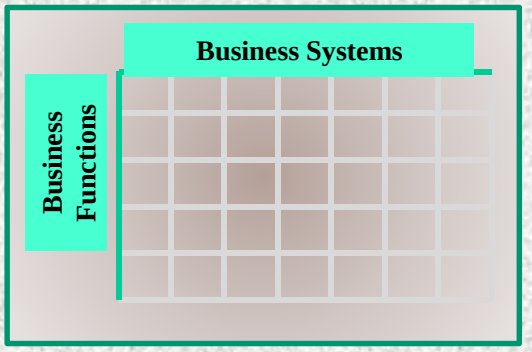


The key linkage of Strategy, Process and Requirements

Leveraging value from strategic business architecture

By: Frank Kowalkowski, Knowledge Consultants, Inc..
Gil Laware, Information By Design, LLC

This material is taken from the book:
Business Analysis for Managers:
A Simple, Effective Approach using Enterprise Analysis
By: Frank F. Kowalkowski
For Publication in the summer of 2013
Technics Publications

Agenda

- The problem with requirements today
- The variety of architectures
- Strategic Business architecture defined
- Process Architecture
- Requirements Architecture
- Requirements analytics
- Creating value from analytics

Key Ideas from the Past:
Reasons to keep an open mind

IBM Leader, refusing to back the idea, forcing the inventor to found Xerox:

"I don't know what use any one could find for a machine that would make copies of documents. It certainly couldn't be a feasible business by itself.“

Yale University management professor’s response to Fred Smith's paper (Founder of FEDEX) in proposing reliable overnight delivery service:

"The concept is interesting and well-formed, but in order to earn better than a 'C’, the idea must be feasible.."

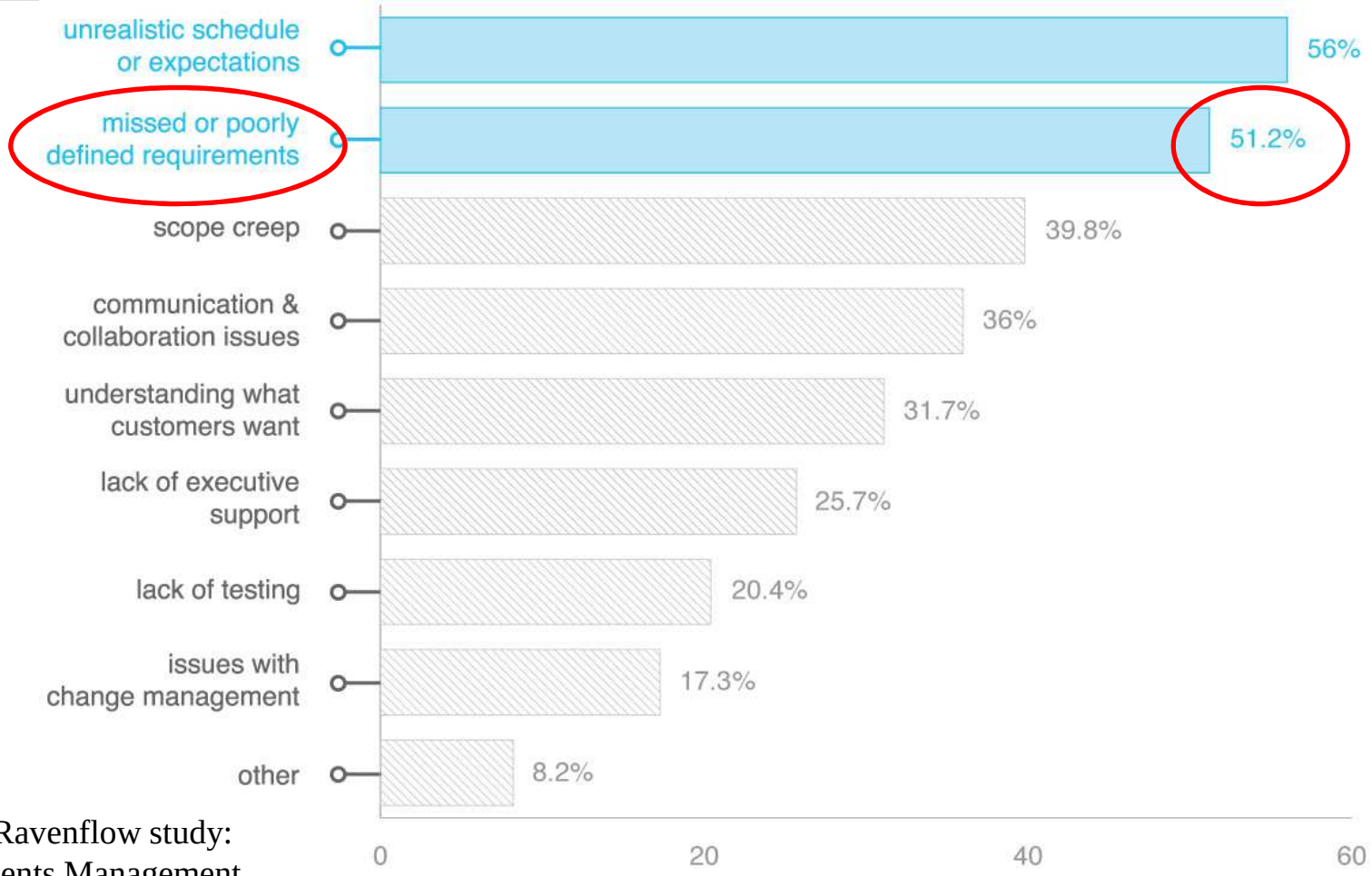
The requirements issue is about the quality of the requirements:

- The key findings of a 2008 study were:
  - There is a **60** % time and cost premium to be paid on projects with poor quality requirements.
  - Fewer than one-third of companies are well-equipped to do a good job on business and software requirements and most companies pay for this with unsuccessful projects.
  - Sub-optimal requirements consumes approximately **41.5** % of the IT development budget for people (internal and external) and software on strategic projects.

- The study finds two basic scenarios:
  - In one group, companies are generally successful at delivering projects and approximately **50** % are delivered on time and on budget. These companies also excel at doing good business requirements.
  - In the other scenario, companies are not successful in their projects, and in **50** % of cases budget or time runs excessively over while a fraction of functionality is delivered. These companies are not good at doing Requirements.

Taken from: Assessing the Impact of Poor Requirements on Companies
An IAG Business Analysis Benchmark Report Extract By: Keith Ellis

Still today, poorly defined requirements are a problem… Stated barriers to success:



Taken from the 2011 Ravenflow study:
The State of Requirements Management

Decide what you want to analyze!

