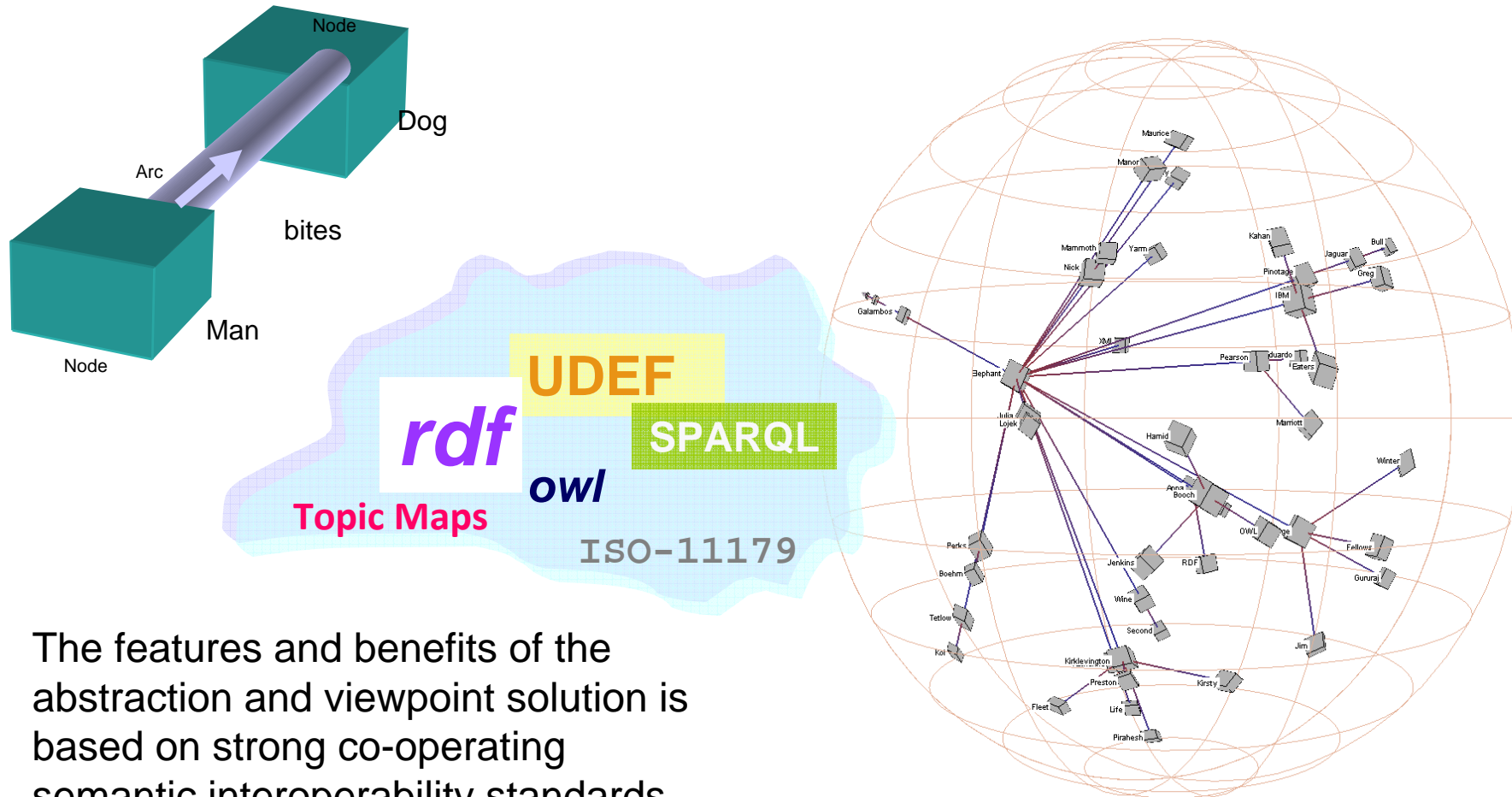


1. Capture formal Views of existing assets via Site Survey using existing tools and convert into triples. Cross reference this information and store in the Inventory.

