Enterprise Architecture Modeling Guidelines

Fundamental Guidelines

- A model has to provide answers to specific business, application, and/or technology-related questions.
- Make a clear distinction between a model and its visualization.
  - **Model** – This is an explicit and intellectual conception of rea-life aspects based on a clearly defined purpose.
  - **Visualization** – This pertains to the form in which a model is presented.
- Real-life aspects that are likely to change over time are often included in a model. As such, models must be dynamically designed.
- Be economical in models and views. Model only relevant concepts and relations based on the given purpose of the model and the type of stakeholders.
- Make concepts and structures recognizable. Incorporate concept names and structure types based on the usage of stakeholders.
- Apply real-life concepts in denoting elements in a model.
- Create consistent models. Model similar relations in a similar manner. Use the same terms to denote the same concepts, as well as related models.
- Keep abstraction levels consistent.
- Make models correct, accurate, and complete.
- Different concerns should be addressed in different parts of the model, or through related models.
- Select the design viewpoints that match the established objectives.
- Only include elements that directly contribute to the realization of the modeling objectives.
- Do not be afraid to abandon irrelevant elements that clutter a model. The resulting model will contain less information, but holds more value for the stakeholders.
- Make a model as self- explanatory as possible.
- Separate internal and external behaviors.
- Collect feedback from various stakeholders.
- Use enterprise architecture layer and group by phase.

Guidelines for Readability and Usability of Models

The metaphorical direction in finding relevant elements (Lankhorst, et al., 2017)

1. **Inwards:** Towards the internal composition of the elements.
2. **Upwards:** Towards the elements that are supported by it.
3. **Downwards:** Towards its realization by other elements.
4. **Sideways:** Towards peer elements with which it cooperates.

Limiting the visual complexity of a model (Lankhorst, et al., 2017)

- Reduce the number of concepts in a model.
- Reduce the number of elements in the model.
- Reduce the number of relations depicted in the model.

Gestalt Theory of Human Perception (Lankhorst, et al., 2017)

- **Proximity** – People have the tendency to relate objects that are near to each other. Therefore, related objects should be placed near to each other. The proximity rule also applies to colors, wherein objects with the same color can indicate relationships between objects.
- **Similarity** – People have the tendency to perceive objects that are similar, belong together as a unit. Also, objects with similar size are often perceived as having the same or equal importance.
- **Continuity** – People have the tendency to perceive a line as continuous establishing directions, based on their perspective. Therefore, lines forming a right angle should not be positioned next to each other in a model, to avoid confusion.
- **Closure** – People have the tendency to perceive incomplete objects as complete and asymmetric objects as symmetric. Symmetry and regularity increase the readability of models and reduces perceived complexity.
- **Common Fate** – People have the tendency to perceive different objects that move or function in a similar manner as a unit.

Representation Conventions (Lankhorst, et al., 2017)

- **Use of Layouts** – The layout aspects of a diagram include basic pattern, horizontal and vertical alignment, above/before positioning, symmetry, distance of objects, distribution and density objects and connectors.
  - Properly utilize white space.
  - Make a clear distinction between normal proceedings and exceptions.
  - Apply symmetry to stress similarities.
  - Model time dependencies from left to right.
  - Avoid crossing lines.
- **Use of Symbols** – The shapes of objects in a model usually match the intrinsic properties of the real-life objects.
  - Use similar shapes for similar concepts.
  - Use line width to stress important relations.

- **Use of Colors** – Color is a strong visual signal. It is a visual attribute that is strongly influenced by "prior knowledge." It can also increase the appeal of a diagram, but can also lead to contrary effects, such as confusion and distraction.
  - Use color for similarity.
  - Use color to convey emotions.
  - Limit the number of colors.S
- **Use of Texts** – Texts suggests proper interpretations, associations, and stimulates thinking. It also speeds up the creation of a proper mental state in modeling, while creating a good starting for the line of reasoning.
  - Use domain-specific terminologies.
  - Use appropriate naming conventions.

References:

Lankhorst, M., BiZZdesign, Enschede, & The Netherlands. (2017). *Enterprise Architecture at Work Modeling, Communication and Analysis* (4th ed.). Berlin, Germany: Springer Nature