Use enterprise analysis concepts for this

- Categorize symptoms and issues
- Assess impact/risk of:
  - Change, things in a state of flux that may be causal
  - Performance impacted by the change
    - Balance of employee skills peaks and mental attitude
    - Results indicators impacted by process and hence systems performance
- Rank areas of focus and risk

The 3 rules of analysis

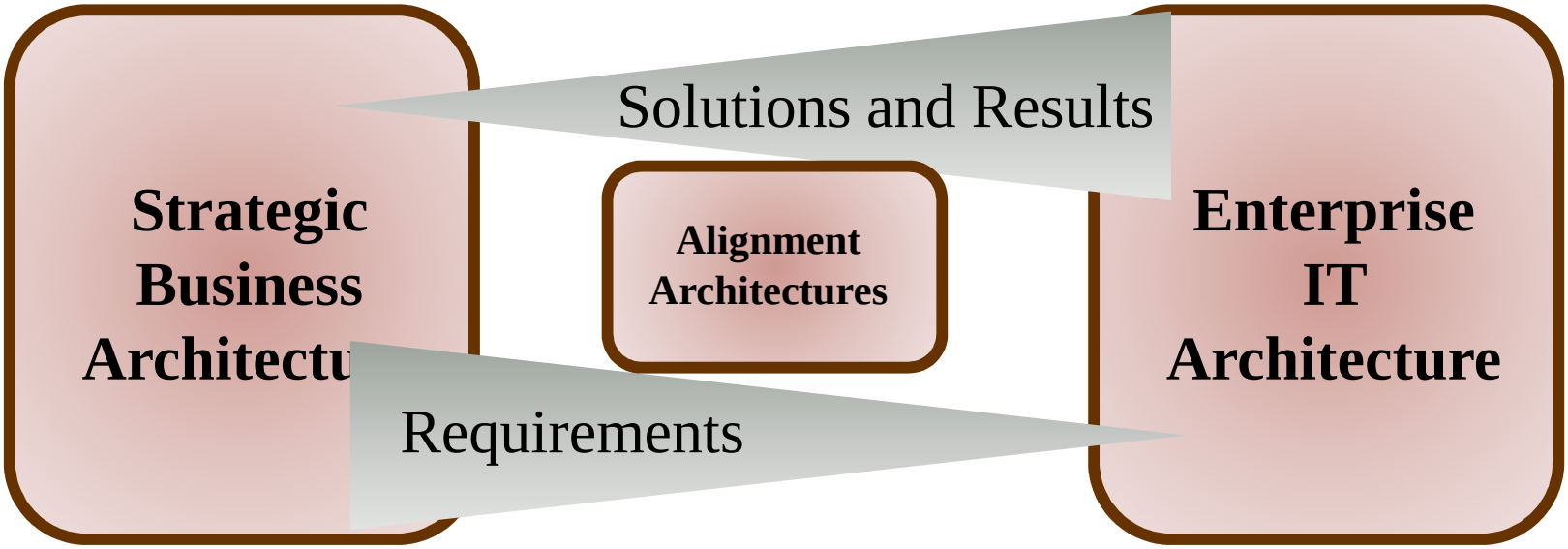
Use strategic business architecture concepts for this

- Account for the context
- Separate fact from fiction, luck and coincidence
  - Consistent data
  - Performance measures and statistics
- Evaluate performance over time
  - Include cause and effect
  - Factors that contribute to performance

Key architecture perspectives today

This is the domain of iBAM (integrated Business Analysis Methodology) and other business focused methods

IT focused reaching into the business for direction



Business focused reaching into IT for enablement

This is the domain of TOGAF and other system based methodologies

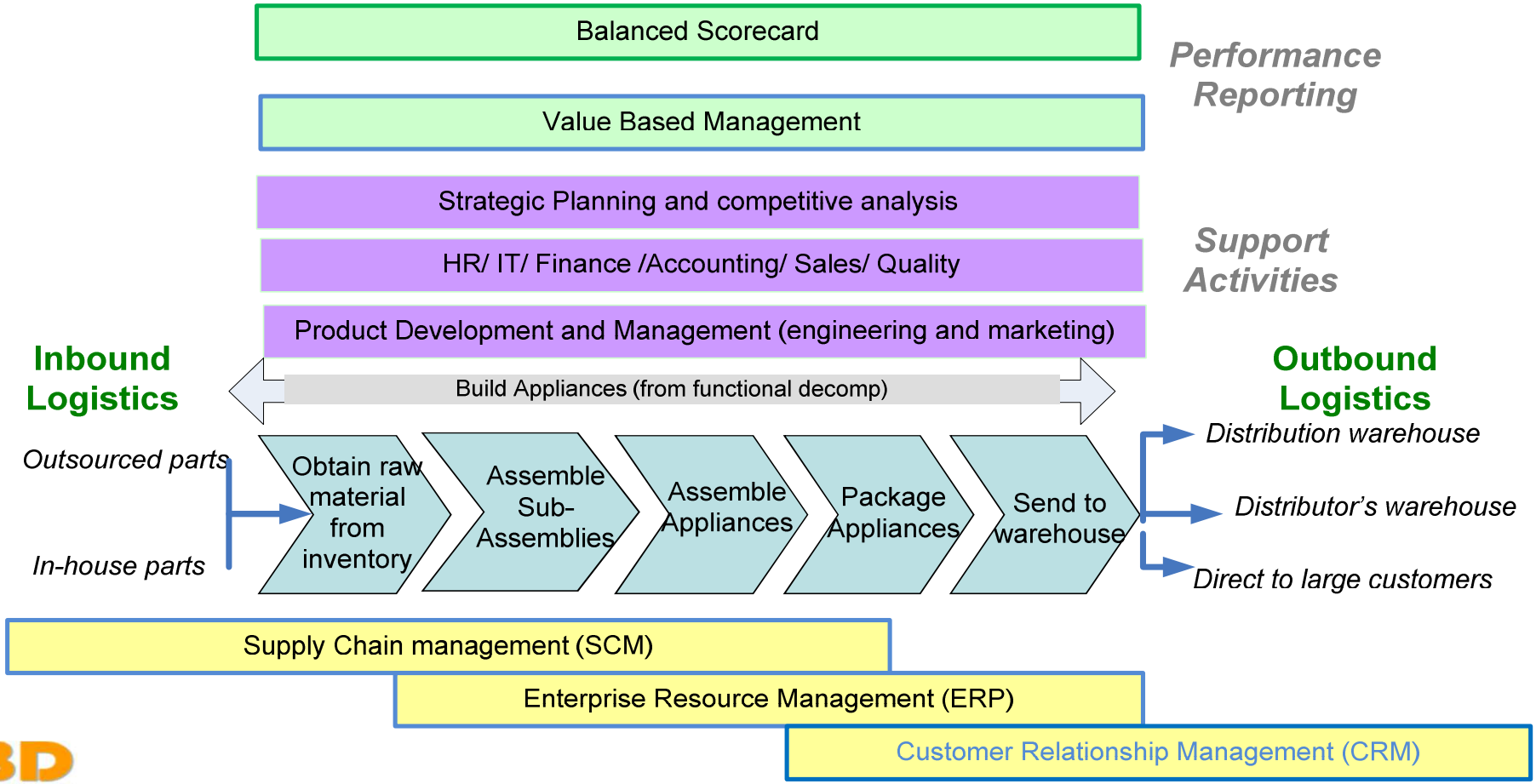
Adapted from TDAN article by F. Kowalkowski and G. Laware January 2013

A methodology for creating and using architecture models also needs an approach to managing the architecture asset

