

Increasing the value of architecture through analytics

The situation:

In the August article, we indicated that enterprises have multiple layers of architectures that form a suite of architectures. Maintaining alignment of architecture layers is a problem causing numerous articles, seminars and discussions about IT alignment. What the articles omit is an analytic method to assess the details and degree of alignment. One way to assess alignment is to use impact analysis.

Impact Analysis is used to identify what happens if you make a change in something. There are several impact analysis techniques used in business. These techniques are used individually and in combination to get a desired insight into sensitivity of the business to change. They divide into 3 main groups or models:

- **Financial** – where the impact analysis is based on the use of monetary ‘what if’ methods such as varying the values of a rate of return for a given amount of principle.
- **Quantitative** – where the impact analysis is based in the use of quantitative ‘what if’ values in the business. An example is to vary the cost of order in an economic order quantity equation to see the impact on order size.
- **Descriptive** – where the impact analysis is based on relationships of structural components of the business. An example is changing a strategy and assessing the impact on products, processes, systems, locations, documents or any other component of the business.

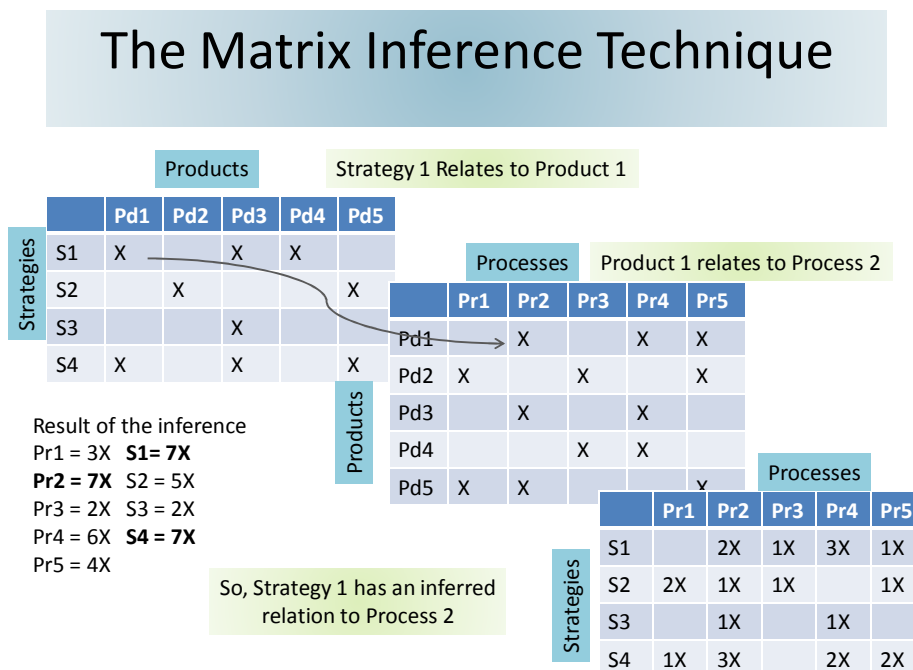
Business analysts and architects should know about all three of these techniques especially the descriptive one. Descriptive analytical methods are the approach used to analyze business architectures. This approach uses matrices with a particular structure to accomplish the impact assessment. The matrices (models) contain phrases that define the business. All descriptive models are made up of these phrases regardless of model types such as flows, nets or trees. The models also have data attributes on the relationships which are financial and quantitative as well as descriptive.

The descriptive approach shown below is one of several analytics used for impact analysis. This approach is based on the condition that the exact material you need to analyze alignment is not always available or not easy to get. However, there are usually pieces of the material that exist from different organization studies that have been done over the past 1 to 2 years in a business. Also, some material can be acquired easily through an interview while other material is difficult because the people you interview cannot provide the linkage. This partial material can be used for alignment. The approach depends on manipulating the material to make it compliant to some analytic method. In this case we are looking at using inferencing to highlight issues in alignment.

The Analytic:

Here a Strategy-to-Product and Product-to-Process approach is used to show alignment of strategies to processes. Previous articles in the Skeptical Architect have pointed out the layers of architecture that an analyst must deal with. This example spans 3 layers of architecture starting with strategy and ending with processes.

The technique shown here infers across two matrix models to create a third that links strategies to processes. The first thing is to identify which processes are impacted. That is simple inference and tells you the basic information you need to know about impact analysis, i.e. what is impacted. The approach shown below provides further discrimination for the analysis by counting the number of times a cell is referenced in addition to whether or not the cell is referenced at all. With the added information you now have an idea to what degree a process may be impacted.



The technique is really simple. Once you have the two matrices filled out from a previous study or the interview notes, all that remains is to trace each strategy through the two matrices to determine the inferred matrix and hence get an initial assessment of impact.

Here is how it works:

- Assume the matrices are filled out with an X in each intersection that there is a relationship.
- Next look at the first strategy and you see that it relates to Product 1.
- Look at the second matrix and you see that product 1 relates to processes 2, 4 and 5 so an 1X is placed in the third matrix in cells S1:Pr2, S1:Pr4, S1:Pr5

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- Next go to strategy 2 and do the same. If a cell in the inferred matrix is referenced again just add 1 to the cell.
- When you are done with the inference then tally the rows and columns.
- The result for this example is shown above in the table marked Result of the Inference.
- In this case Process 7 is the most impacted process and changes in Strategies 1 and 4 will have the most impact.

Lessons Learned:

The architect focuses on high-level understanding of the strategic direction aligned with the execution of the business by:

- Establishing a rapid-response mechanism to respond to dynamic business environment changes by identifying what is impacted
- Providing for the alignment of business process, technology, and organizational understanding to improve operational capabilities
- Evaluating potential strategic constraints exposed by architecture
- Defining, assessing and prioritizing critical strategic initiatives and projects

The Skeptical Architect suggests that the impact of change is attained by navigating various architectural views of the organization. Using matrices representative of the touchpoints of the business, the Architect can solicit additional detail from business professionals to improve the value of architectural solutions.

Extending architecture navigation by inferencing to the enablers of processes defines IT solutions that will be more flexible and adaptable to the changing environment. This alignment produces a more dynamic, responsive solution while maintaining stable operational business systems.

For a video on the inferencing technique of impact analysis view <http://www.youtube.com/watch?v=hNOpu78Aq2s>.