



# D5.1: Process Implementation and Maturity Baseline Assessment Framework

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*Internal Deliverable*

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## **Abstract**

This document presents the FedSM maturity baseline assessment framework, which is intended to define a coherent and common understanding of how to measure the quality of implementation of service management processes in federated e-infrastructures. This document uses the minimum requirements for service management in federated IT systems described in Deliverable D3.2 [1]. The maturity baseline assessment framework described in this document is used to analyse the maturity of concrete FedSM clients, whose main results will be described in Deliverable D5.2 [2] and for which an implementation plan targeting concrete processes is described in Deliverable 3.3 [3].



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## 1. Introduction

This document is meant to elaborate an assessment plan of the current status (maturity) of Service Level Management (SLM) implemented by a set of selected clients. Concretely, this document defines a coherent and common understanding of how to measure the quality of implementation of service management processes in the selected clients. The clients are in principle the three client partners that participate in the FedSM project, namely CSC, EGI.eu and PL\_Grid, for which concrete maturity analysis and implementation plans are defined making use of the result of this document.

The importance and need of an assessment plan is crucial for the correct development of the FedSM project. In fact, in order to establish the specific targets to be achieved as far as the introduction of different IT service management processes, it is necessary to first define how to measure the quality of implementation of service management processes in a coherent and commonly accepted framework. Therefore, Deliverable D5.1 presents the results obtained within the FedSM project to conceive that framework.

The FedSM maturity baseline assessment framework consists of two inter-related main components, namely the FedSM Process Capability Model and the FedSM Maturity Assessment Model.

The FedSM Process Capability Model (PCM) consists of the set of management processes to be considered in the assessment and in the eventual implementation of a client site with the detailed description of three capability levels that in turn characterize the implementation status of such process. These capability levels are called “ad-hoc”, “repeatable” and “defined” and they reflect (in increasing levels of maturity) the extent the management processes have been implemented. The intended use of this PCM is to rank each process implementation at each client site. The mechanism is simple: on a per-process basis, we will have to analyse which of the three definitions best matches the status of implementation of the process, and assign each process to matching level (out of the three). The description and even the denomination of these three marks are based on the general purpose COBIT maturity model [4], where they roughly correspond to the lowest three of the COBIT maturity levels. The reason to adopt only these three levels in the FedSM PCM is because the FedSM consortium is aware that they will be enough to represent the current status and the future target goals for all the involved sites.

The FedSM Maturity Assessment Model (MAM) is a global vision on how the set of management processes considered in the FedSM project are implemented. In order to rank this vision, we establish four different maturity levels, namely “aware”, “in-place”, “effective” and “advanced”. A given client site would be ranked with one out of the four maturity levels according to the levels achieved in the capability assessment.

### 1.1. Contribution of this Deliverable to the project and relation with other Deliverables

Deliverable D5.1 takes inputs from Deliverable D3.2 [1] that establishes the minimum requirements for service management in federated IT systems. For the set of the service management processes identified in D3.2, this deliverable establishes the FedSM PCM, which is then used to establish a global FedSM MAS. Both models constitute the baseline assessment framework that will be used to analyse the maturity of the client sites and that will be reported in Deliverable D5.2 [2]. Finally, Deliverable 3.3 [3] will take the input from this document to define the actual implementation plan for the FedSM clients in a first stage part of the project that will target concrete processes.

## 1.2. Structure of this document

This document consists of two main chapters presenting the two main concepts. After the Introduction, a detailed presentation of the FedSM Maturity Assessment Model (MAM) is presented in Chapter 2. The following Chapter 3 describes the FedSM Process Capability Model (PCM), and finally Chapter 4 presents the concluding remarks and the summary of the document.

## 2. The FedSM maturity assessment model (MAM)

To assess the service management in the FedSM client infrastructures, it is necessary to create an assessment model. This model needs to look at the maturity of the processes a provider uses in different aspects of service management, as well as the overall maturity achieved from the combination of all ITSM activities.

### 2.1. Process model

The approach taken by FedSM is rooted in a common approach from the IT Service Management: a process model. A process model divides the broad range of activities needed to manage a service into a set of distinct processes, dealing with different aspects of the overall effort. Each process has defined input and outputs, defined roles and connections to other processes. For FedSM, a process model based on that from the ISO/IEC 20000 standard is used, though it is compatible with other models such as that from the ITIL framework.