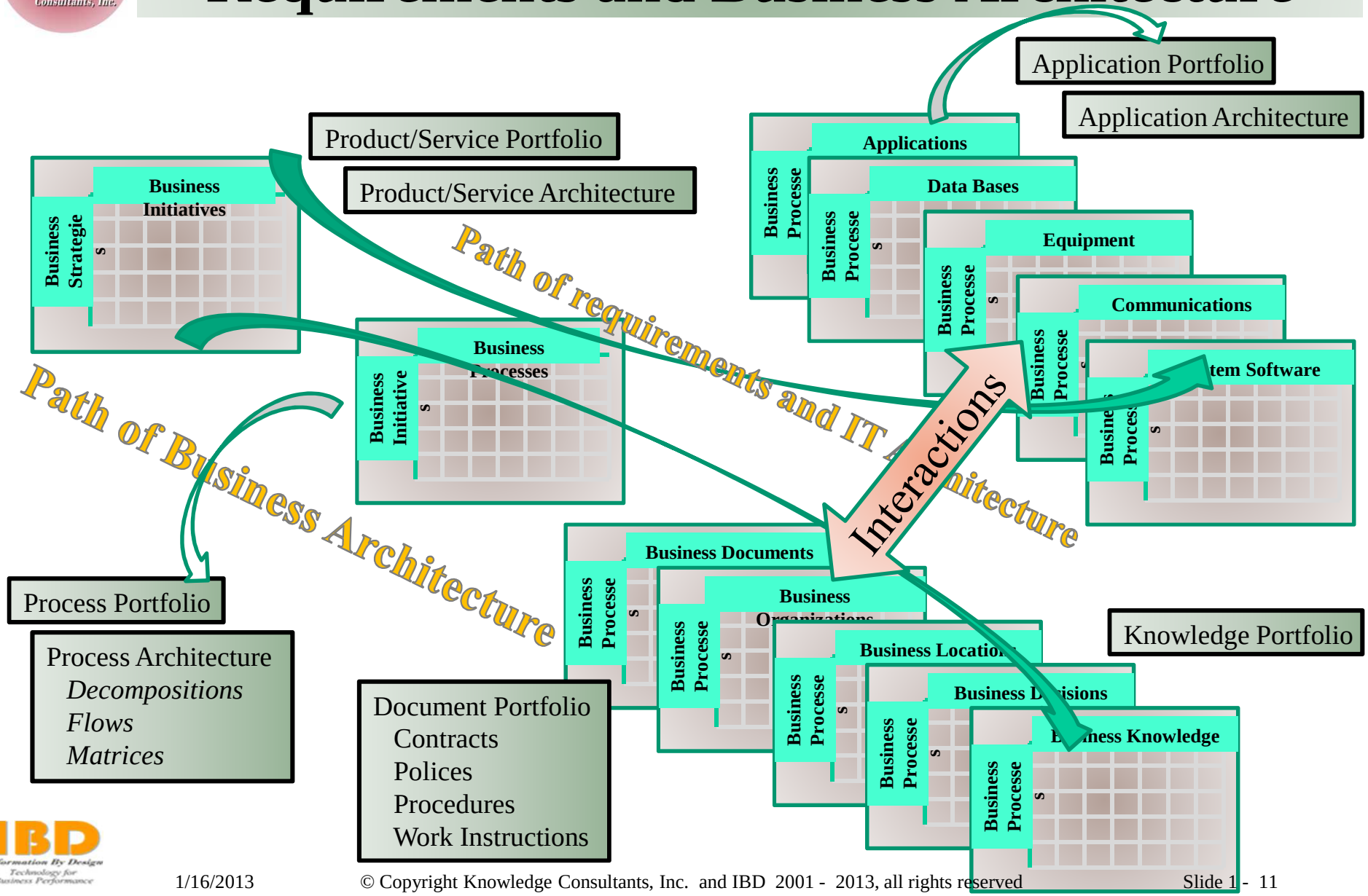
- ***Enterprise analysis*** provides the tools and techniques for generating and managing architecture components and supporting the needs such as:
  - Organizing the material
    - The point of focus
    - The context of the focus
  - Guidelines for artifact use (separating fact from fiction)
    - Verifying accuracy
    - Verifying correctness
  - Standardizing the models used
  - Providing algorithms for analytics (insight and performance)
    - Quantitative
    - Semantic
  - Interpreting results

Sample Operational Architecture Perspective using Value Chain idea

Simple one page business model/architecture using value chain diagram as template



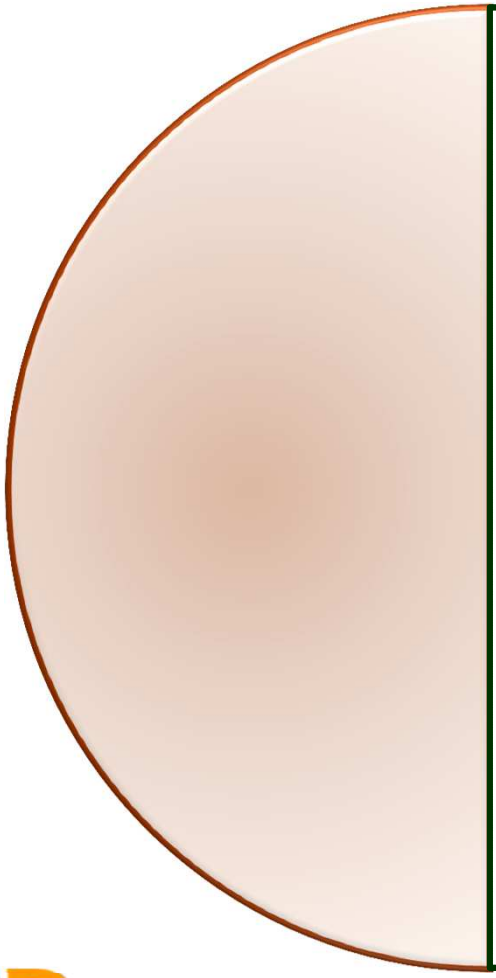
Processes are the Key Linkage point between Requirements and Business Architecture



The simple architecture protocol

1. Define the focus of the project as problem, solution, discipline
2. Identify the *core set of artifacts (deliverables)* needed for the architecture project
3. Make a *list* of the categories or dimensions of interest from the core set
4. Populate the categories/dimensions with instances (*meta data*) of descriptions of the business
5. Identify relationships
6. Develop the *roadmap* for architecture use
7. Extract the architecture models needed for the project

Artifacts for process architecture



Process architecture has many artifacts:

- *Lists*: of business components
- *Decompositions/Trees* – logical, execution, mixed
- *Flows* – process, workflow, analytic flows, E-Flows, Integration flows, Information flows
- *Matrices* – for relationship analysis
- *Nets* - for large flows such as supply chain

What are the typical core business components for process analytics?

Core set of lists for process analysis:

- Strategies
- Objectives/initiatives
- Organizations
- Processes (of course)
- Documents
- Locations
- Decisions
- Systems
- Databases
- Technology

10 core lists of instances bounded somehow

What defines the process and requirements bounds?

The scope of the project, for example…

Organization, such as:	• **Operating unit** • **Department** • **Corporate headquarters** • **Business area**
Flow, such as:	• **Supply chain** • **Order fulfillment** • **Assembly**
Product, such as	• **Brand** • **Single product** • **Product family**
System or system group such as	• **Order system** • **A/P, A/R, G/L** • **Manufacturing**

For example, if the objective is to assess impact of change then you need…

- Lists or flows of the instances of interest such as strategies, functions, systems etc.
- A set of matrices created from the lists of flows that identify the relationships between the components
- Tools to manipulate the matrices (such as inverting to align rows and columns)
- Algorithms to implement inference
- Tools that can execute the inference
- Results that are used to interpret impact

Using the idea of a process management solution using architecture

There are several matrices used for process management, most used to trace linkage

