EGI.eu

TCB REQUIREMENTS MANAGEMENT

Document identifier	EGI-TCB-Requirements_Management-V13
Document Link	https://documents.egi.eu/document/440
Policy Group Name	Technology Coordination Board (TCB)
Contact Person	Michel Drescher, Michel.Drescher@egi.eu
Document Type	Procedure
Document Status	FINAL
Approved by	Technology Coordination Board
Approval Date	6 November 2012

Policy Statement

This document describes the management process of how the TCB assesses, analyses and takes action on requirements that are brought to its attention for Face-to-Face (F2F) discussions. It defines timelines, responsibilities, and actions that must be taken to ensure a steady and well-documented procurement of assessment and implementation of requirements by the Technology Providers that are represented in the TCB.

I. COPYRIGHT NOTICE

II. AUTHORS LIST

	Name	Partner/Activity/Organisation/Function	Date
From	Michel Drescher	EGI.eu/Technology Manager	25/11/2011

III. APPROVAL LOG

Version	Date	Comment	Approving body
V8	23/11/2011	V8 approved at TCB-9 (http://go.egi.eu/TCB-9). V9, V10 reflect only formal changes to the document.	TCB
V12	6/11/2012	V12 approved at TCB-14 (http://go.egi.eu/TCB-14). V13 reflects only formal document changes	TCB

IV. APPLICATION AREA

This document is a formal EGI.eu policy or procedure applicable to all participants and associate participants, beneficiaries and Joint Research Unit members, as well as its collaborating projects.

V. POLICY/PROCEDURE AMENDMENT PROCEDURE

Reviews and amendments should be done in accordance with the EGI.eu "Policy Development Process" (https://documents.egi.eu/document/169).

VI. ORGANISATION SUMMARY

To support science and innovation, a lasting operational model for e-Infrastructure is needed – both for coordinating the infrastructure and for delivering integrated services that cross national borders. The objective of EGI.eu (a foundation established under Dutch law) is to create and maintain a pan-European Grid Infrastructure in collaboration with National Grid Initiatives (NGIs) in order to guarantee the long-term availability of a generic e-infrastructure for all European research communities and their international collaborators.

In its role of coordinating grid activities between European NGIs, EGI.eu will:

- Operate a secure integrated production grid infrastructure that seamlessly federates resources from providers around Europe
- Coordinate the support of the research communities using the European infrastructure coordinated by EGI.eu
- Work with software providers within Europe and worldwide to provide high-quality innovative software solutions that deliver the capability required by our user communities
- Ensure the development of EGI.eu through the coordination and participation in collaborative research projects that bring innovation to European Distributed Computing Infrastructures (DCIs)

The EGI.eu is supporting 'grids' of high-performance computing (HPC) and high-throughput computing (HTC) resources. EGI.eu will also be ideally placed to integrate new Distributed Computing Infrastructures (DCIs) such as clouds, supercomputing networks and desktop grids, to benefit the user communities within the European Research Area.

EGI will collect user requirements and provide support for the current and emerging user communities. Support will also be given to the current heavy users of the infrastructure, such as high energy physics, computational chemistry and life sciences, as they move their critical services and tools from a centralised support model to one driven by their own individual communities.

The EGI community is a federation of independent national and community resource providers, whose resources support specific research communities and international collaborators both within Europe and worldwide. EGI.eu, coordinator of EGI, brings together partner institutions established within the community to provide a set of essential human and technical services that enable secure integrated access to distributed resources on behalf of the community.

The production infrastructure supports Virtual Research Communities − structured international user communities − that are grouped into specific research domains. VRCs are formally represented within EGI at both a technical and strategic level.

VII. EXECUTIVE SUMMARY

This document describes the process for how the TCB and its members are managing requirements in need of technical and strategic coordination at a management level.

Fundamentally divided into three main activities, the TCB requirements management process facilitates a repeatable, clear and transparent management process, from taking ownership of selected requirements to the final publication of software implementing those requirements in the UMD for deployment onto the EGI.

Beginning with an introduction in section 1 the reader will learn the larger context of the TCB requirements management process, and the surrounding processes and activities to which it is integrated.

After giving a process overview in section 2, the document defines the necessary activities in section 3 by describing the respective purpose and outcome of each activity complemented by an overview of the formal state transitions for requirements that are managed through this process.

Section 4 describes the documents and auxiliary artefacts that are used in the process. Heavily referenced in other parts of this document this section gives information about the type and intended semantics of the information conveyed in the process documents.

Section 5 describes a set of criteria that apply to requirements that should be taken up by the TCB to be managed. At large, the TCB expects that many more requirements are elicited and eventually implemented by Technology Providers. However, only a subset of these requires discussion and management on the TCB level. This section may be used as a guide to assess whether to submit requirements to the TCB or not.