2. Raise abstraction level of this information via automated (not automatic) aggregation, abstraction and pattern recognition.

3. Use all layers of Inventory to extract data, combine it with existing patterns and re-generate new capabilities which fit within the existing landscape.

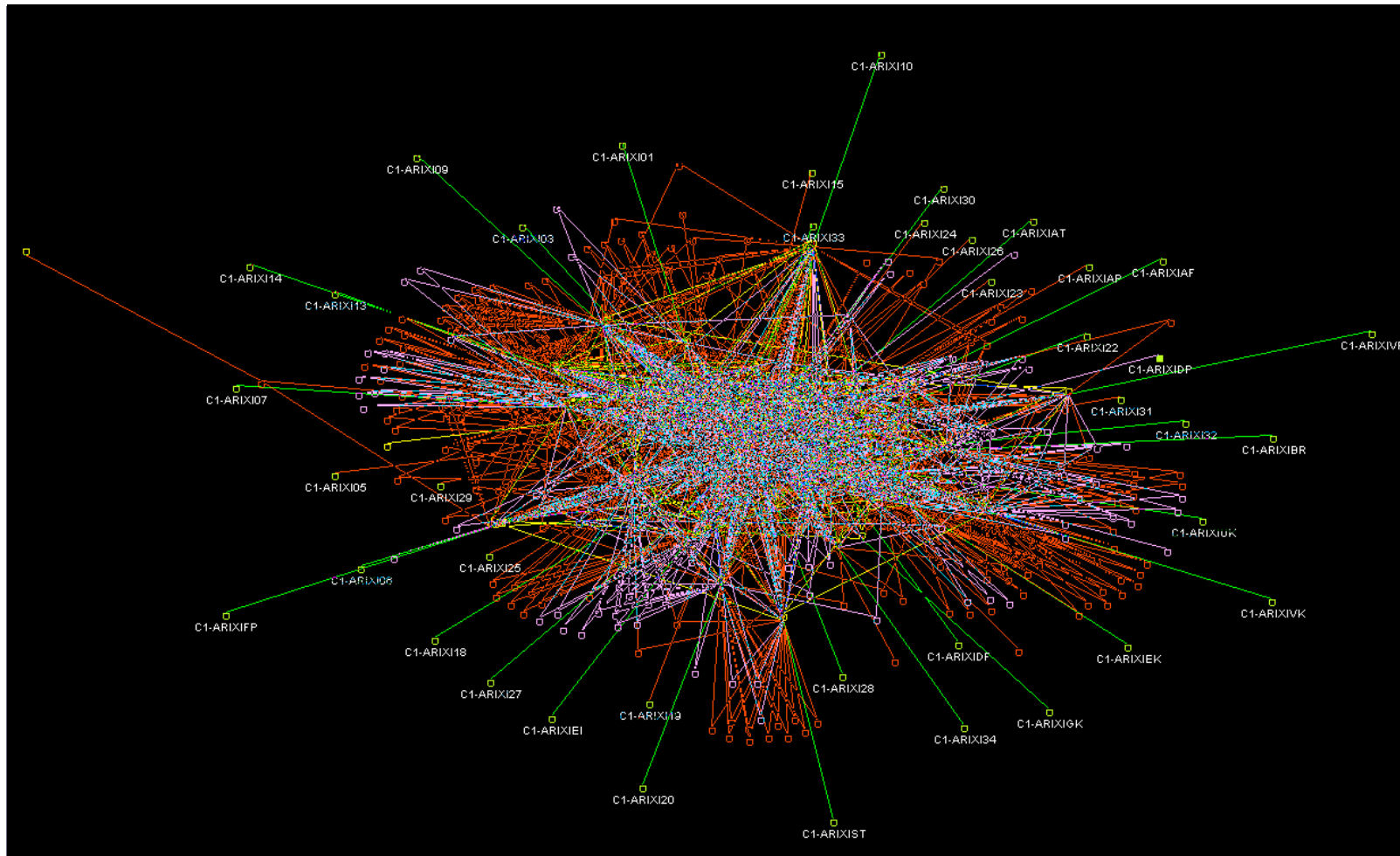
We build up the knowledge-base as an inventory of cross-referenced triples.