Objectives

Strategies	Obj 1	Obj 2	Obj	Obj	Obj
S1	X				
S2		X			
S3					
S4	X				

Processes

	Prc1	Prc2	Prc3	Prc4	Prc5
Obj1	X				
Obj2					
Obj3	X				
Obj4					

Organizations

	Org1	Org2	Org3	Org4	Org5
Prc1	X				
Prc2	X	X			
Prc3		X			
Prc4	X				

Documents

	Doc1	Doc2	Doc3	Doc4	Doc5
Prc1	X		X	X	
Prc2					
Prc3					
Prc4					

Systems

	Sys1	Sys2	Sys3	Sys4	Sys5
Prc1	X		X	X	
Prc2	X	X		X	X
Prc3			X		X
Prc4	X		X		X

Context Analysis of the problem
Process linkage in the rows

Matrices used to identify relationships

Process projects have a long history of problems

- Process projects have not delivered as promised, 75% are considered a failure of some sort
- There are some key reasons for this:
  - Business/Process analysis must deal with all types of flows (7 types now)
  - The connection to systems is more complex (e.g. workflow)
  - There are few published analysis methods other than improvement by observation and some simulation

Let's look at the detail now and one of the process analysis techniques

- What business analysis would you do with processes?
  - Processes have requirements like systems
  - Processes have performance measures
  - Processes also have complexity and context
    - Internal to the process
    - With reference to the business by touchpoints
  - These can be related to form a conclusion about process opportunity

What goes into process requirements?

The structure and elicitation of process requirements consists of the following component parts:

- The action statement (the actual step of a process)
- Inputs and Outputs (what will be transformed by the action and the result to be achieved)
- Measure and Target (the efficiency performance part).
- Quality performance (the effectiveness performance part)
- Constraints (the limitations)
- Controls (the governance part, usually rules that are in policies and procedures)

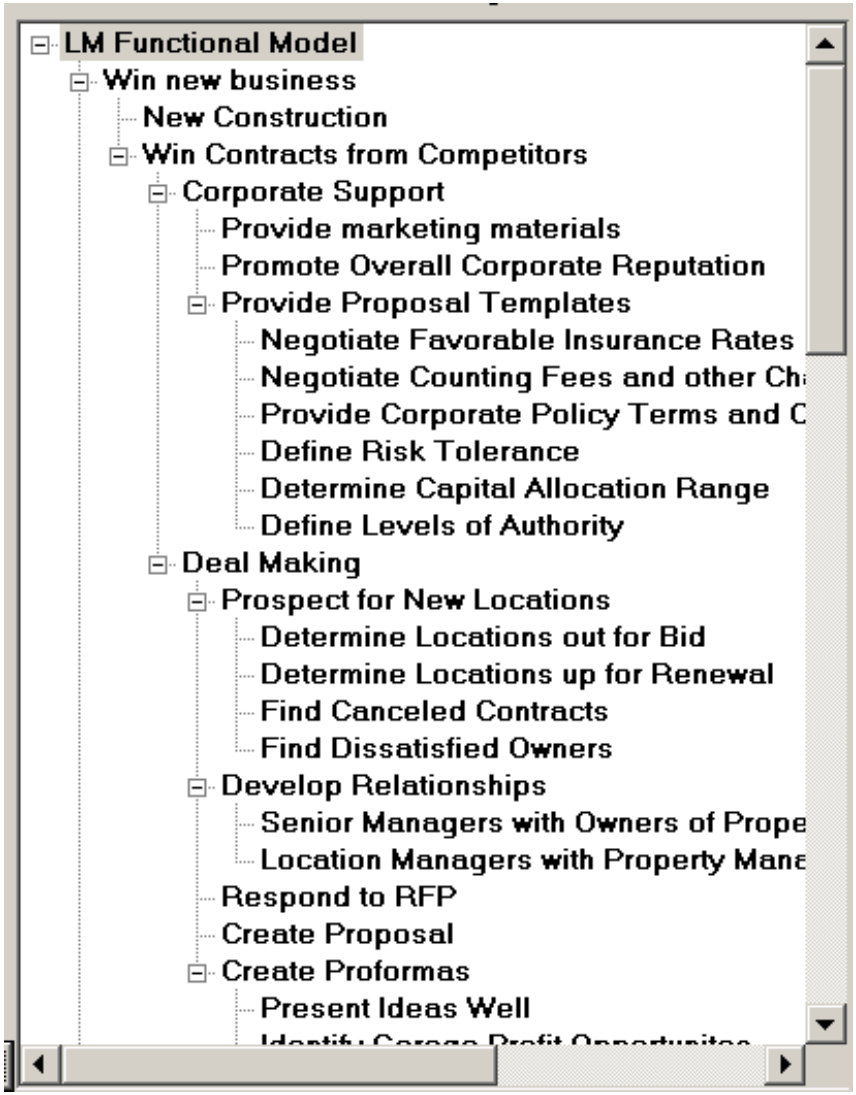
Process model types for process architecture

There are different ways to represent a process model:

- Classic flow diagram
  - Process flow (a series of sequential steps)
  - Document flow (focused on a single document)
  - Workflow (increased detail of enablers)
- Functional decomposition (tree structure)
  - Diagram
  - Indented list
- Process to process and process to category matrices (the touchpoints of a process)

Indented list tree model example: Functional decomposition of business

- *A hierarchical structure denoting membership or belonging like parent to child*
- *Used for functional decompositions, bills of material, data structures, class structures, organization charts, charts of accounts etc.*



Traditional process measures are also needed, more than cost and cycle time

Using:
Cycle time
Wait time
Transport time
Cost
Error rate (quality)

Run 1 | Run 2 | Run 3 | Run 4 | Run 5

ATTRIBUTES USED:
Cycle Time

INSTANCE RANK:
1 -- 1. -- Develop Supplier Relationship
2 -- 2. -- Identify Supplier
2 -- 2. -- Purchase Supplies
2 -- 2. -- Manage Materials
3 -- 3. -- Deliver Supplies
4 -- 4. -- Manage Relationship
5 -- 5. -- Evaluate Supplier

Just using cycle time

Run 1 -- A

ATTRIBUTES USED:
Wait Time

INSTANCE RANK:
1 -- 1. -- Evaluate Supplier
2 -- 2. -- Identify Supplier
3 -- 3. -- Manage Relationship
3 -- 3. -- Manage Materials
4 -- 4. -- Develop Supplier Relationship
5 -- 5. -- Purchase Supplies
6 -- 6. -- Deliver Supplies

Just using wait time

Run 1 | Run 2 | Run 3 | Run 4 | Run 5

ATTRIBUTES USED:
Cycle Time
Wait Time

INSTANCE RANK:
1 -- 2. -- Identify Supplier
2 -- 2.5 -- Develop Supplier Relationship
2 -- 2.5 -- Manage Materials
3 -- 3. -- Evaluate Supplier
4 -- 3.5 -- Purchase Supplies
4 -- 3.5 -- Manage Relationship
5 -- 4.5 -- Deliver Supplies

Using both wait and cycle time

Run 1 | Run 2 | Run 3 | Run 4 | Run 5

ATTRIBUTES USED:
Cycle Time
Wait Time
Transport Time
Cost
Error Rate

INSTANCE RANK:
1 -- 2.6 -- Identify Supplier
2 -- 3. -- Deliver Supplies
2 -- 3. -- Evaluate Supplier
3 -- 3.2 -- Manage Relationship
4 -- 3.4 -- Develop Supplier Relationship
5 -- 3.6 -- Purchase Supplies
5 -- 3.6 -- Manage Materials

Using all

Best opportunity for improvement

Processes also exist within some business context:

Context mappings are articulated through relationship touchpoint matrices

New tools help this analysis

The processes are in the row headings
The column headings are the context

Matrix Model Workspace

Model Name: DAC Location Context [From Dimension: FUNCTIONS -- To Dimension: LOCATIONS]