The document concludes with a list of references in section 6 and two appendices providing further information on process tools supporting the TCB requirements management process, and auxiliary information about surrounding processes.

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

1 INTRODUCTION

Developing and implementing requirements is critical to driving the continuous service improvement of EGI's distributed computing infrastructure service offered to its user communities. Coordinating the process at this level ensures that requirements that may cause significant changes to the production infrastructure are well managed to minimise the risks when introducing software satisfying these requirements to EGI. By distributing the involved activities over identified responsible entities, the effort will be shared while at the same time facilitating clear progress reporting back to the main stakeholders of the overall process.

The overall EGI process of continuous service improvement comprises three fundamental phases:

a) Requirements engineering,
b) TCB requirements management,
c) Software provisioning.

The EGI communities through the User Community Board (UCB), the Operations Management Board (OMB) and the Deployed Middleware Support Unit (DMSU) are in charge of the requirements engineering processes. They submit requirements of a particular impact and scope to the TCB for further management and coordination with associated Technology Providers. They also decide which requirements, for example feature requests to existing products, should be further managed as service requests to Technology Providers via GGUS.

The software provisioning process is comprised of the implementation, delivery and provisioning of software that satisfies a specific set of requirements as determined in the TCB requirements management process. This phase is shared between Technology Providers and EGI's Software provisioning group, where Technology Providers implement and deliver the software that the Software Provisioning group will take on for further provisioning onto the production infrastructure. However, the TCB will monitor the progress of this activity by requesting progress reports as required.

The remainder of this document focuses on the description of the TCB requirements management process.

2 OVERVIEW

This document describes how the TCB manages requirements that need coordination across Technology Providers. Through executing this process, the TCB ensures that the needs of the EGI community are satisfied making efficient use of available Technology Provider resources. The EGI communities spend considerable efforts to prepare, group, clarify and prioritise requirements into a format that is easily digestible in a reasonable amount of time by the members of the TCB. A common format and deadline for providing requirements to the TCB is shared, and agreed across the EGI communities ensure efficient, yet asynchronous communication among EGI management bodies. When submitting items to the TCB, the UCB and OMB chairs shall be cognizant of the sitting's available time for discussion and avoid overcharging the agenda for the meeting.

2.1 Process requirements

The exact process model including specific sub-processes, documents and support tools will satisfy the following:

a) Requirements are sufficiently disparate to be processed individually or, tracing overlapping community needs, sufficiently congruent to be grouped into a topic of common interest.
b) A topic of requirements must be sufficiently defined so that it may be processed as a single requirement.
c) The process is lightweight enough to avoid unnecessary burden thus facilitating uptake and process discipline.
d) At any point in time progress reporting (including progress timelines) on requirements is possible.
e) Responsibility for further actions on any given requirement is clear and unambiguous
f) Requirements have a limited, clearly defined lifetime.

2.2 Process composition

The TCB requirements management process comprises three important activities in managing requirements, where each single activity answers a number of important questions, before the actual implementation in software can happen. Once Technology Providers take on implementing the software the TCB continues to monitor the progress until the software is available in the production infrastructure.

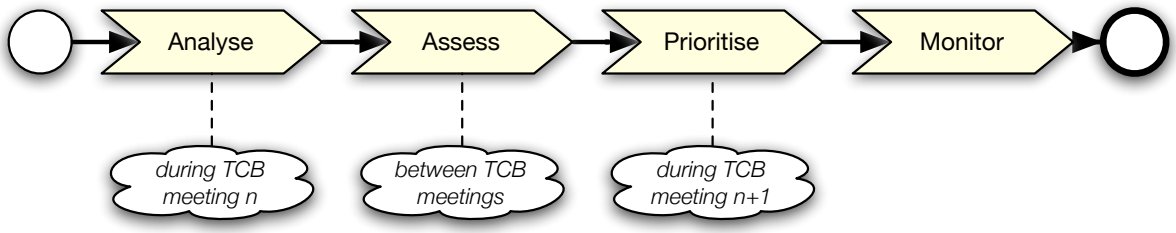

Figure 1: The TCB requirements management process

Analyse requirements (conducted during TCB meeting n): Are the submitted requirements in scope for the TCB? Is there consensus in the EGI community to proceed with this requirement and is it realistic enough to proceed and have Technology Providers spend effort on assessing the implementation effort and timeline? Or do we require more information to be able to give a satisfactory answer?

Assess requirements (conducted between TCB meetings): How much effort would be required to implement the respective requirement? Are there synergies in combining the implementation of more than one requirement? What would be a viable and realistic release plan?

Prioritise requirements (conducted during TCB meeting n+1): Combining the description of requirements, and the expected efforts and release timelines, which order of implementation would be the most efficient use of Technology Provider resources to achieve the most satisfaction of community needs?

