BERT DINGEMANS

Architecture Repository

Combination of book, online course and sample repository

InterActory
Grip op data

Architecture repository in practice

Combination package of book, online course and sample repository

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Bert Dingemans

Author: Ir. Ing. Bert Dingemans

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Preface

More and more organizations are focusing on the use of an architecture repository. An architecture repository contributes to a more mature approach to introducing architecture into an organization. In the current working method, based on office automation, organizations encounter limitations when producing architectural documents.

Introducing an architecture repository is then one of the options and a promising and logical scenario. There are multiple platforms and tools available for architecture repositories. In this book we use Sparx Enterprise Architect as a tool for setting up a repository. The reason for choosing Sparx Enterprise Architect is the favorable price-functionality ratio compared to other products available in this segment of architecture tooling.

Experience shows that the tooling can provide the right support from a functional perspective. However, introducing an architecture repository comes with a number of challenges. The transition from a document-driven to a repository-based working method should be seen as a change process that can have a significant impact. Impact on the architecture team, but also on the stakeholders of architecture within and outside your own organization.

Reason for developing this book in this way. We will therefore discuss the advantages and disadvantages of an architecture of repositories compared to the document-driven approach. We then actually develop a solution architecture for an introduction of an architecture repository. In fact, an “Eat your own dog food” approach! Subsequently, a number of step-by-step plans are described which scenarios can be followed when introducing an architecture repository. The last part contains a number of tools that can be helpful in changing the working method. Think about:

- Examples of viewpoints and metamodel elaborations.
- Working with Architecture building blocks.
- Checklists for model managers.
- Modeling and naming conventions.

A second “ Eat your own dogfood” example of this book is that more than 90% of the writing of this book was done in an architecture repository. A document was then generated from this repository content. It is therefore a good example of the power of working with an architecture repository.
That is why, in addition to this book, there is an example repository with all the content as contained in the book, but in a file based repository form. This example repository is available as a Sparx Enterprise Architect repository file and can also be consulted online via a web application. In addition, this book gives you free access to an online course on working with an architecture repository.

Culemborg, April 2024.

What is an architecture repository?

In architecture frameworks such as Togaf and DyA, an architecture repository is mentioned as a possibility to get a grip on the various artifacts that architects try to keep a grip on in their daily work. But what exactly is an architecture repository?

Introduction of the repository

Within many organizations in the Netherlands for example, an architecture team plays a role in directing change, setting frameworks and describing the organizational structure. An architecture team does this by drawing up different types of architecture products. This determines how such an architectural product is organized and designed from one of the above perspectives.

This is often done by drawing up architectural documents. Documents such as reference architecture, domain architecture or solution architecture often have a document based on office automation as their appearance.

An architecture based on a collection of documents is still manageable and feasible with a limited architecture. However, if the architecture becomes more extensive and complex, other implementations for the architecture products will have to be sought. Several scenarios are possible for this, for example a wiki, but also the use of an architecture repository are frequently applied scenarios.

In this publication we discuss the use of an architecture repository as the next step in the maturity of the architecture function and products that are produced. An architecture repository has a number of important advantages compared to a method with architecture documents. However, there are also a number of objections to a repository-based approach. However, if you make a well-considered transition from document to repository, the architecture team will have a powerful tool to create architectural added value for the organization.

Below we provide an overview of the advantages and disadvantages of both the document-driven and the repository-driven approach. Based on this, we describe a number of tips and tricks for a successful transition of documents to an architecture repository.

What is an architecture repository?

If you look for the definition of an architecture repository on the internet, you will get a relative limited result. It is interesting that a number of cloud suppliers in particular have drawn up a definition. Below is a definition based on a combination of AWS and Sparx Systems that we use as a starting point here.

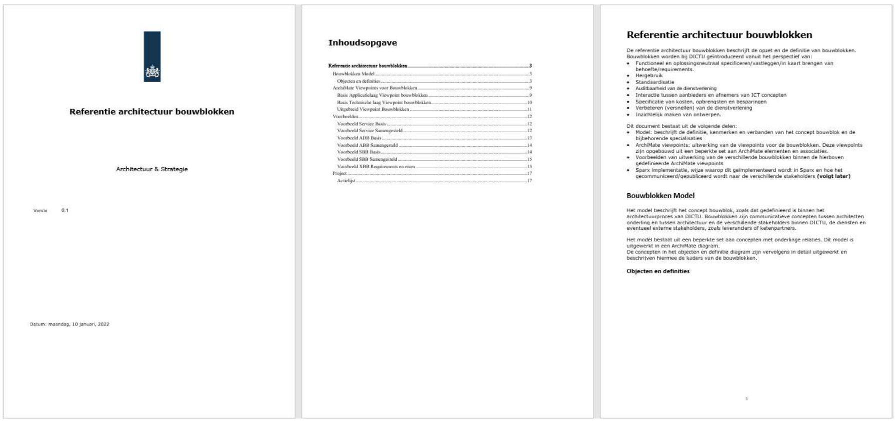
The Architecture Repository is a software tool that stores key architectural inputs and outputs, including Architectures themselves, their constituent elements, standards, references, principles and the Governance Register. Regardless of the Architecture Framework or Architecture Language selected.

An enterprise architecture repository is therefore a collection of artifacts that describe the current and intended enterprise landscape of an organization. The purpose of the enterprise architecture repository is to represent the organization's inventory of technology, data, applications, and business artifacts and show the relationships among these concepts. This is achieved by creating diagrams and visualizations based on the contents of the architecture repository.