Taking into account the minimum requirements for service management in federated IT systems defined in Deliverable D3.2 [1], FedSM defines the following processes:

Name	Abbreviation
Service Portfolio Management	SPM
Service Level Management	SLM
Service Reporting	SR
Service Continuity & Availability Management	SCAM
Capacity Management	CapM
Information Security Management	ISM
Customer Relationship Management	CRM
Supplier Relationship Management	SuppM
Incident & Service Request Management	ISRM
Problem Management	ProbM
Configuration Management	ConfM
Change Management	ChM
Release & Deployment Management	RDM
Continual Service Improvement	CSI

Table 1 – FedSM processes

### 2.2. Capability and maturity models

In order to understand how advanced service management processes are within a provider, we define two different measures of success.

**Capability** is the quality of implementation within a single process. Capability is measured in levels, from zero to five, though FedSM only addresses 0-3.

**Maturity** is the quality of the overall service management implementation, taking into account all processes and their individual capabilities. Maturity is measured in 5 levels, though FedSM only addresses 0-3.

The relationship between the two is not simple; having all processes at capability level 1 is not sufficient to reach maturity level 1. Processes are not equally urgent and are not all needed right away, however certain key processes need to be at least on the repeatable level before the overall maturity can be considered to be on the level 1.

Figure 1 shows the relationship between the capability and maturity models in the FedSM maturity baseline assessment framework.

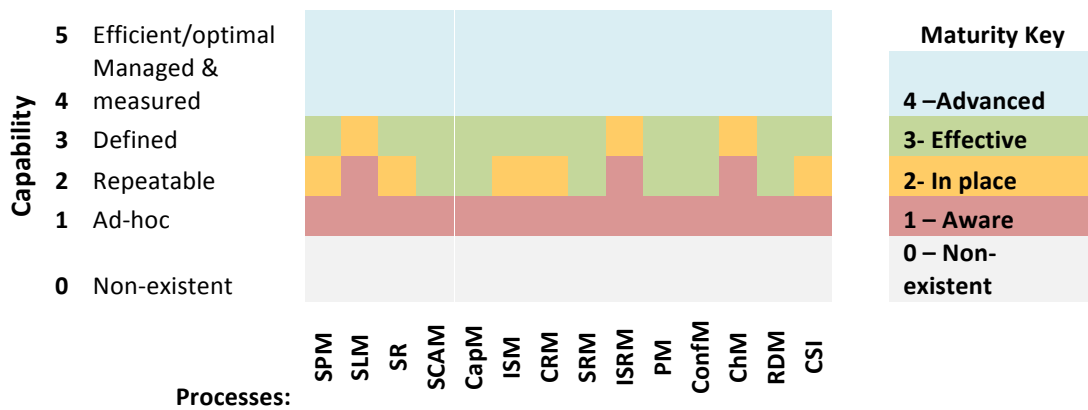


Figure 1: Relationship between the FedSM Capability (left) and Maturity (right) Models

As Figure 1 shows, to reach maturity level 1 (all red sections) a provider already needs to achieve capability level two in Service Level Management, Incident and Service Request Management and Change Management. Ultimately, all processes are needed and can be seen as equally important, but there are some dependencies implied. For instance Problem Management looks at the root causes of incidents, and it is difficult to achieve higher capability in this area until there is some capability in Incident and Service Request Management.

Despite these different interdependencies, all processes must reach at least the capability level 1 for the whole system to meet the maturity level 1. This is a fairly low level of capability that includes at least awareness of the need for a process and some way to handle urgent or key functions from it.

### 2.3. Maturity assessment

This schema allows assessing the maturity of providers by investigating the capability of a provider in each process based on how they meet the requirements set out in D3.2 and the FitSM:2013-1 standard proposed by FedSM.

The result of the requirement-based assessment will be a capability level for each process, which can be compared to the maturity level capability requirements to give a maturity ‘score’. Because the maturity assessment is based on capability levels, providers can also be shown in which processes they need to improve capability and which maturity level capability requirements they must meet in them in order to achieve a given maturity level. This allows presenting improvements as concrete, incremental and achievable, which increases the likelihood they will be achieved.

