

## Enterprise Architecture Viewpoints

### Creating, Selecting, and Using Viewpoints (Lankhorst, 2017)

#### View

It is derived from a symbolic model of an enterprise architecture, which is expressed in terms of modeling language. Business Process Modeling Notation (BPMN) process diagram and Unified Modeling Language (UML) class diagram are examples of views.

#### Visualization

It is the presentation or notation of views. This can take many forms such as standard diagrams, tables, cartoons, and dynamic visualizations.

#### Viewpoint

This defines abstractions on a set of models representing the enterprise architecture, each aimed at a particular type of stakeholder and addressing a particular set of concerns. This can be used to isolate certain aspects of a model, and relating two (2) or more aspects in a model. It is typically used for communicative activities such as designing, analysis, obtaining commitment, and formal decision making, among others. It is the specification of the conventions for constructing and using views.

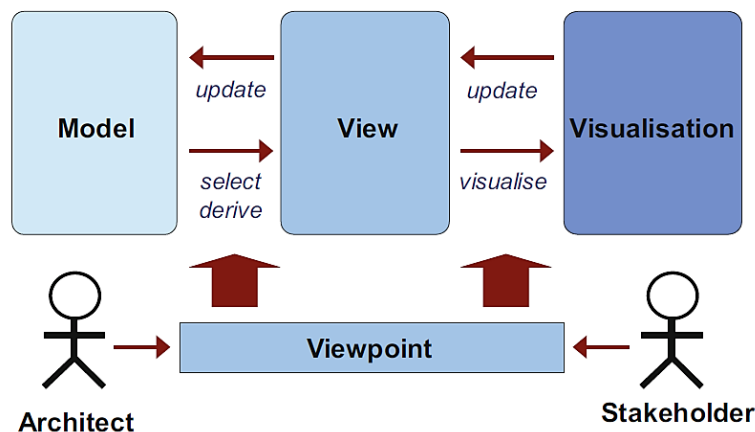


Figure 1. Separation of concerns: model, view, visualization, and viewpoint.

Source: Enterprise Architecture at Work: Modeling, Communication and Analysis (4<sup>th</sup> ed.), 2017. p. 177

#### Examples of stakeholders as the basis for viewpoint definition/selection:

- |                           |                         |
|---------------------------|-------------------------|
| ○ Upper-level management  | ○ Operations manager    |
| ○ Middle-level management | ○ Project manager       |
| ○ End-user                | ○ System developer      |
| ○ Architect               | ○ System administration |

### Architecture Support in Developing Views

- **Designing** – This supports architects and designers in the designing process from the initial sketch to the detailed design. This typically consists of UML diagrams.
- **Deciding** – This assists managers in the process of decision making by offering insights about cross-domain architecture relations. This typically consists of cross-reference tables, landscape maps, lists, and reports.
- **Informing** – This helps to inform all stakeholders about the enterprise architecture to achieve understanding, obtain commitment, and address conflicts. Typical examples are illustrations, animations, cartoons, and flyers.

#### Five (5) Phases of Designing Viewpoints

1. Defining the scope
2. Creating the views
3. Validating the views
4. Obtaining commitment from key stakeholders
5. Informing other stakeholders

### Different Design Viewpoints in ArchiMate Language (Lankhorst, 2017)

- **Introductory Viewpoint** – This is typically used at the start of a design trajectory, where not everything needs to be detailed. This viewpoint avoids the impression that the architectural design is already final.
- **Organization Viewpoint** – This shows the structure of the internal organization of an enterprise. This is commonly used to identify authority, competencies, and responsibilities within an organization. It can be represented by a nested block diagram.
- **Actor Association Viewpoint** – This focuses on the relationships of actors within an environment. It is useful in determining external dependencies and collaborations.
- **Business Function Viewpoint** – This shows the main business functions of an organization and their relationships in terms of the flow of information, value, or goods. It also provides high-level insight into the general operations of the company, which can be used to identify necessary competencies or structure an organization according to its main activities.
- **Product Viewpoint** – This depicts the value of products to the customers or other external parties involved. It actually shows the composition of one or more products in terms of the constituting services, the associated contracts and/or other agreements. It may also be used to show the channels or interfaces through which a product is offered.

- **Service Realization Viewpoint** – This is used to show that business services are realized by the underlying business processes in an organization. This bridges the product viewpoint and the business process viewpoint.
- **Business Process Association Viewpoint** – This is used to show the detailed relationship of one (1) or more business processes with each other and/or their surroundings.
- **Business Process Viewpoint** – This encompasses the higher-level structure and composition of one (1) or more business processes.
- **Information Structure Viewpoint** – This shows the structure of the information used in the enterprise or a specific business process application in terms of data type or class structure.
- **Application Association Viewpoint** – This is typically used to create an overview of the application landscape in a company. It also shows the relationships of applications in a company, including the dependencies in terms of information flow or the services a company offers.
- **Application Usage Viewpoint** – This describes how applications are used to support one (1) or more business processes. This can be used in designing an application by identifying the services needed by the business processes and other applications.
- **Application Behavior Viewpoint** – This describes the internal behavior of an application or a component. This can be used in identifying overlaps between different applications.
- **Application Structure Viewpoint** – This shows the structure of one (1) or more applications or components, including the associated data.
- **Technology Viewpoint** – This comprises the hardware and software infrastructure wherein the application layer depends. This contains the physical devices, networks, and supporting system software such as the operating system, databases, and middleware.
- **Technology Usage Viewpoint** – This shows how the software and hardware infrastructure support applications. This plays an important role in the performance analysis and scalability of the technological aspect of the enterprise.
- **Implementation and Deployment Viewpoint** – This shows how one (1) or more applications are deployed on the technical infrastructure. This includes the logical mapping of application and components onto the technological layer of the enterprise architecture.
- **Physical Viewpoint** – This contains equipment such as the physical machine, tools, and/or instruments that can create, use, store, move, or

transform materials. Interconnectivity within and between facilities are also specified.

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**Reference:**

Lankhorst, M. (2017). *Enterprise architecture at work: Modelling, communication and analysis* (4<sup>th</sup> ed.). Berlin, Germany: Springer Nature.