

Information based Transformation

Rainer Gimmich
IBM Software Group
Information Agenda Team Europe
Wilhelm-Fay-Str. 30-34, D-65936 Frankfurt
gimmich@de.ibm.com

Abstract

Information is increasingly seen as the major asset of an enterprise. Many new business goals are information-based, e.g. to achieve a 360° view of the customer, to optimize risk and compliance management, to achieve a higher level of operational efficiency.

In order to support information based transformation, an enterprise architecture method is beneficial, as well as its customization and supporting tools, with a focus on 'data reengineering'.

This paper describes an architecture approach to information based transformation and some practical experience.

1. Transformation: why and what?

'The business of IT is business.' This statement came up with the first Service Oriented Architectures (SOA) some 10 years ago. Essentially, IT has no value in itself but as a response to business needs and problems. As markets and businesses change, business strategies and their implementation in the form of IT need to change, with an ever shorter 'cycle time'.

To control and support this **Enterprise Transformation**, an Enterprise Architecture approach has proved useful. This is strongly driven from business needs, includes business architecture, provides the links to other architecture domains (application, data, technology), provides architecture governance and maximizes reuse, including reference architectures.

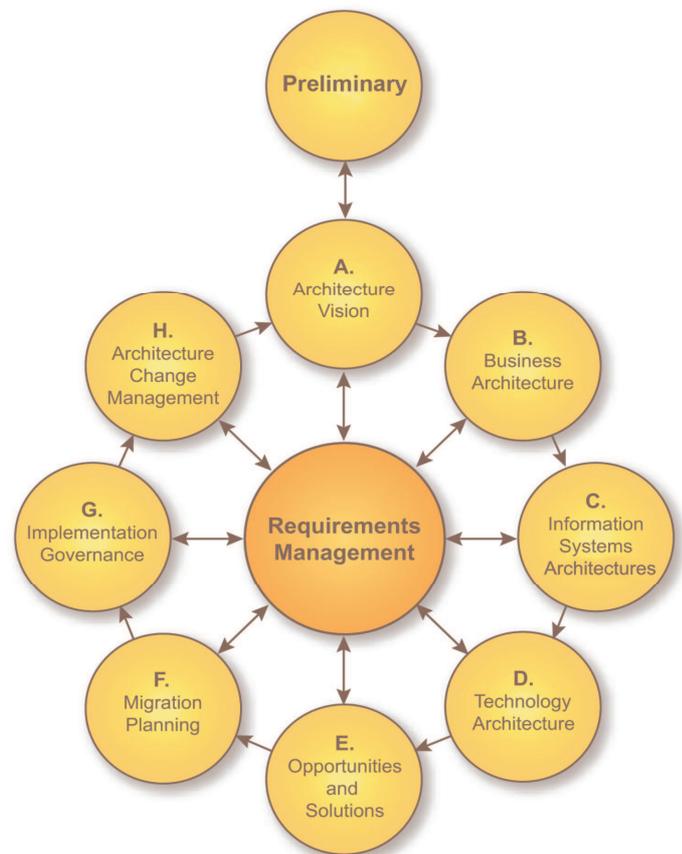
There are good reasons to strengthen the **Information based** transformation approaches in the Enterprise road-map projects:

- They help realize very high business value in short timeframes.
- They rely on recently advanced technologies.
- They provide a good complement to process based approaches, which have been predominantly used in SOA transformations [1].

2. Using TOGAF™ (The Open Group Architecture Framework)

TOGAF™ [2] provides several important assets in this context: an Architecture Capability Framework (includ-

ing architecture maturity and architecture governance) and an Architecture Development Method (ADM). The ADM is a generic approach that is meant to be customized to the specific enterprise:



The Information Systems Architecture phase includes several steps regarding data architecture:

- The baseline data architecture is developed, and this may include analyzing the existing landscape of data, data bases, data models, data warehouses, master data systems, content systems, etc. and representing the findings in suitable artifacts.
- The target data architecture is developed in a similar way. Here, data reference architectures and industry specific data models may be of additional benefit.

- Roadmap components are defined, resulting from a gap analysis between target and baseline data architecture. The roadmap components from Phases B to D are consolidated in Phase E (Opportunities and Solutions) and provide the basis of the Architecture Roadmap and the Implementation and Migration Plan. Where the distance between Baseline and Target Architecture is deemed too big, so-called Transition Architectures are defined. They enable an incremental development and deployment of the intended target solution.

3. Using tools for data analysis, integration and transformation

There are a number of tools on the market which help in analyzing, designing, integrating and migrating data architectures:

- **Glossary tools:** to create and manage business vocabulary and relationships, related to physical sources. This tool provides mappings of physical data to an enterprise-wide system of business terms and classifications.
- **Data Discovery tools:** to discover data transformation rules and heterogeneous data relationships. These provide business insights and reduce project risk.
- **Data Architecting tools:** to design and manage enterprise data models and to enforce model conformance to enterprise standards. This speeds design activities and populates the Glossary from model terms.
- **Information Analyzers:** to analyze source data quality and monitor adherence to integration and quality rules. These tools monitor quality metrics over time for compliance and create business confidence in the data.
- **Capturers** are tools to capture design specifications and accelerate translation into data integration projects. They accelerate development and provide a centralized management of specifications.
- **Metadata Management** tools visualize and trace information flows across the enterprise landscape ('data lineage'). They help in understanding the impact of making changes to the information environment, in avoiding system disruptions and in providing audit information for data governance.

4. Project examples

Looking into on-going Information based Transformation projects is important in order to

- validate the approach described above,
- generate deeper insight into the transformation complexity in practice,
- identify new areas of research and/or knowledge transfer (potential research topics arising from industry projects are mentioned in [3]).

The first practice example is the **redesign of the customer relationship management (CRM)** area of a large European company.

Here, a dedicated TOGAF™ ADM cycle is used to build the Architecture Landscape. Then several development cycles address the major transformation needs:

- Redesign of the advisory processes (both branches and call center) providing all customer and product data where they are required and in near realtime.
- Transforming the 'scattered' and insufficient master data stores into an enterprise-wide, SOA based master information management system. This includes introducing a governance structure for both information and architecture.

The second practice example addresses major extensions to the **self-service capabilities** of a large credit card company. Currently, the company's customers can only see their transactions and produce simple reports. A new business strategy requires more detailed reports, categorization of transactions, added value services such as related products and partner discounts based on transaction content, etc.

In order to achieve the goals, the existing IT landscape needs to be transformed, including a flexible data warehouse, with more data and relationships, access to unstructured data and additional customer data within and outside the enterprise.

A number of transformations are required: architecture transformations, model transformations, data transformations, etc. All of these can be governed using TOGAF™ and specific tools – most importantly for handling enterprise models and model transformations and for performing data transformation and replication.

5. Outlook

There is a growing demand for Information based Transformation projects, responding to business needs and introducing new analytics capabilities, including the use of 'big data' and Watson [4] technologies in an enterprise context.

The intention is to apply and customize proven methods and tools for Enterprise Architecture, SOA and Reengineering to efficiently build the required enterprise transformations.

References

- [1] R. Gimnich et al.: PIDT - Process and Information Driven Transformation. IBM internal report, 2012. Parts to be published.
- [2] The Open Group: TOGAF™ Version 9. <http://www.opengroup.org/togaf/>
- [3] R. Gimnich, A. Winter: Software Evolution in Forschung und Praxis. OBJEKTSpektrum - Business Application Modernization, 2010.
- [4] IBM: Watson. <http://www-03.ibm.com/innovation/us/watson/index.html>