From \ To	Bangkok (DAC Locations)	Amman (DAC Locations)	Dubai (Logistics HQ) (DAC	Mumbai (DAC Locations)	Los Angeles (DAC Locations)	New York (DAC Locations)	Singapore (DAC Locations)	London (DAC Locations)	Mexico City (DAC Locations)	Chicago (DAC Locations)
Identify Supplier (N	●					●		●		●
Develop Supplier I			●							
Manage Relations										
Purchase Supplies										
Deliver Supplies (N										
Manage Materials										
Evaluate Supplier										

Matrix Model Workspace

Model Name: DAC Organization Context [From Dimension: FUNCTIONS -- To Dimension: ORGANIZATIONS]

From \ To	DAC Operations (DAC	Supply Chain Management	Engineering (DAC Organizations)	IT (DAC Organizations)	Logistics (DAC Organizations)	Global Sourcing (DAC	R&D (DAC Organizations)	Security (DAC Organizations)	Finance (DAC Organizations)	Facilities Management
Identify Supplier (N		●	●	●			●	●		●
Develop Supplier I		●	●	●				●		●
Manage Relations		●	●	●						
Purchase Supplies	●			●		●				
Deliver Supplies (N										
Manage Materials										
Evaluate Supplier										

Matrix Model Workspace

Model Name: DAC Technology Context [From Dimension: FUNCTIONS -- To Dimension: TECHNOLOGY]

From \ To	ERP (DAC Technology)	SCM (DAC Technology)	Servers (DAC Technology)	PCs (DAC Technology)	Network (DAC Technology)	Portals (DAC Technology)	DBMSs (DAC Technology)	Legacy Systems (DAC	Integration (DAC Technology)	MS Office (DAC Technology)	Web (DAC Technology)	Handheld Devices (DAC
Identify Supplier (N	●	●	●	●			●	●				
Develop Supplier I												
Manage Relations												
Purchase Supplies												
Deliver Supplies (N	●	●										
Manage Materials												
Evaluate Supplier	●											

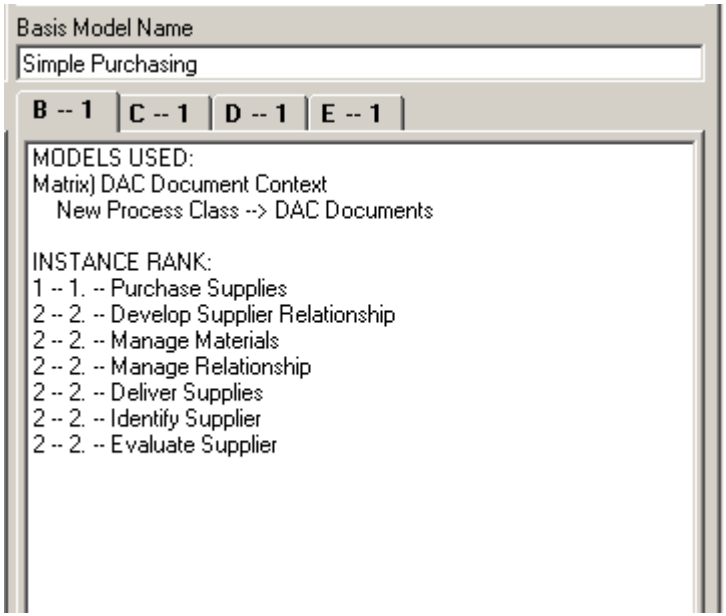
Matrix Model Workspace

Model Name: DAC Document Context [From Dimension: FUNCTIONS -- To Dimension: DOCUMENTS]

From \ To	Purchase Requisition (DAC	Purchase Order (DAC	Supplier Agreement (DAC	Vendor Rating Sheet (DAC	Venndor Rating Screen (DAC	Engineering Change (DAC	Shipping Manifest (DAC	Material Move (DAC
Identify Supplier (N	●		●					
Develop Supplier I			●	●				
Manage Relations	●			●				
Purchase Supplies	●	●	●		●	●	●	
Deliver Supplies (N							●	●
Manage Materials	●							●
Evaluate Supplier				●	●			

A simple analysis of impact based on frequency of reference

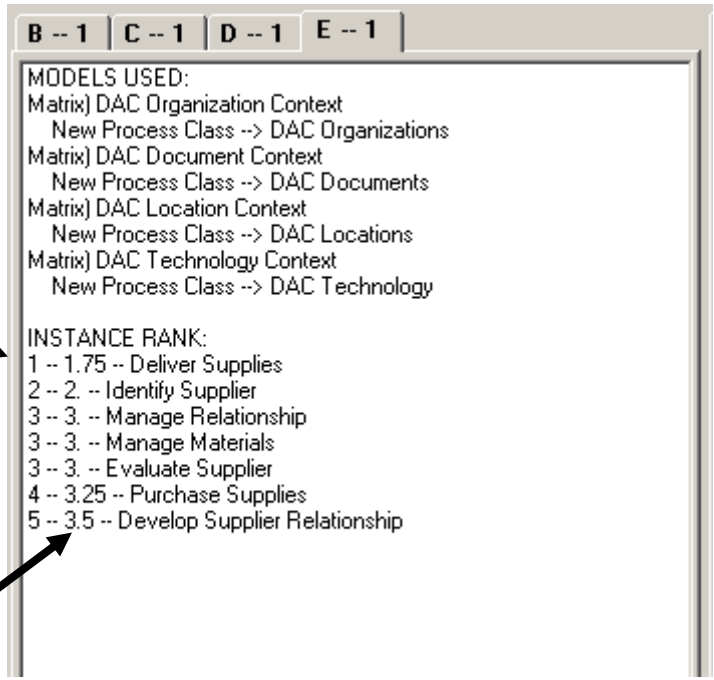
Using one set of matrix relationships as context



Using four sets of matrix relationships as context

The process Deliver Supplies on the right panel is the least impacted process of the set