Monitor progress (conducted following TCB meeting n+1): Taking regular progress reporting into account, are the planned release dates in danger or will they still be met? Has the software been already released into the production infrastructure?

With this, the TCB Requirements management process becomes a standing agenda item in the TCB meeting agenda for F2F and phone conferences, where the aspects of Requirements are reported, and discussed. It is important to note at this level that not all Requirements that are managed through this process may be discussed at any given meeting. Any requirements that were not discussed (and therefore did not receive a status change) will be scheduled for discussion at the following TCB meeting.

The following sections provide more detail on the TCB activities for managing requirements.

3 TCB REQUIREMENTS MANAGEMENT

This chapter defines the activities carried out by the TCB, referring to external processes where required.

3.1 Analysing requirements

The focus of the requirements analysis lies on determining whether individual requirements captured in a *Catalogue of Requirements* (CoR) are in scope for the TCB requirements management process. Effectively, this analysis is a first pass filtering mechanism for the TCB before any requirement is handed over to Technology Providers for implementation and delivery.

The CoR is prepared and delivered jointly by the (UCB), the (OMB) and the DMSU **no later than 2 calendar weeks before** a TCB meeting. Meeting participants are required to prepare for the meeting using the delivered CoR to keep discussions at the meeting itself to a minimum.

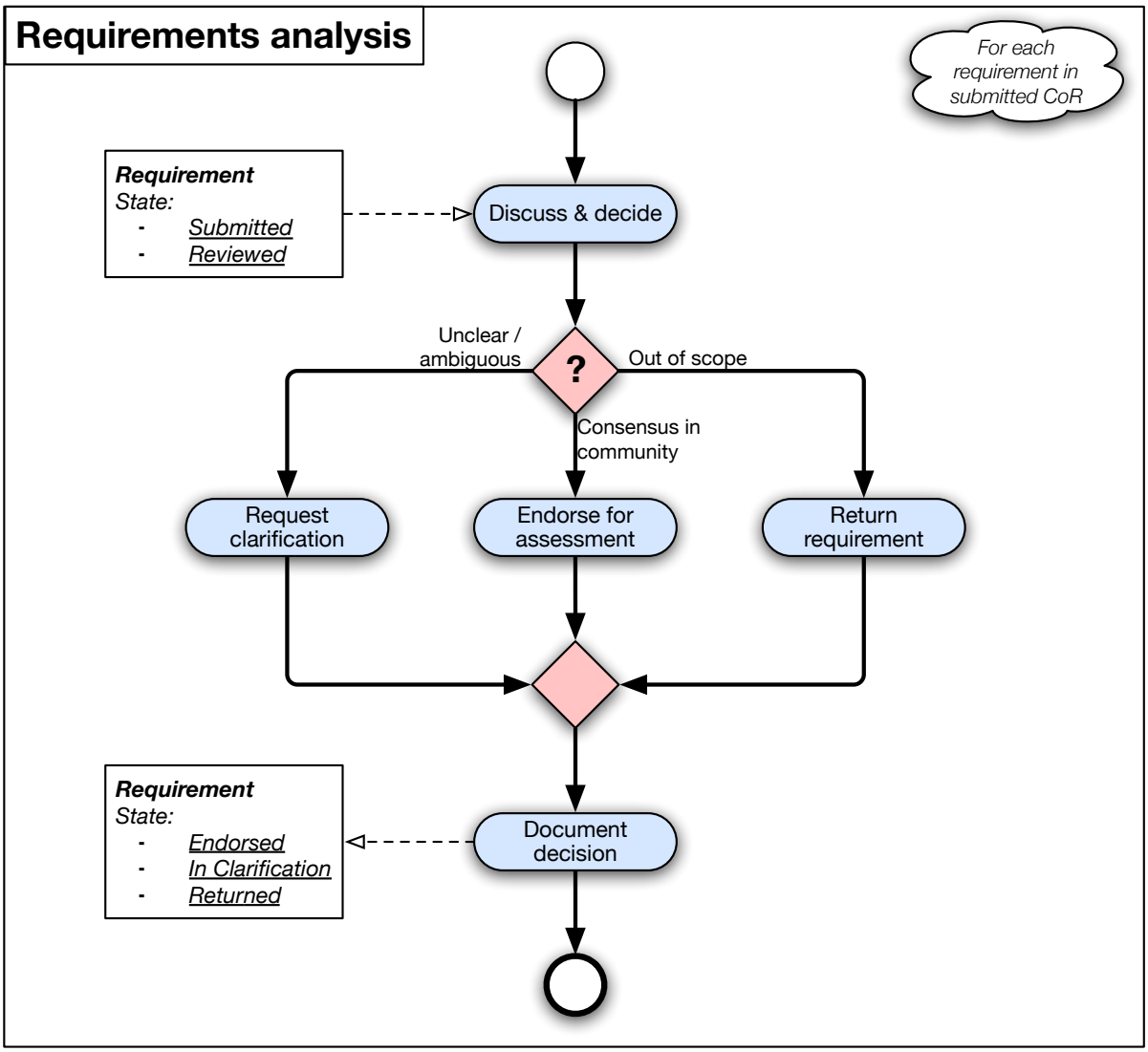

Figure 2: The TCB analyses requirements.