The features and benefits of the abstraction and viewpoint solution is based on strong co-operating semantic interoperability standards.

H3 viewer by Tamara Munzner , [Department of Computer Science, University of British Columbia](#) Graphics, Visualization and HCI group

The triples undergo incremental filtering and aggregation.

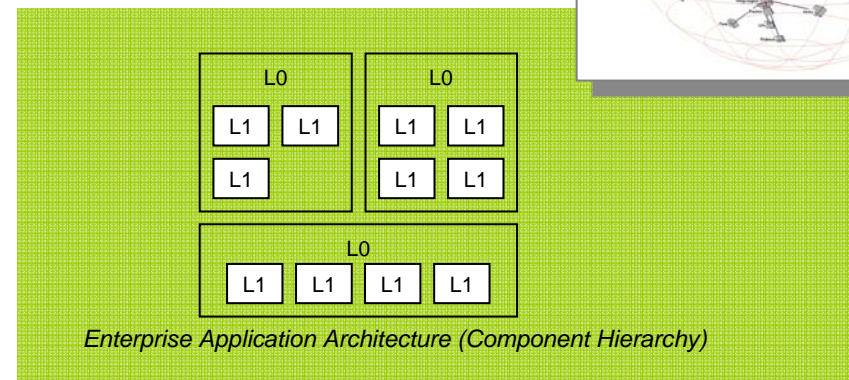
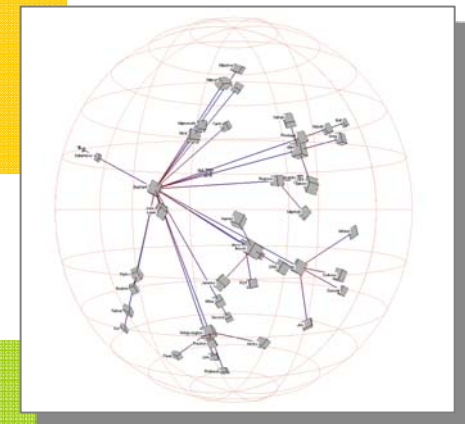
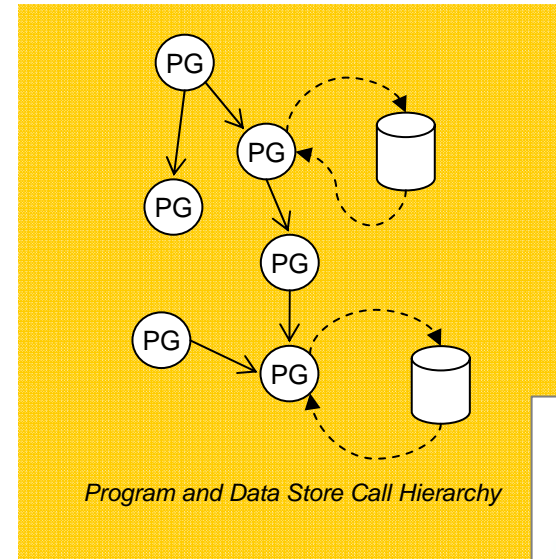


Rigi from [University of Victoria](#) in the [Department of Computer Science](#), headed by [Dr. Hausi Müller](#). Source code IBM SQL/DS

