

EXCERPT FROM WHITE PAPER

The role of the architect

Capture internal / external
customer needs and consolidate
them



The Cercle CESAM
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Capture internal / external customer needs and consolidate them

Extract from the chapter **Black box architecture** of the white paper "The role of the architect"

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Preamble

Capturing the needs of internal/external customers and consolidating them is an activity that breaks down into 3 stages:

1. identify and organize the stakeholders of the system in the form of hierarchical diagram(s) and an environment diagram which specifies the interfaces/interactions of these stakeholders with the system considered,
2. frame the request of the stakeholders of the system by seizing the objective which motivates the development of the given system, and by succinctly describing the operational, functional and technical scope of the target system and the main performance indicators to be achieved,
3. capture the needs of the stakeholders in the system by starting by capturing the "raw" needs of the stakeholders, as expressed by the latter, from the available sources of information (interviews, documents, etc.), then by formalizing these raw needs using a standard statement of needs framework and finally prioritization of formalized needs.

THE ESSENTIAL

The architect **identifies the external perimeter** to be taken into account and **specifies the missions** of the system as well as the **objectives to be achieved**. It formalizes and prioritizes all **the needs of the stakeholders** by guaranteeing their **unambiguity** and their **exhaustiveness**.

THE MAIN PITFALLS

Among the main pitfalls:

- Organizational issues may arise when the capture of needs carried out by the architect comes into conflict with the business activities (BU or Business Analyst),
- Wanting to go too far in modeling the environment. To avoid this, one must constantly think in terms of value and therefore see what has a substantial impact on the interest system. Knowing the company's business processes makes it possible to better assess the value,
- Not consulting the stakeholders of certain life phases (development, maintenance, etc.),
- The main stakeholders are not aligned on the defined perimeter of the system (this often happens because we do not take the time to make this effort).

BEST PRACTICES

Here are some good practices to consider:

- Do not let the organizational aspect become the main driving force behind defining the scope. This avoids biasing the choice of architecture at this stage,
- Make the value understood: the architect brings an aspect of risk and value analysis to where business analysts focus on coverage and consistency. One can proceed either by a sharing of pains (analysis of irritants, problems, anything that prevents objectives from being achieved) or by a demonstration of the contribution of a methodology,
- Ensure the good level of knowledge of the stakeholders involved in the validation of the use cases and the good level of responsibility (in the decision-making sense) vis-à-vis the potential impacts. This is true for all architectural activities,
- Do not slow people down in expressing their needs: if they express solutions instead, they should be noted and escalated as needed (5 Whys method, for example),
- Care must be taken to integrate the constraints/expectations of the security and cybersecurity teams...

TESTIMONIALS

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

- “ We challenged the existing deliverables by the teams. This naturally led to the emergence of the need to set up a new methodology for capturing needs, which we did by supporting employees through training.
- “ We make very short loops between black box and white box in order to highlight the implications of the needs on the constraints induced in the architecture.
- “ We prepare the two black box and white box visions, and we put the elements that are more in the order of the possible solution in the white box part before going back up if necessary.

-END

PRELIMINARY SUMMARY OF THE WHITE PAPER

– Architect assignments

- Manage the architecture lifecycle
- Black box architecture
 - Capture the needs of internal / external customers and consolidate them** (chapter published)
 - Analyze customer needs and translate them into requirements
 - Define the uses
- White box architecture
 - Design a system that meets the needs/constraints of the stakeholders with the expected performance, justify the choice of architectures, propose alternatives and make the subsystems converge towards the overall optimal solution
 - Dysfunctional analysis
- Modeling of the system and value chains in architecture
- Proposal, justification and choice of competing architectures
 - Validate the technical choices
- Architecture assessment
 - Assess the maturity of the architecture definition
 - Evaluate the conformity of the architecture to the priority needs / values
- Interfaces
 - Manage internal and external functional and physical interfaces
- Link to product line
 - Ensure consistency with the standard product (when it exists)
 - Implement the product line strategy in the multi-project case
- Impact analysis
 - Analyze the impacts of modification and development requests
- V&V
 - Validate the technical configurations of the product/system
 - Check the design of the subsystems: it covers the needs with the expected performance
 - Compliance with requirements
 - Test
 - Prepare the deliverables of appropriate maturity according to the life phases: pre-project, development, production, support
- Contribution to project management
 - Sharing of responsibility between the architect and the project manager** (published)
 - Contribution of the architect to the activities carried out by the project manager
- Ensure the technical coordination of the project
- Model architecture
- Competitive intelligence / open-mindedness
- System engineering support
- Tips for structuring an architecture team

– The architect in the company

- The architect's interfaces
- Focus on the interface with the business lines
- Focus on the interface with the product lines
- Focus on the interface with the projects
- Focus on the interface with customers

– How to start system architecture

– The profile of the architect

- Inventory in terms of training and certification
- Technical skills
- Transversal skills
- Typologies of architects
- Can everyone become a good architect?

ABOUT THE CERCLE CESAM

The CESAM Community has been developed by the CESAMES Association since 2010. Its objective is to share best practices in Enterprise Architecture and System Architecture. Through CESAM certification, it certifies the ability of players to implement these best practices. The CESAMES association has thus formed the largest community around the MBSE (today, more than 8,500 Professionals are trained or certified in the CESAM method). It relies on major partners, whether academic, institutional or professional.

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 its members.

Today the Cercle has about fifteen members, including ITER, Sagemcom, Safran (SHE, SAE, SED), Dassault Systèmes, Idemia, Airbus, Somfy.

The 2 areas of work of the Cercle are: Method and tools (formalization and sharing of applications of the CESAM method by major sectoral areas (case studies, good practices, method tools, etc)) and Professionalization (contribute to the professionalization of the profession as a system architect to promote architects within their organizations).

The Cercle is currently working on the white paper "the role of the architect" which will be published in 2023.

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