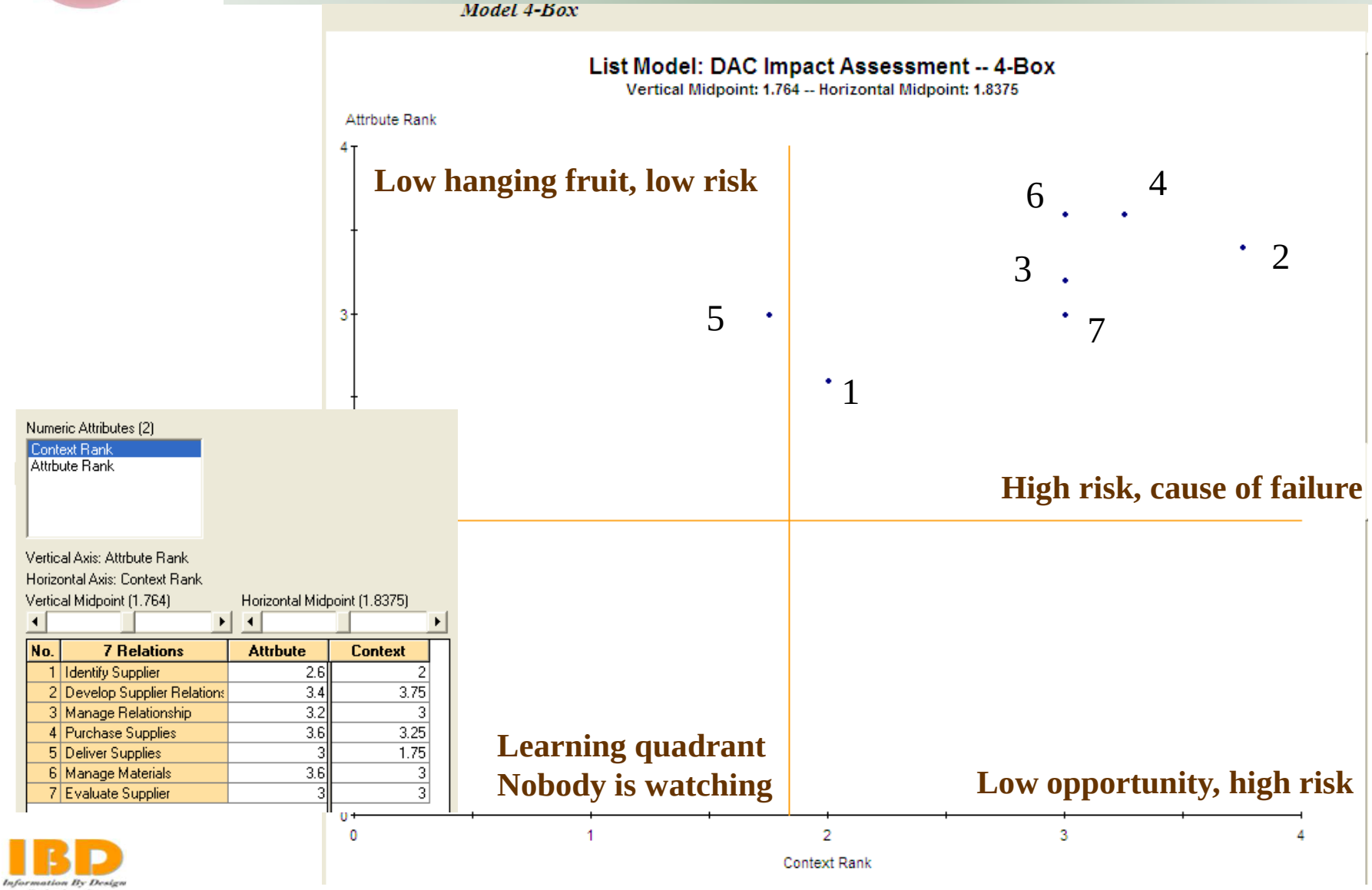
The process Develop Supplier Relationship on the right panel is the most impacted process of the set



Next a 4 – Box is created that relates the two

- The performance results are the Y axis
- The context complexity results are the X axis
- This is what you look for:
  - Low yield and low complexity (learning opportunity)
  - High yield, low complexity (low hanging fruit)
  - High yield and high complexity (large impact)
  - Low yield and high complexity (leave alone)

This is what the box would look like



In what order would you do the work?

- The steps or sub-processes would be transformed in the following order:
  - 5 Deliver Supplies (4.75)
  - 1 Identify Supplier (4.80)
  - These next three are about equal from complexity perspective, discrimination is by performance:
    - 6 Manage materials (6.6)
    - 3 Manage Relationship (6.2)
    - 7 Evaluate Supplier (6.0)
  - 4 Purchase Supplies (6.85)
  - 2 Develop Supplier Relations (7.15)

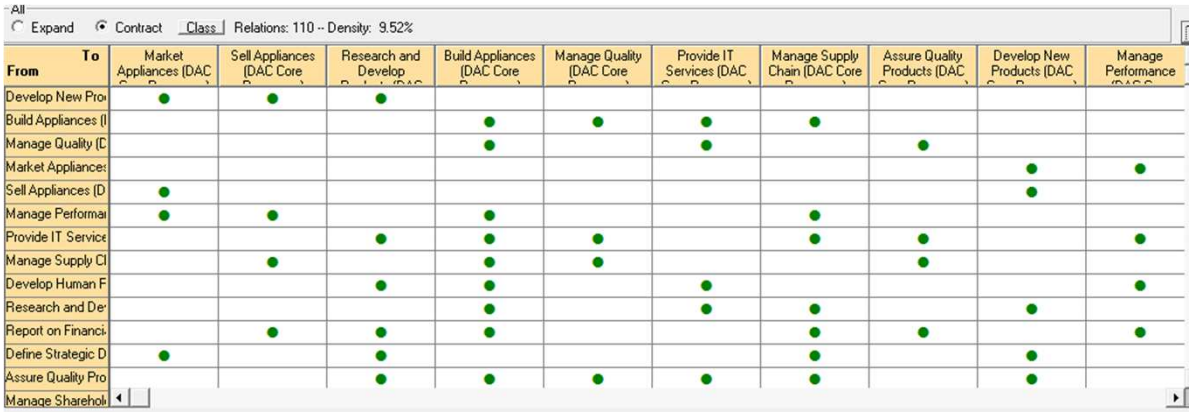
Keep in mind that other architecture layers may use other model types

- IT architecture would use models depending on the type of methodology…
  - *Flows* (information flows, data flows etc.)
  - *Matrices* (usage matrices, CRUD, and others)
  - *Lists* (identifying instances)
  - *Networks* (UML and other complex flow diagrams)
  - *Trees* (decompositions of systems, data for analytic workflows, documents structures, taxonomies and so on)

Process complexity can also be defined by Process-to-Process touchpoints

There are a number of other complexity artifacts that help to do asset management of components' such as…

- Applications
- Data bases
- Documents
- Knowledge
- Decisions
- Requirements
- Etc.



The Process-to-Process Relationships

These are used for portfolio management of the asset along with the quantitative factors

Developing the requirements – process linkage

- For a target of an application system:
  - Functional requirements must be stated as simple structured English.
  - Phrase oriented not verbose
  - Verb-object types of statements
- Functional requirements get listed as a set of statements

A format for gathering basic requirements

DAC's Statement of Requirement or Capability Desired for -- Purchasing Process

	Requirement or Capability Desired	Functional (F) Non-Functional (NF)	Have Low.... 1	Have 2	Have 3	Have 4	Have High 5	Need Low.... 1	Need 2	Need 3	Need 4	Need High 5
1	Receive completed Purchase Order (PO) Request	F			X							X
2	Check Requestor's information and audit Purchase Order (PO) Request for completeness	F			X							X
3	Make Purchase Order (PO) Request form available on Intranet	F	X									X
4	Provide access to Supplier's Information (Name, Performance rating, Contact, etc.)	F		X						X		
5	Send e-mail to Supplier(s) for specific line-item request for price and availability quotation	F				X					X	
6	Directly access to Supplier(s) catalog for specific line-item request for price and availability quotation	F		X								X
7	Receive Supplier's pricing quotation and map to Purchase Request	F					X					X
8	Receive approval for Purchase Order with Requestor - Audit account	F					X					X
9	Create Purchase Order for Supplier and send to Supplier	F					X					X
10	Track Purchase Order with Supplier on Delivery Schedule	F				X						X
11	Notify Requestor of Delivery Schedule	F	X								X	
12	Receive Supplier's shipment and validate Purchase Order quantities	F				X						X
13	Backorder any missing Supplier's items	F				X					X	
14	Send e-mail for Supplier's Payment Voucher (Authorization) to Accounting	F			X						X	
15	Request Purchased item be delivered to Requestor	F			X							X
16	Accounting issues check to Supplier for received materials	F			X							X
17	Accounting issues direct deposit to Supplier's account for received materials	F	X								X	
18	Request Supplier payment acknowledgement	F			X						X	
19	Access to Supplier information in database (< 2 seconds)	NF									X	
20	Access to Requestor's information (< 1 second)	NF										X
21	Access to Purchase Order (PO) Request form (< 3 seconds)	NF									X	
22												
23												
24												
25												
26												
27												
28												
29												
30												