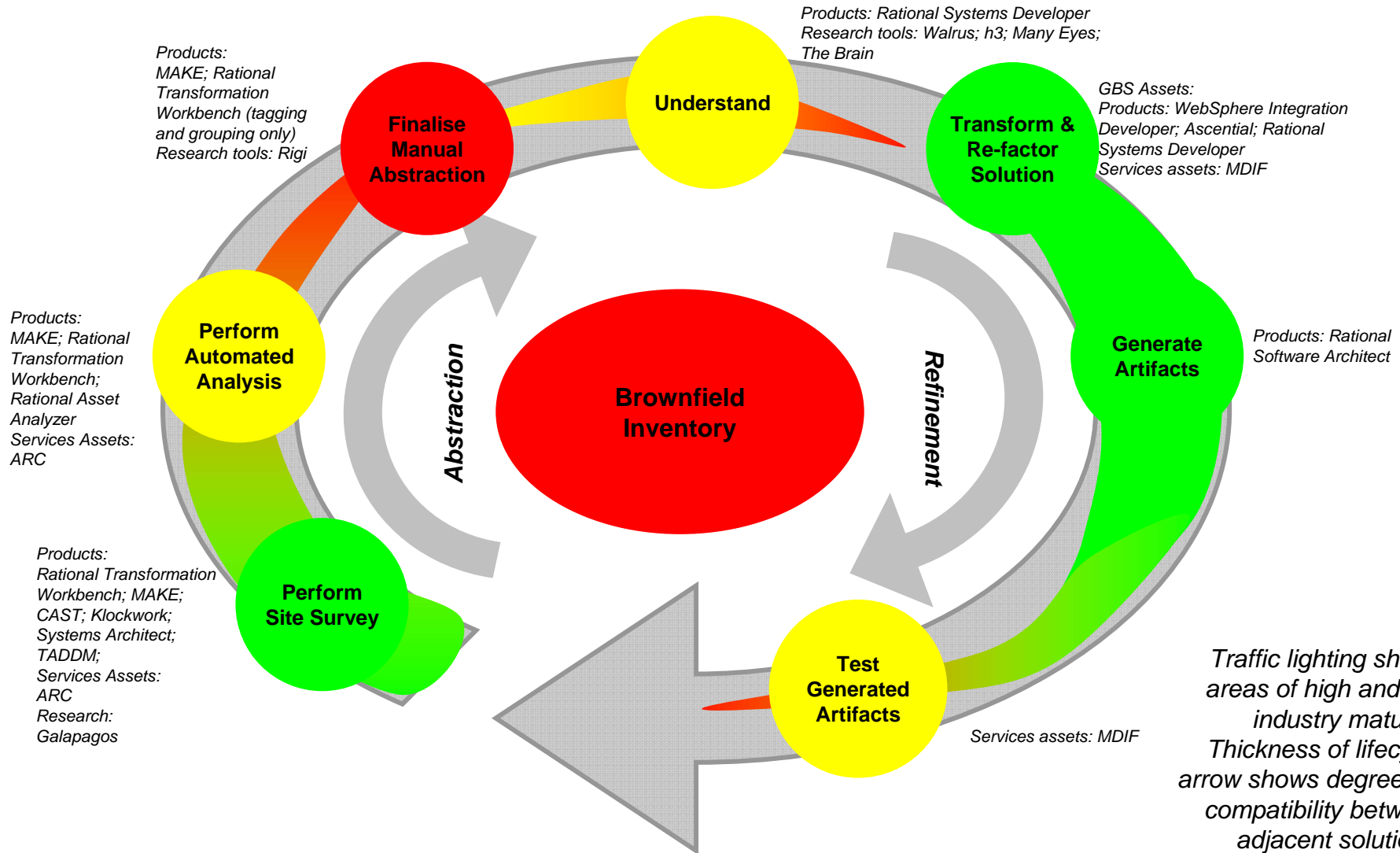
One example capability pattern is aligning our legacy system knowledge with our Enterprise Architecture.

- We capture a detailed map of the legacy programs and their functions
- We also capture our governance models and target application solutions in the inventory
- We create insight that understands which existing functions and interfaces relate to target application components
- We can assess and size the impact of change

