

系统I企业架构师的角色

The Role of Systems Architect

By 复杂系统架构研发社 Cercle CESAM

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From the White Paper "The Role of Systems Architect" by the Cercle CESAM - Article 6:*

Modelization of a System Architecture and its Value Chains

• **Preamble**

Based on all information collected from stakeholders, the architect formalizes logical models of the system, organized according to a system architecture framework. It is the guarantor of compliance with the syntax – more or less formal – given by the chosen modeling language and the modeling activities to be carried out. The precise meaning of each component of a systemic model must have been defined explicitly and unambiguously.

• **THE ESSENTIAL**

From the elements collected from the different stakeholders, the architect formalizes logical models of the system, organized according to a system architecture framework. It is the guarantor of compliance with the syntax – more or less formal – given by the chosen modeling language and the modeling activities to be carried out. The precise meaning of each component of a systemic model must have been defined explicitly and unambiguously.

• **THE MAIN PITFALLS**

Among the main pitfalls:

- Consider models only as communication and alignment tools and do not base architectural decisions on the exploitation of models,
- Do not set up traceability links between the models,
- Failing to explain the links between engineering models and architectural models,
- Not focusing enough on the form: an illegible diagram cannot be communicated and is therefore difficult to use,
- Not using models to highlight value chains and communicate them to stakeholders.

• **BEST PRACTICES**

Here are some good practices to consider:

- ✓ Proceed step by step in the implementation of model-driven engineering: first we formalize, then we share the models, we build architectures, we reuse architectures, we use them for simulation, then for specify etc
- ✓ Set up an architecture plan per project that instantiates the toolbox and the level of depth expected for each box (however, criteria must be given, for example, to model novelty)
- ✓ Attach the risk and value aspect to the models in order to have a shared global vision and use the models to highlight the perimeters on which to work (particularly relevant in a company with a strong history)
- ✓ Have an end-to-end modeling approach - from development to test (e.g. formalization of scenarios with a test perspective (traceability)), while taking into account the time allocated
- ✓ Communicate by always using the same models (so as not to lose people) and adapt the level of detail to the audience (so you need several levels for each model)
- ✓ Do not hesitate to add images or other to make the modeling more understandable and better communicate
- ✓ See a clear objective per model and a unique message per diagram: you have to know why you model. Feel free to create a second schema if you need to send a second message
- ✓ Information must be accessible without the tools being an obstacle
- ✓ Think carefully about the life cycle of the models created and in particular clearly define the way to manage them in configuration
- ✓ Throw away diagrams when they are no longer useful (stop maintaining them)

● TESTIMONIALS

We have compiled here several verbatim statements from project managers or system architects from different companies, which echo this phase:

“We use our architectural models to validate security analyses

“We have set up a 150% model which is instantiated by project according to the context and the objectives to be achieved

“Our modeling tools: Visio, Draw IO, Enterprise Architect, Capella, Rhapsody, Tom Sawyer (“simple” automatic layout of connection to other tools)

The Cercle CESAM is a working group whose objective is to develop and share a pragmatic international system architecture standard and to apply it to each major industrial field for the commercial benefit of CESAMES's community members.

Next article 7 is expected Friday May the 12th, 2023

All articles including previous ones of “The Role of Systems Architect” can be directly downloaded on this CESAMES's webpage: <https://cesames.cn/fridayshares/>