Describe requirement above and place an "X" in appropriate column in "Have" and "Need" rating columns

Linkage can be identified and characterized by relationship matrices

Model Name: Process Requiremetns linkage [From Dimension: FUNCTIONS -- To Dimension: APPLICATION REQUIREMENTS]

All | Expand | Contract | Class | Relations: 69 -- Density: 11.27%

From \ To	Receive completed	Make Purchase Order (PO)	Create Purchase Order for Supplier	Notify Requestor of Delivery	Backorder any missing Supplier's	Directly access to Supplier(s)	Receive approval for Purchase	Track Purchase Order with	Check Requestor's	Send e-mail to Supplier(s) for
Build Appliances (I	●	●	●	●	●					
Manage Quality (C						●	●	●		
Manage Performar	●					●		●	●	●
Provide IT Service	●					●		●	●	●
Manage Supply Cl		●	●		●		●	●		●
Assure Quality Pro	●	●	●			●				
Report on Perform								●		
Plan material requi	●		●	●	●	●	●	●	●	●
Plan master produ	●	●	●		●	●	●	●		
Implement standar	●						●	●	●	●
Assess risk factors					●		●	●	●	

Certain requirements support or impact various steps in a process

You may also want to look at requirements complexity

Model Name: Op Unit 1 Purchasing Requirements Complexity [From Dimension: APPLICATION REQUIREMENTS -- To Dimension: APPLICATION REQUIREMENTS]

All

Expand | Contract | Class | Relations: 91 -- Density: 28.09%

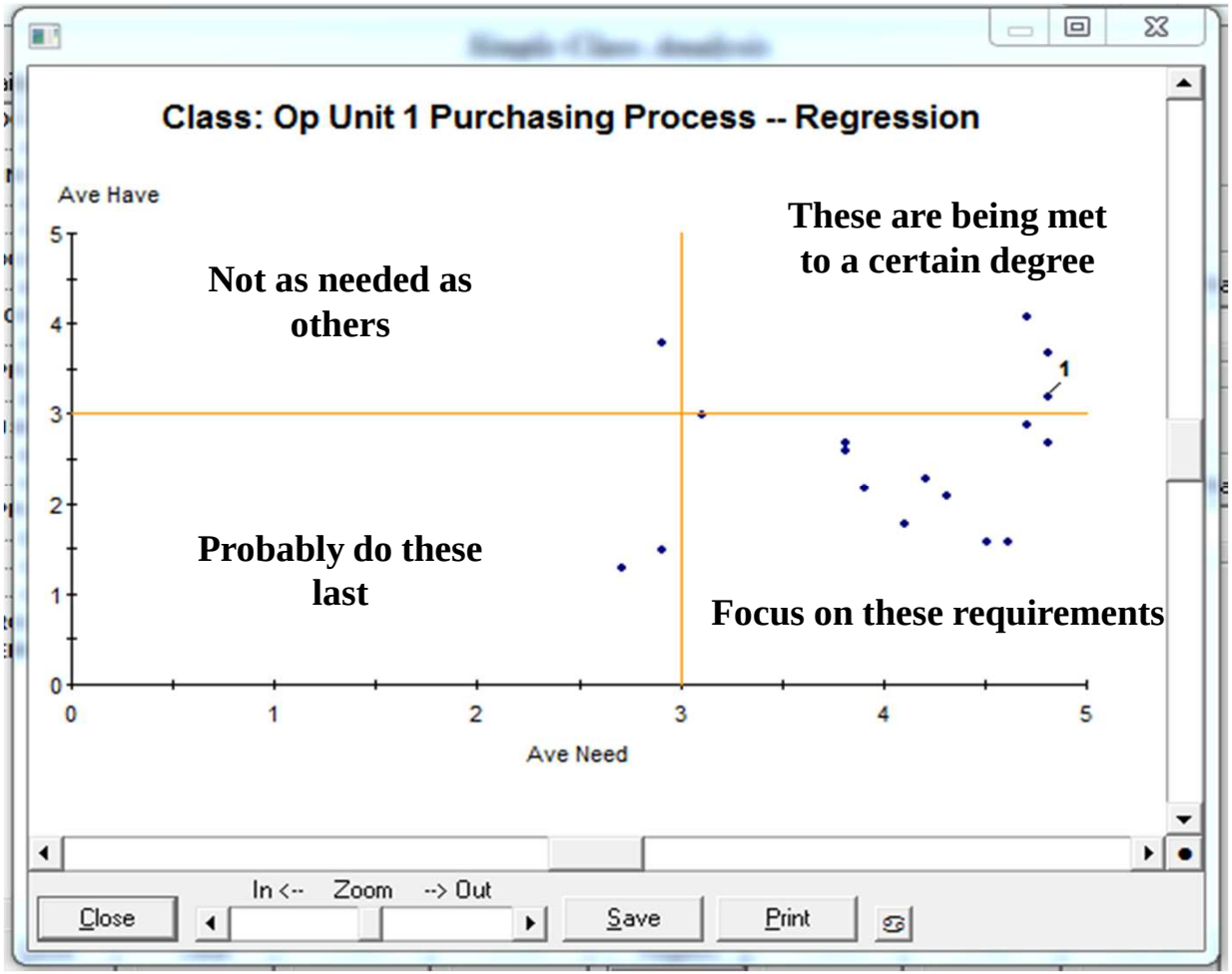
From \ To	Receive Supplier's	Check Requestor's	Provide access to Supplier's	Directly access to Supplier(s)	Receive Supplier's pricing	Receive approval for Purchase	Track Purchase Order with	Notify Requestor of Delivery	Receive completed	Make Purchase Order (PO)
Receive Supplier's	●	●	●				●			●
Receive complete	●	●	●	●	●	●	●	●		
Check Requestor'					●			●	●	●
Make Purchase O	●		●	●			●			
Provide access to						●			●	
Send e-mail to Sup	●	●				●		●		●
Directly access to	●		●				●			
Receive Supplier's	●	●							●	
Receive approval			●	●	●		●	●	●	
Create Purchase O						●	●			●
Track Purchase O			●		●			●		
Notify Requestor o				●	●	●			●	
Backorder any mis	●				●	●		●		
Send e-mail for Su										