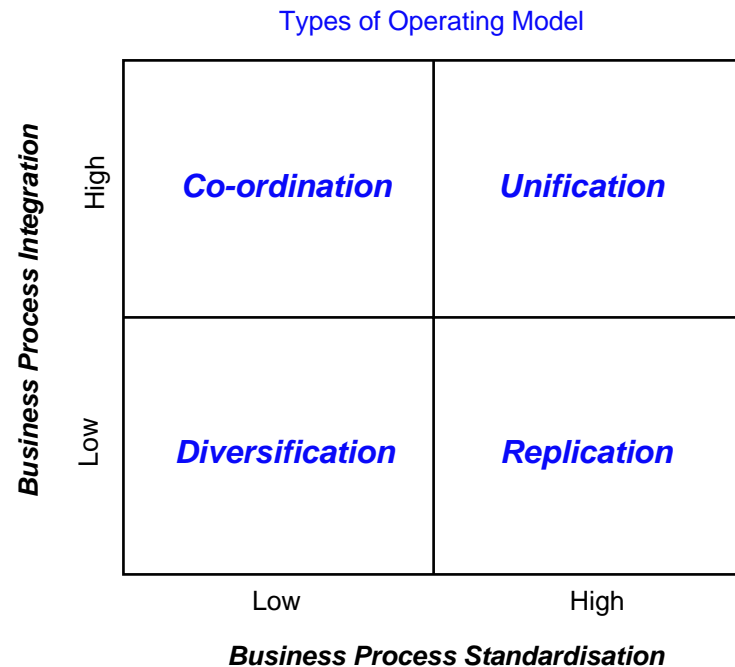
We can fill the “**abstraction gap**”



No vendor currently completes the Brownfield lifecycle; there are air gaps which IBM is now bridging for its major clients.



Thinking of a Brownfield Strategy in wider terms it can be used to strengthen the foundations for your organisation's target operating model.



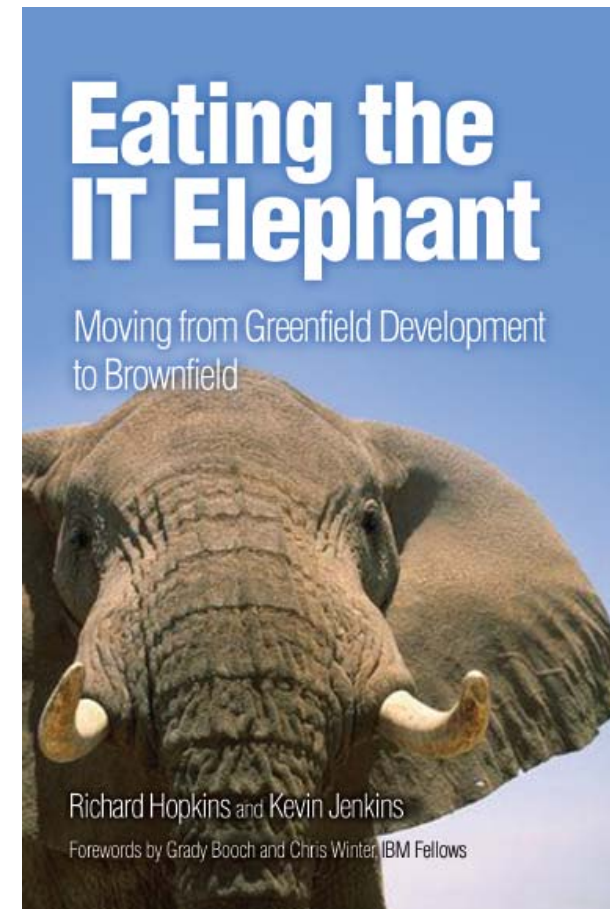
- Brownfield Development can help transition IT systems to solidify a target operating model
- Discovering business process logic and interfaces can help rationalise or integrate systems and share customer data
- Insight to systems is a sound foundation for governing the Enterprise Architecture and directing transformation strategies

Source: MIT Sloan Center for Information System Research

Conclusion

- Brownfield Development is a new capability which offers new directions and opportunities for our industry in difficult times:
 - Existing investments can be preserved
 - Smaller incremental changes can be performed rather than wholesale re-engineering programmes
 - Delivery in complex environments is accelerated

- Further information available:
 - Wikipedia under “Brownfield – Software Development”
 - YouTube under “Brownfield” and “IBM”
 - Blog at elephanteaters.org/blogger.html
 - The book opposite



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