During the meeting, the participants briefly discuss the *submitted* and *reviewed* requirements in the CoR and take a decision on each as follows:

- The TCB may decide to endorse a requirement capturing a true need across the EGI community, including the Technology Providers.
- The TCB may decide to return a requirement that is deemed out of scope to the originating EGI management body for it to further pursue that requirement offline. The requirement may be re-submitted to the TCB at a later stage according to the TCB criteria (see below).
- The TCB may request further clarification before any decision to endorse or return a requirement can be taken.

All decisions are to be recorded in the meeting minutes referencing more detailed information attached to the respective requirements.

Outcome:

- After finishing the requirements analysis, the meeting minutes will record all decisions taken and refer to the requirements for further details.
- All discussed requirements will receive a status change (requirements that were not discussed will not change status) according to the decision taken during the TCB meeting (i.e. *Endorsed*, *Returned* or *In Clarification*), and further information will have been recorded in the pertinent requirement history.
- All *endorsed* requirements are associated with one or more Technology Provider to assess the relative cost of implementation.

3.2 Assessing requirements

After a TCB meeting, Technology Providers take over all requirements that were endorsed at that meeting and produce an assessment of the necessary effort to deliver the respective requirement in new, or updated software. A Technology Provider may group requirements together in a combined assessment for the purpose of more effective software delivery with less effort or in a shorter period of time.

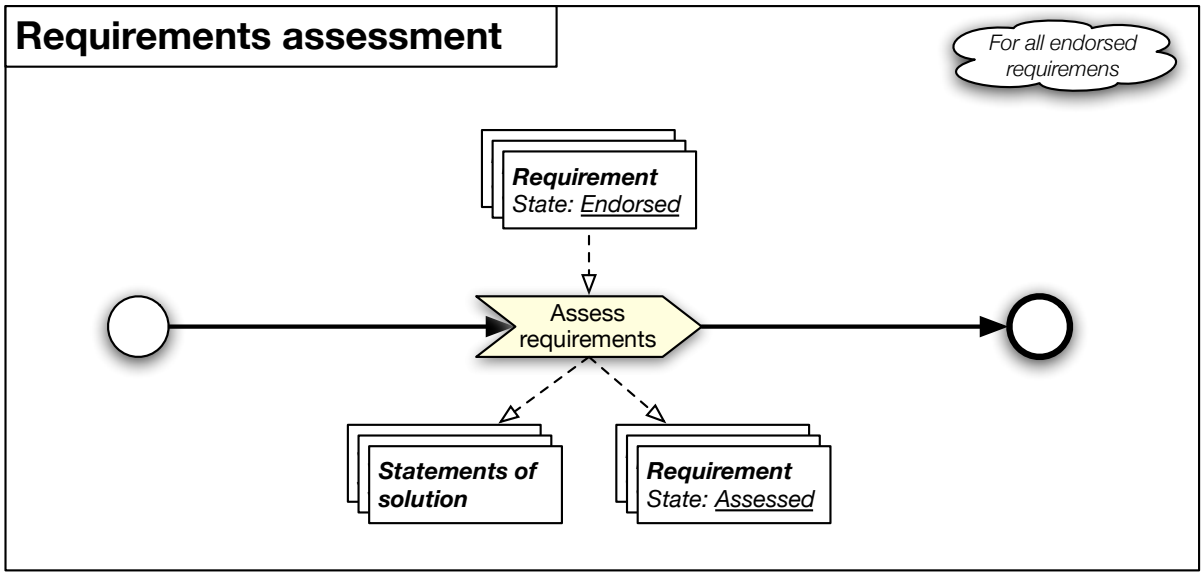

Figure 3: Technology Providers assess endorsed requirements

EGI encourages Technology Providers to contact any community that may be affected by requirements they were tasked to assess their relative implementation costs. The more details are present and known to Technology Providers, the better and more accurate relative implementation cost statements are possible. This is particularly true for requirements that affect many products and services, which thus should be discussed with as many affected stakeholders as possible.

The assessment of requirements by a Technology Provider must be completed in a timely fashion, submitting a Statement of Solution (SoS) **no later than 2 calendar weeks** before a TCB meeting. Meeting participants are required to prepare for the meeting using the delivered SoS to keep discussions at the meeting itself to a minimum. The details of this process are specific to each Technology Provider and not further described in this document.