This is a small example, these matrices can become quite large

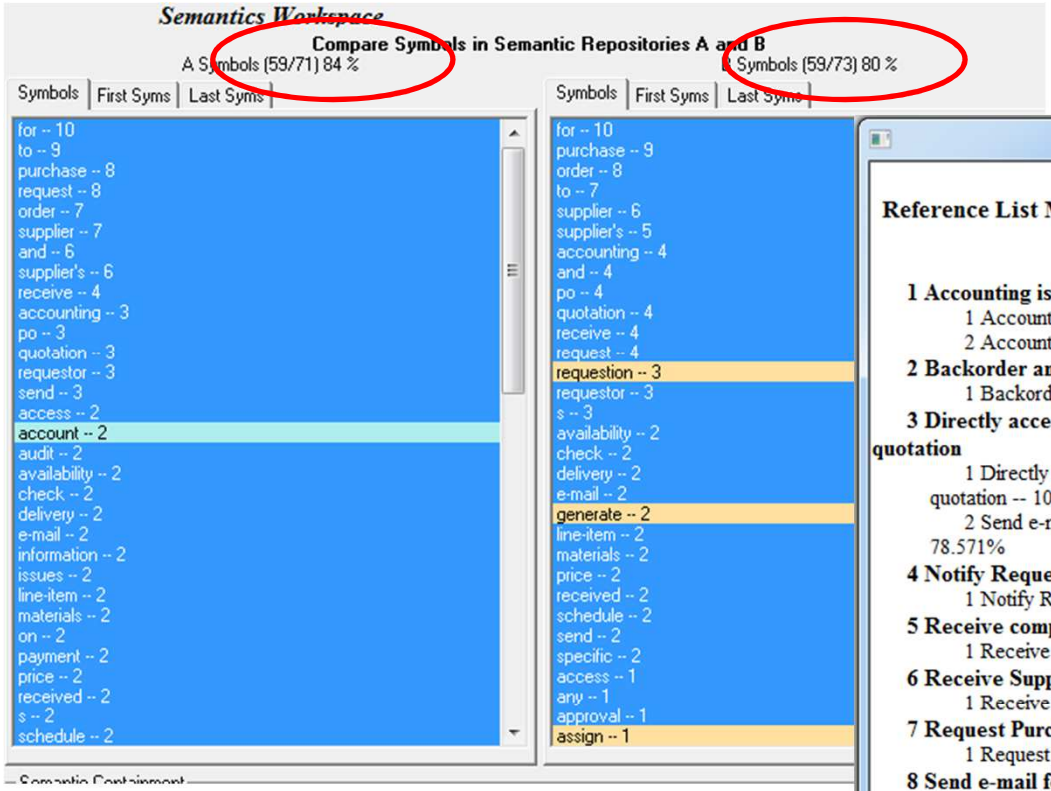
Average assessment of have and need for requirements can be graphed

Survey results on requirements

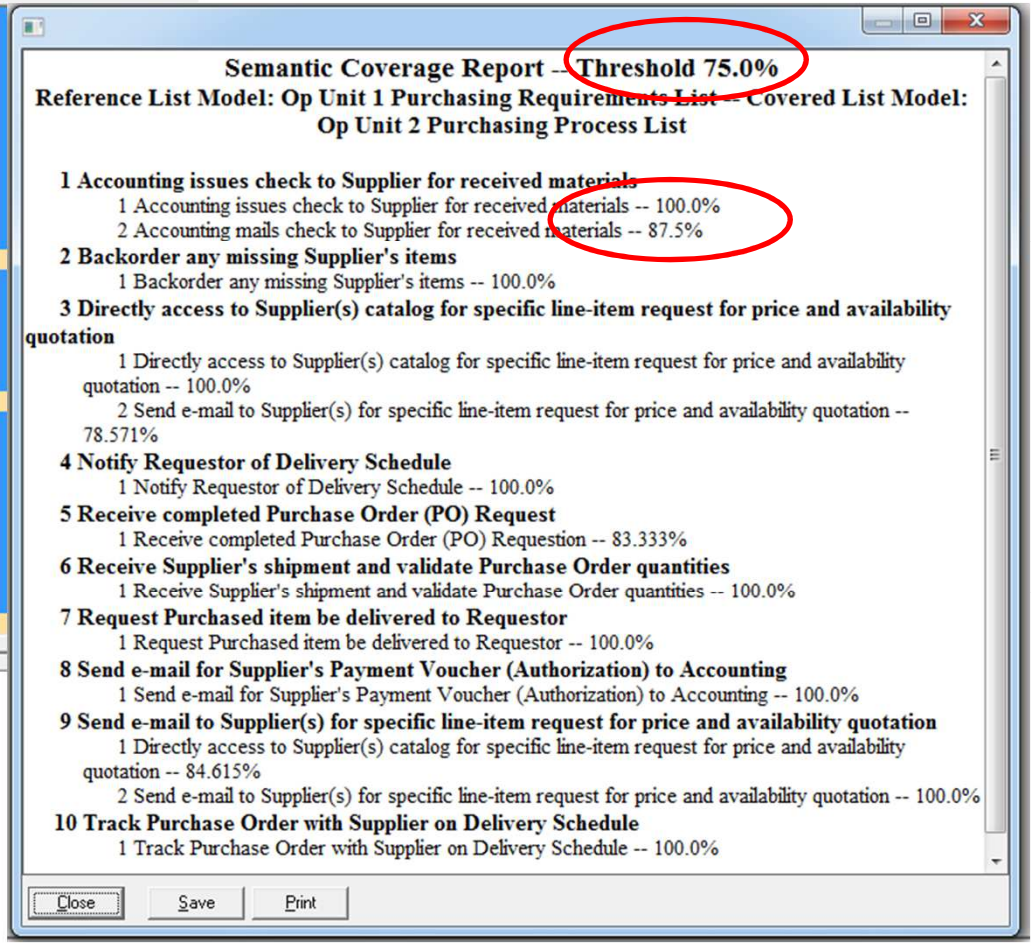
Ave Have	Ave Need
3.2	4.8
1.5	2.9
2.1	4.3
3.8	2.9
1.8	4.1
2.9	4.7
1.6	4.5
2.2	3.9
4.1	4.7
1.6	4.6
2.3	4.2
3.7	4.8
3.0	3.1
2.7	4.8
2.7	3.8
1.3	2.7
2.6	3.8



Also, you can do some simple semantic analytics with requirements



The phrases are also similar



There is an 80% match on words used in the two sets of requirements… the language is very similar

So, what does this mean?

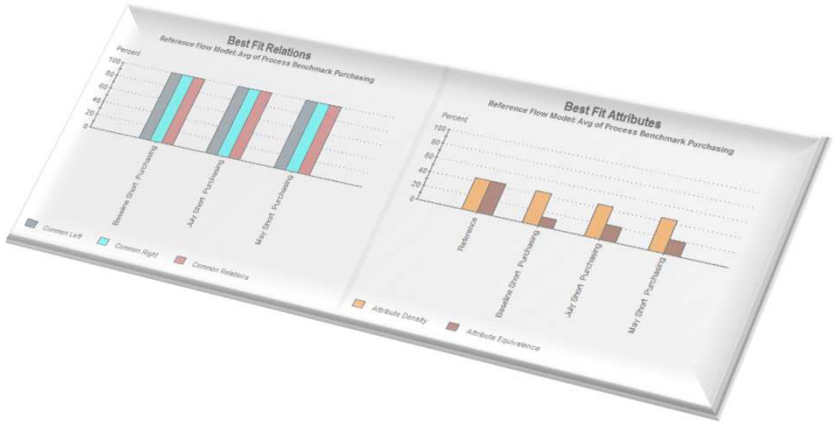
- There is an orderly way to analyze requirements that:
  - Links to processes
  - Links back to strategies
  - Provides more rigorous insight
    - You now all the touchpoints
    - You can assess impact
  - All you need to do is add enablers

Why is it important to the Business Analyst?

- No more analysis paralysis! – timely analysis is required for decision-making and business solution implementations
- Role of business analyst more global in scope (…enterprise-wide or broader)
- Rapid changing market conditions require a quick means to assess new requirement implications
- A consistent analysis methodology key to providing insight

Thank you for your time…
Closing discussion and questions

And now a miracle happens



To contact us

KCI –

Frank Kowalkowski

www.knowledgebiz.com

IBD –

Gil Laware

www.ibd-us.com