CMMI INTRODUCTION

- **What is CMMI ?**

CMMI (Capability Maturity Model Integrated) is an evaluation factor regarding the ability of an organisation regarding software or system development.

In fact, the CMMI model comes from the CMM (Capability Maturity Model) from the 80s, this one was elaborated for the American Ministry of Defense, as a metric to define if a project would be realized within set time or not, and if the cost limits will be respected.

In 2001, a new version of CMM was released, integrating all the new methods (that's why "Integrated" was added), to complete the old model.

The CMMI gives a framework to the project, regarding the project management, engineering, and support.

- **The model**

The model introduces 5 main levels, that contain in total 25 good practices.

The levels are the following:

1 – Initial

No control, no inspired by past experiences, the success of the project only depends on the skills and motivation of the team members.

2 – Managed

The project is built on past experiences, we learnt how to repeat successful projects. Project management methods are applied to the whole organisation, for all projects.

3 – Defined

Project management are applied to the whole organization, through standards, norms, procedures, tools and methods, creating a coherent project ecosystem.

Besides that, the organisation is continuously improving his project management method.

4 – Quantitatively Managed

The success is quantified, we can analyse everything to understand what happened, why id didn't work. The processes' performances are predictable.

5 – Optimizing

Constantly improving the processes using innovative tools and methods, anticipating the evolutions, the processes are permanently remastered.

- **Amelioration process based on CMMI**

First, the organisation needs to find a certified SEI organisation to drive the evaluation.

Then, there is 5 steps to follow : Initialisation (definition of the maturity level of the organisation), Definition (organization of different workshops with the team member to improve and teach the new practices, based on the actual maturity defined during the previous step), Support (the practices are fully deployed through coaching sessions), Mock Evaluation (find the actual maturity of the new methods in the different teams, survey the new practices), Official evaluation (presentation of the results)

- **Benefits of CMMI in an organisation**

Thanks to the standardized processes, a lot of re-word is avoided, the issues are detected way earlier in the project, as they have already been analysed in the past. Anticipation and limitation of the risks.

More time to focus on other metrics such as the customer's satisfaction, regarding the regularity in the respect of the deadlines for example.

- **CMMI tools**

There is no rule about the tools that will work on each project, each organisation is different, and the toolkit needs to be adapted with coherence.

Following the CMMI timeline, these tools are created and mastered between the level 2 and 3.

The most common category of tools is the following:

1. Bug tracker
2. Metrics tools
3. Integration application
4. Decision and analysis tools
5. Project and document management

- **Certifications**

The CMMI certifications are only delivered by the CMMI institute itself (unlike for the tools for example, that can be delivered by other organisations) to attest of the CMMI framework abilities of the individuals, instructors and practitioners.

- Evolution of CMMI

Since 2018 the first releases of CMMI V2.0 started being released, to improve certain aspects of CMMI such as improving the business performance through business goals over key driver, leverage current best practices with a continuously improved best practices list, how to improve agile with Scrum projects, reduction of preparation time and lifecycle cost. In general, it is also easier to use and to access.