The following paragraphs compare the document-driven and repository-based approaches.

Document driven architecture

A document-driven architecture is characterized by a number of documents. Documents are often prepared using office automation such as PowerPoint, Excel or Word. Below is an image of such an architecture document.



Referentie architectuur bouwblokken

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Inhoudsopgave

Referentie architectuur bouwblokken

De referentie architectuur bouwblokken beschrijft de opzet en de definitie van bouwblokken. Bouwblokken worden bij DICTU geïntroduceerd vanuit het perspectief van:

- Functioneel en oplossingsneutraal specificeren/vastleggen/in kaart brengen van behoefte/requirements.
- Hergebruik
- Standaardisatie
- Auditbaarheid van de dienstverlening
- Interactie tussen aanbieders en afnemers van ICT concepten
- Specificatie van kosten, opbrengsten en besparingen
- Verbeteren (versnellen) van de dienstverlening
- Inzichtelijk maken van ontwerpen.

Dit document bestaat uit de volgende delen:

- Model: beschrijft de definitie, kenmerken en verbanden van het concept bouwblok en de bijbehorende specialisaties
- ArchiMate viewpoints: uitwerking van de viewpoints voor de bouwblokken. Deze viewpoints zijn opgebouwd uit een beperkte set aan ArchiMate elementen en associaties.
- Voorbeelden van uitwerking van de verschillende bouwblokken binnen de hierboven gedefinieerde ArchiMate viewpoints
- Sparx implementatie, wijze waarop dit geïmplementeerd wordt in Sparx en hoe het gecommuniceerd/gepubliceerd wordt naar de verschillende stakeholders **(volgt later)**

Bouwblokken Model

Het model beschrijft het concept bouwblok, zoals dat gedefinieerd is binnen het architectuurproces van DICTU. Bouwblokken zijn communicatieve concepten tussen architecten onderling en tussen architectuur en de verschillende stakeholders binnen DICTU, de diensten en eventueel externe stakeholders, zoals leveranciers of ketenpartners.

Het model bestaat uit een beperkte set aan concepten met onderlinge relaties. Dit model is uitgewerkt in een ArchiMate diagram.
De concepten in het objecten en definitie diagram zijn vervolgens in detail uitgewerkt en beschrijven hiermee de kaders van de bouwblokken.

Objecten en definities

3

Characteristics

- **Enterprise and Solution Architecture** is elaborated in architecture documents such as:
    - Architectural landscapes and blueprints
    - Lists and collections (e.g. principles, requirements)
    - Solution Architectures
- **Use of office automation in particular,** often a combination of Word, Excel, PowerPoint and occasionally Visio.
- **Document templates.** Sometimes there are templates of certain architectural documents available, such as a template for Solution Architectures that can be found on the internet.

- **Architecture work processes** around development, validation and maintenance of the architecture are hardly developed, sometimes there is an architecture board that discusses documents, but the maintenance of subsequent changes in the architecture is often not elaborated.

- **Collaborative environments,** environments such as SharePoint or Confluence are occasionally used, mainly to make collections of architectural documents available to the various stakeholders.

Advantages of a document-driven approach

This form of architecture development and management is widely applied and not without reason. It has a number of advantages such as:

- Documents are artifacts in their own right.
- Creating documents is a standalone process, without affecting other documents.
- There are limited relationships with other architecture documents via
  - References
  - Copy actions
- Review and approval of a document is separate from the other architectures and review processes and only takes place on this document.
- Production and maintenance rhythm of documents is freely definable.

Disadvantages of a document-driven approach

The advantages are probably recognizable, but are also recognizable as a disadvantage of this approach. Below is a summary of the disadvantages of a document-driven architecture:

- Architecture is spread over multiple documents, which makes maintenance particularly complex. In addition, inconsistencies in the architecture arise if the elaboration in the document is not consistently aligned.
- Difficult to get an overview of the entire architecture, this overview is spread over several documents.

- Inconsistencies in model and time of the architecture in different documents
    - Duplicates of architectures (artefacts)
    - Different viewpoints
- Maintenance of existing architecture documents is insufficiently embedded; when a solutionarchitecture is delivered, no activity is embedded to check the previous architectures and, if necessary, correct them to the new situation.
- Agile architecture is difficult to realize, producing and continually adjusting a document in an agile process is a problem.
- Little standardization of models, templates and viewpoints, in particular the modeling conventions are often barely elaborated.
- Specific models for specific stakeholders are hardly possible. Creating a document is already time-consuming, specific documents for different stakeholders is practically impossible.

If the disadvantages of this approach become increasingly burdensome for an architecture team, an alternative approach must be sought. There are several possible solutions. Below are the most common:

- **Optimize document-driven architectural processes.**
  Change work processes within office automation. If desired, use scripting in office automation and use sub-documents and the management of document building blocks.
- **Use of collaboration platforms such as SharePoint and Confluence.**
  Documents, knowledge and information can be shared in collaborative environments. The same challenges apply to complexity such as keeping the architectural content up to date spread across multiple documents and on web pages.
- **Use of an architecture repository**
  With an architecture repository, everything is centralized at a fine-grained level. The elements are related to each other in a repository and, based on applications, some of them are presented in (web) pages or architectural documentation is generated.

The architecture repository approach is elaborated in the remainder of this book.