Outcome:

- A Statement of Solution (SoS, see section 4.3) for each assessed (group of) requirement(s) is attached to the meeting agenda provided in EGI Indico (https://www.egi.eu/indico/) **no later than 2 weeks before** the next TCB meeting commences.
- All requirements described in the SoS document(s) must be in state *Assessed.*

3.3 Prioritising requirements

Prioritising requirements operates on the received Statements of Solutions (SoS), and all requirements that are monitored by the TCB at the time of the meeting.

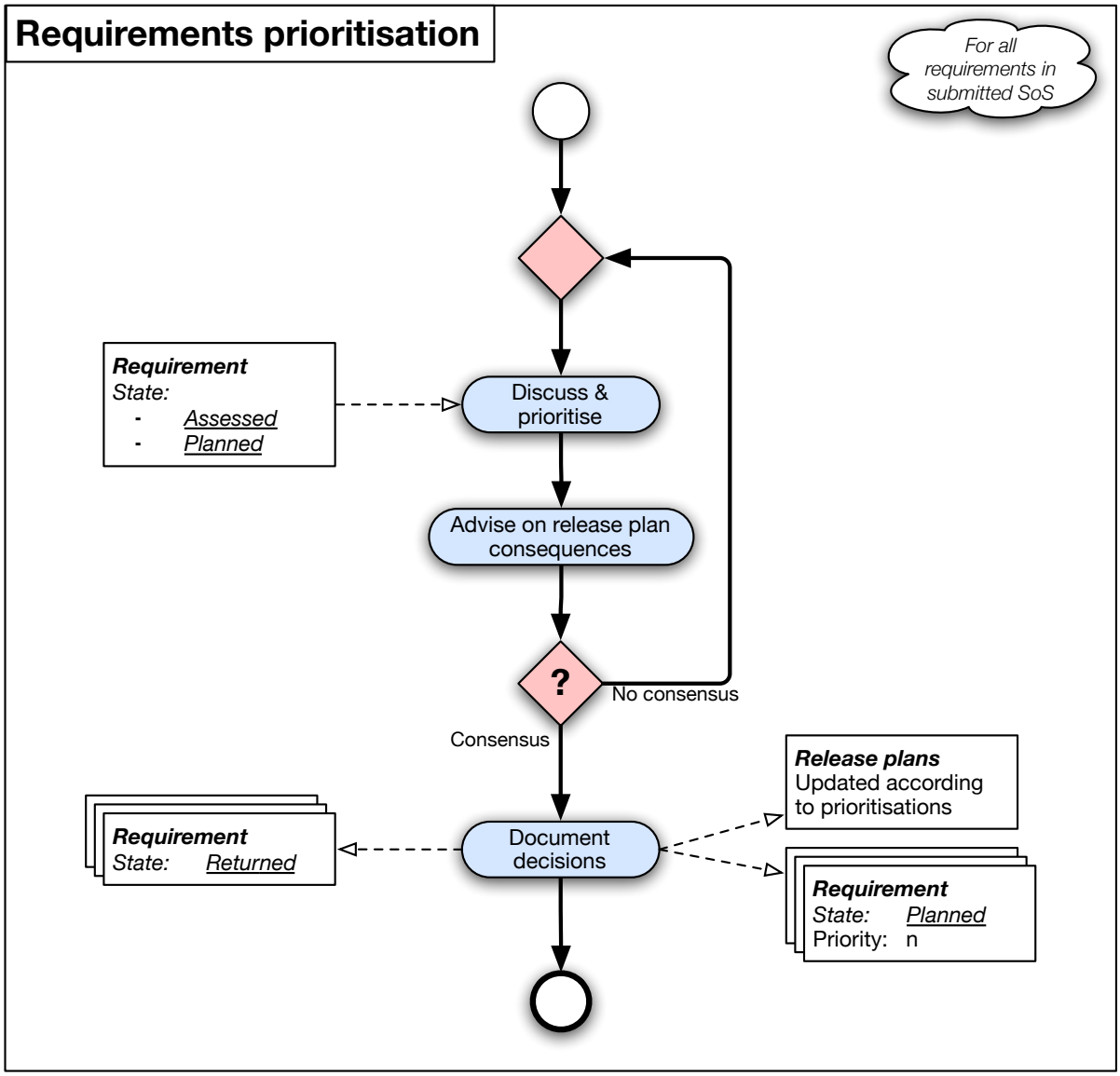

Figure 4: The TCB prioritises requirements.

The participants of the TCB meeting jointly discuss priorities of monitored planned requirements and assessed requirements. In particular, assigning or changing priorities of requirements may affect release plans, until consensus on requirements priorities and any changed release schedules is reached in an iterative manner. The TCB may also decide that, based on the assessment of the Technology Provider(s) and the prioritisation discussions, the respective requirement will not be pursued further by the TCB and therefore return it to the originating EGI community management board. However, any decision taken must be recorded in the meeting minutes, with more detailed information added to the respective requirements history.