### 3. The FedSM Process Capability Model (PCM)

To evaluate and categorize the level of implementation of FedSM's standard requirements, a FedSM Process Capability Model has been established. The proposed Capability Model is composed of six Capability Levels that will characterize the status of Service Management implementation in each process and it will serve as basis for FedSM's Maturity Assessment described in the previous section.

The six Capability Levels are defined as follows.

1. **Non Existent.** In this capability level Service Management is non existent. The service provider is not aware of the tasks necessary to provide the service. In a practical world, as soon as a process is defined this level is surpassed.
2. **Ad-hoc.** The service provider is aware of the tasks needed to provide the service but the execution is undocumented, uncontrolled and reactive. Success in accomplishing the task is not guaranteed and it is likely to depend on individual efforts.
3. **Repeatable.** The service provider has a solid understanding of activities to be performed and that, most of the time, will lead to repeatable results or outputs. Tasks are realised mostly intuitively since the documentation and recording are poor.
4. **Defined.** The service provider has clearly defined and documented procedures, roles and responsibilities, but process effectiveness and efficiency are not measured nor reported.
5. **Managed & Measured.** The service provider has clearly defined and documented procedures, roles and responsibilities. Process effectiveness and efficiency are measured and reported, although, this information isn't necessarily leading to process change and improvement.
6. **Efficient/Optimal.** For the regarded process Service Management System is fully implemented, meaning that Capability Level 5 (Managed & Measured) is enhanced by using information to systematically improve the regarded process.

### 4. Concluding remarks

This document presented the FedSM maturity baseline assessment framework that consists of two inter-related components, the Maturity Model (MAM) and the Capability Model (PCM). The framework provides support for measuring the quality of implementation of service management on a per-process basis and also from a holistic viewpoint of federated e-infrastructures. The framework defines a capability model to measure the process-aware quality of implementation and a maturity model that considers all processes together to measure the quality in overall service management implementation.

The maturity assessment framework defined in this document is a key element for the development of the FedSM project as it will be the basis to establish the achievable targets for introducing different IT service management processes in the client federated e-infrastructures of the project.

## 5. References

- [1] FedSM Deliverable D3.2. Minimum requirements for service management in Federated e-Infrastructures
- [2] FedSM Deliverable D5.2. Clients' process implementation and maturity baseline (in process by publication date of this deliverable)
- [3] FedSM Deliverable 3.3. First stage implementation plan for service management in Federated e-Infrastructures
- [4] IT Governance Institute. Control Objectives for Information and Related Technology. 4.1 2007.

## Version History

Version	Date	Author	Change record
0.1	19.03.2013	J. Rubio	Skeleton
0.2	22.03.2013	L. Alves	Capability Model Section
0.3	25.03.2013	O. Appleton	Maturity Assessment model
0.4	26.03.2013	J. Serrat	Introduction
0.5	27.03.2013	J. Rubio	Final Drafting and Conclusions
0.6	28.03.2013	M. Heikkurinen, S. Holsinger	Internal Reviews
1.0	31.03.2013	J. Rubio	Final Deliverable
1.1	20.09.2013	O Appleton	Minor formatting

## Technical Annex: Descriptive capability levels per process

This Annex illustrates the two components of the FedSM maturity baseline assessment framework; the capability model and the maturity model. The figures below detail the descriptive capability levels per process and the overall maturity associated to each process.

For instance, a given site would be marked as “aware” in its maturity level if all of its processes got an “ad-hoc” capability mark except for the Service Level Management (SLM), Incident and Service request Management (ISRM) and Change Management (ChM), which could be ranked as “repeatable” in their capability marks. The FedSM framework provides support to define similar requirements in terms of per-process capability marks to be achieved for each maturity level.

Overall Maturity	Capability																				
	5 Efficient/optimal	4 Managed & measured	3 Defined	2 Repeatable	1 Ad-hoc	0 Non-existent	Service Portfolio Management (SPM)	Service Level Management (SLM)	Service Reporting (SR)	Service Continuity & Availability Management (SCAM)	Capacity Management (CapM)	Information Security Management (ISM)	Customer Relationship Management (CRM)	Supplier Relationship Management (SupplM)	Incident & Service Request Management (ISRM)	Problem Management (ProbM)	Configuration Management (ConfM)	Change Management (ChM)	Release & Deployment Management (RDM)	Continual Service Improvement (CSI)	
4 Advanced																					
3 Effective																					
2 In place																					
1 Aware																					
0 ---																					