Systemic Framework for Enterprise Architecture & Transformation

Abstractions

Introduction

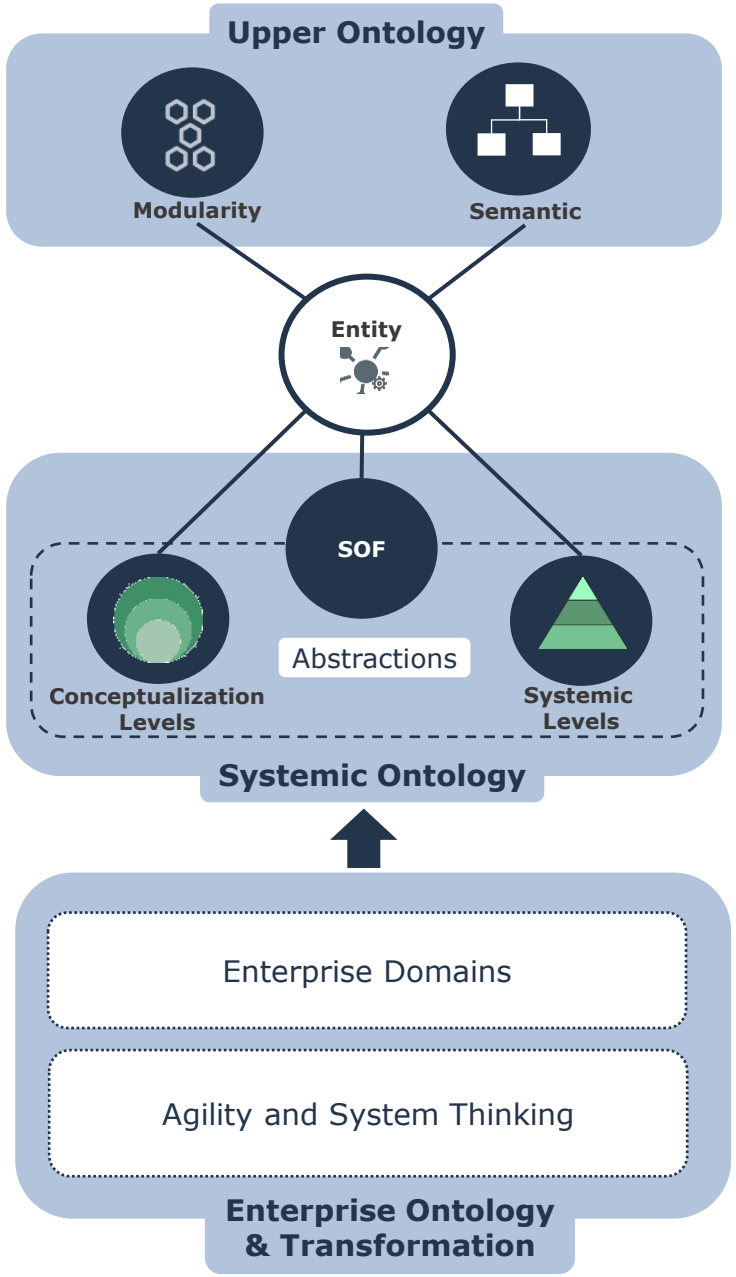
- This document is an integral component of the SysFEAT architectural framework. It provides foundations to address the challenges posed by Enterprise Architecture in the 21st century, which include :
  - Increasing complexity in system structures and behaviors.
  - Growing intricacy in architecture, management and governance of these systems.
  - The mission of the framework is to demystify these complexities, ensuring they are comprehensible to a broad audience, thereby facilitating the design and management of complex-systems across all scales, from micro-systems to enterprise level systems.

- Enterprise Modeling refers to the overarching language and conceptual framework used to describe, understand, and communicate the complex structures and dynamics of an enterprise.
- It integrates both the operating aspects of the enterprise (how it functions and interacts within its ecosystem), the transformational aspects (how it evolves and sustains over time through initiatives, asset management) and how these transformations are governed to ensure effectiveness, efficiency and reliability.

- The following slides present the foundations of enterprise modeling.

Foundations of enterprise modeling

- **Modularity** provides the syntax for building robust, manageable, and scalable architectures, based on the principles of composability and packaging.
- **Semantic** provides robust capabilities for classifying and composing entities, from time-bound entities (individuals) to families of concepts, enabling effective representation of meaning.
- The **Systemic Operating Framework (SOF)** serves as the overarching language that describes why and how a system operates and interacts within its ecosystems.
- **Abstractions** organizes systems and concepts in degree of abstractions, including systemic levels and conceptualization levels.
- **Enterprise Domains** formalize the various disciplines that make-up EA, ranging from enterprise road-mapping to System ArcDevOps.
- **Agility and System Thinking** ensure that the enterprise evolves and sustains over time through governed initiatives, architected for flexibility and responsiveness in complex and dynamic business environments.



Abstractions in enterprise & system modeling

- As in many scientific and technical domains, abstraction is essential for developing models that represent real-world phenomena in a simplified yet meaningful way.
- Abstraction leads to chains of concepts, organized into specialization hierarchies, which are further grouped into families of abstractions.
- Mastering the architecture of complex systems, such as enterprises, requires two main families of abstraction:
  - Conceptualization levels: they are used to model architecture artifacts according to level of abstractions, from stable representations (conceptual) to concrete representations (physical). Conceptualization levels are a key technic used in requirement traceability.
  - Systemic levels: they are used model architecture artifacts according to level of granularity (macro, mezzo, micro). Systemic levels are a key aspect of agile@scale, where micro-artifacts are incrementally built and assembled (whole/part) to create larger solutions artifacts (emergence) with higher functional value.