Outcome:

- The meeting minutes record, for each discussed requirement, the decisions taken during prioritisation, referencing the requirement for further details.
- Requirements are updated with priority and state, and individual release plan information per affected Technology Provider.

3.4 Monitor software provisioning

With prioritising requirements the TCB fulfilled its primary duty. By entering the third phase of the EGI virtuous cycle, Technology Providers will implement software that satisfies the requirements according to the assigned priorities and deliver it for provisioning onto the production infrastructure.

The TCB has a vested interest in a coordinated delivery of the software, and therefore will monitor the progress of the provisioning phase until the software that satisfies planned requirements is available in the UMD for deployment.

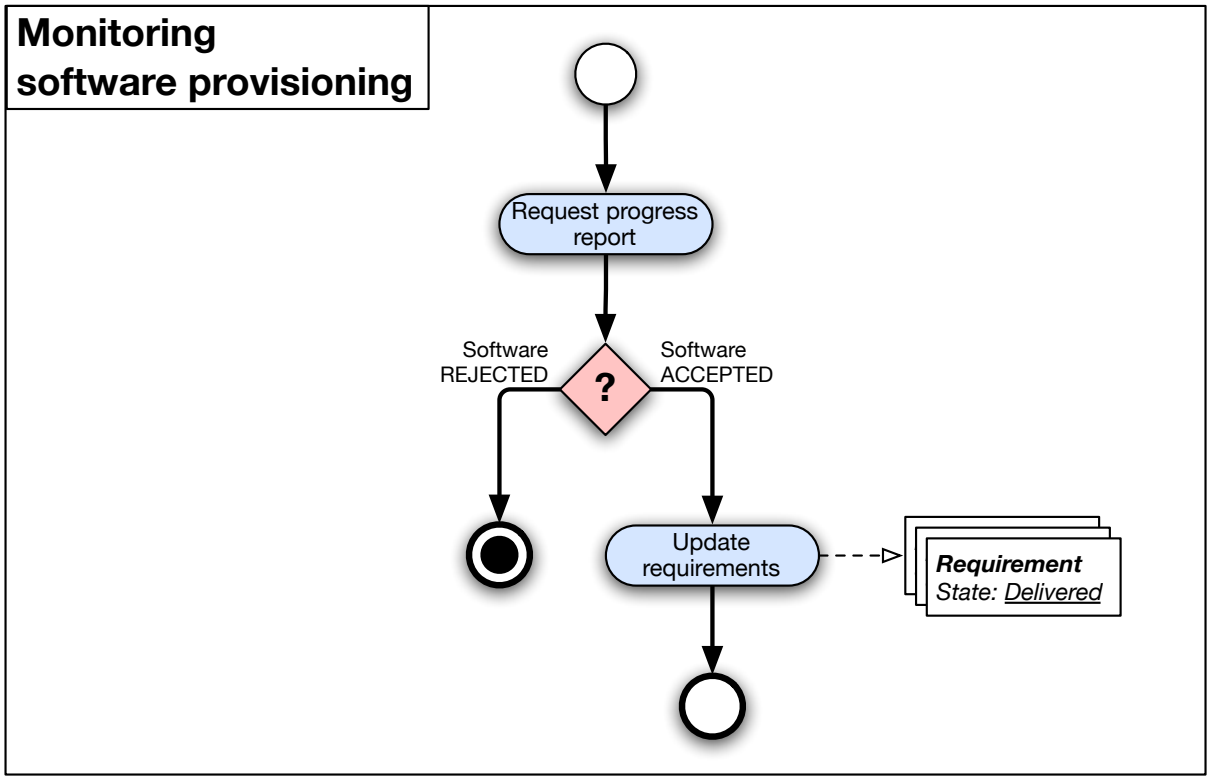

Figure 5: Monitoring requirements until they are delivered.

3.5 Requirements lifecycle and states

Throughout the TCB requirements management process, requirements have a defined lifecycle and state at any given moment. This section provides more detail on each of the possible states of any requirement within the TCB requirements management process.

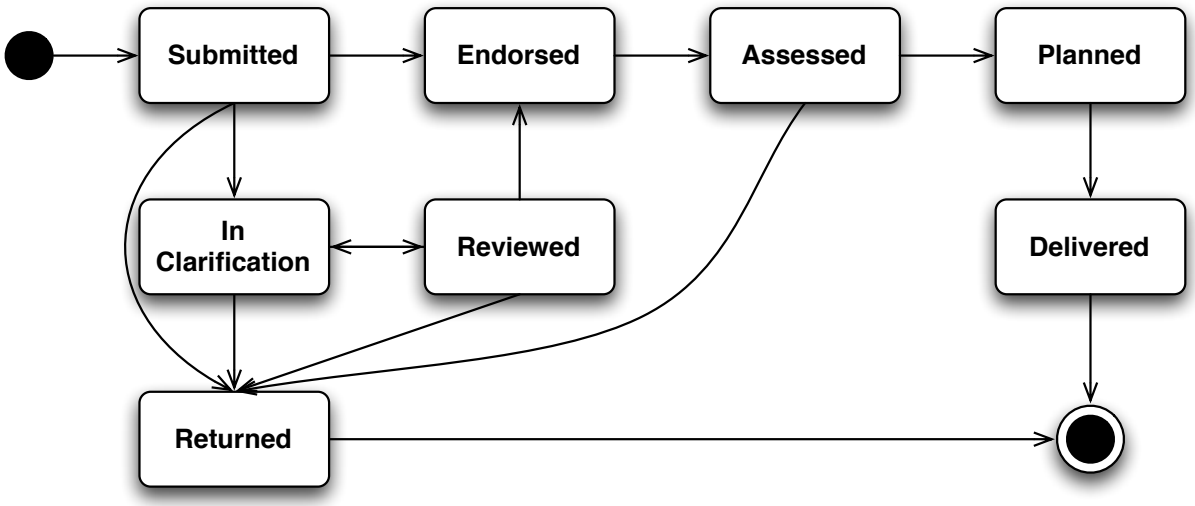

Figure 6: Requirements state diagram in the TCB requirements management process

3.5.1 Submitted

Prior to a TCB meeting, the UCB, OMB and DMSU deliver a Catalogue of Requirements (CoR) detailing all outstanding requirements and their current state. Requirements that were not submitted to the TCB before may be included in the CoR, and by this change their state to *Submitted*.

3.5.2 Endorsed

During a meeting, the TCB participants may decide to endorse a requirement (see section 3.2), reflecting the agreement that the pertinent requirement indeed reflects a need of the EGI community, Following endorsement, the requirement shall be further assessed by Technology Providers for the necessary effort to implement it and a proposed development and provisioning schedule to successfully deliver the requirement shall be created.

3.5.3 Assessed

Technology Providers take endorsed requirements and develop an implementation and deployment strategy for software in order to deliver the requirement, and delivers this as a set of Statements of Solution (SoS) to the TCB. When the Technology Provider has fully assessed the requirement it returns it to the TCB in status *Assessed*.

3.5.4 Planned

The TCB prioritises all assessed requirements, and assigns priorities to all or a subset of those. All requirements for which a priority was assigned are in state *Planned*.

3.5.5 Delivered

At some point in time after being planned, a Technology Provider delivers software that satisfies a given requirement for provisioning for deployment onto the EGI Production infrastructure. If the software is successfully provisioned (i.e. is part of a published UMD update), that implemented requirement is transitioned into state *Delivered*.

3.5.6 In Clarification

A requirement in state *In Clarification* is handed back by the TCB to the originating community management board for further clarification (see section 3.2). That is, the TCB decided that the

requirement does not match the TCB's catalogue of requirements criteria (see section 5), for example the requirement may lack specific information, may address low-level issues, etc. Requirements in state *In Clarification* may be included in the CoR submitted to the TCB, if the managing body feels the TCB's instructions for clarification were adequately met (see section 3.5.7).

3.5.7 Reviewed

The originating community further amended and clarified a requirement according to the TCB request. Requirements for which the TCB previously requested more information (i.e. in state *In Clarification*) are re-submitted to the TCB in state *Reviewed* indicating that it is not a new requirement but a reviewed requirement that was submitted at an earlier TCB meeting.

3.5.8 Returned

The TCB may decide that a requirement is out of scope for the TCB to deal with. In this case the TCB documents the reason why the requirement is out of scope, and returns the requirement to the originating EGI community in state *Returned*.

4 PROCESS DOCUMENTS & ARTEFACTS

In support of this process a number of documents and artefacts are exchanged between the actors. This section provides more detail about the contents of such documents as opposed to the format in which they are delivered, except where specifically mentioned.

4.1 Requirements

This process document extensively refers to requirements. To facilitate efficient communication and collaboration between the actors in the TCB requirements management process certain key elements of requirements help with the core TCB process of requirements analysis, assessment and prioritisation. The following gives an overview of the information that must be tailored to an appropriate balance of detail and summary to allow for efficient communication within the TCB, where:

a) Each requirement must be: Documented, Actionable, Measurable, Testable, Traceable, Satisfying (business needs), and Detailed (enough for system design).

b) A requirement may be of architectural, structural, behavioural, functional or non-functional type.

Type of information	Description
Name	A short, descriptive name of the requirement summarising it in just a few words. May contain a numbering scheme to uniquely identify requirements. A unique requirement ID may be provided but is not necessary.
Description	Full description of the problem or of the new requirement of the stakeholders involved; how to be used.
Goals and objectives	A prioritised list of functional and non-functional objectives; indicates mandatory and conditional objectives – i.e. a formalised summary of the Description.
Impact	Describe the direct business benefits of the requirement. Includes a strategic analysis of the impact on surrounding systems, both positive and negative.
Affected services	Enumeration of existing services that show degrading behaviour leading to the requirement, or that may improve from implementing the requirement.
Sponsor and stakeholders	An overview of the communities that are to be catered for, i.e. the requestor and other communities that may benefit from the implementation of this requirement.
Dependencies	Describes factors that may ensure, enhance or limit the successful delivery of the requirement; dependencies provide for proper Risk Management.
Acceptance criteria	Which specific objectives must be met for the EGI community to accept the delivered software? Which are critical acceptance criteria, which are optional?
In scope	What is considered to be part of the requirement for the delivered software?
Out of scope	What is not considered to be part of the requirement for the delivered software?
Milestones and timelines	A suggested list of milestones and software delivery timelines according to the needs and other planning of the originating community.
Original submitter	The community or person initiating this requirement.

Table 1: Information that should be conveyed when engineering requirements.

Auxiliary information on requirements allow process-related tracking and management of requirements as opposed to engineering and implementation related information:

Auxiliary information	Description
Owner	The current owner of the requirement; i.e. OMB, UCB, TCB, or one or more Technology Providers.
Priority	The priority with which the requirement shall be implemented. May be updated during requirements prioritisation.
Current status	The current status as defined in section 3.5.
Planned delivery date and product version	The planned delivery date, and product version as advised by the Technology Provider in charge. May be updated during requirements prioritisation. If more that one Technology Provider is affected then the delivery dates *should* be coordinated and identical.
Change history	A complete log of changes including decisions and their reasoning (or the detailed request for information, where applicable)

Table 2: Auxiliary requirement information

4.2 Catalogue of Requirements

The Catalogue of Requirements (CoR) is essentially an enumeration of the requirements submitted to the TCB for consideration. By its contents, a CoR is a further condensation of the included requirements, providing an analysis of related requirements and a quick overview on what is submitted for what reason.

Type of information	Description
Name	A name for the Catalogue of Requirements to help identify a specific CoR.
Submission date	The date by which the CoR is submitted to the TCB.
Executive Summary	A short overview on the contents of the CoR.
Requirements numeration	A formal declaration of which requirements (and in which state) are submitted to the TCB.
Requirements	A consecutive sequence of requirements providing the information specified in section 4.1
Related requirements	A succinct list of requirements that are tracked via GGUS, e.g. those that were created during the requirements engineering phase.

Table 3: Elements of a Catalogue of Requirements

4.3 Statement of Solution

Technology Providers assess the requirements handed over by the TCB. The result are Statements of Solutions, allowing the TCB to decide whether to proceed with the implementation of said requirements and with which priority, or to return the requirement to the originating EGI community to further pursue the requirement out of bands.

Type of information	Description
Name	A name for the Statement of Solution; must be suitable for future reference and identification.
Executive summary	A summary of the contents of the SoS highlighting the key information conveyed in this documentation, enabling the reader to assess the situation without drilling into details.
Assessed requirements	A summary of the endorsed requirements covered in the assessment
Effort assessment	A catalogue of necessary effort (e.g. person months) to implement a given requirement, or a set of requirements.
Milestones and timelines	Alternative milestones and timelines may be given, particularly if a SoS aggregates the implementation of more than one requirement. Provides important milestones, if applicable, and release plans.
Resources	Team members and size, both core and peripheral; allocated tools and infrastructure. Identifies management contact points different from Technology Provider contact points
Risks	Identifies high-level elements, which might pose a threat to the delivery of the solution up to complete failure.
Constraints	Identifies elements, which if not available, would seriously impact the delivery of the solution (e.g. resources with relevant expertise, etc.)
Assumptions	Any other elements that are believed to positively affect the delivery of the solution.

Table 4: Elements of a Statement of Solution

Technology Providers should strive to provide as much information as possible in a SoS to help the TCB make informed decisions; the TCB appreciates that this is not always possible. However, a SoS may also contain much more information than anticipated and required in this document, as this depends entirely on the nature of the proposed solution itself.

4.4 Requirement priority

The following priority tokens are defined for use in the Prioritisation activity (see section 3.3), in ascending order.

Numerical value	Name
nil	unknown, not yet determined
1	Best effort
2	Low priority
3	Medium priority
4	High priority
5	Top priority

Table 5: Possible priority values for requirements

5 TCB REQUIREMENTS CRITERIA

Over the course of several meetings the TCB agreed to scope requirements that it takes on for management ([R 3], [R 4]). This section identifies criteria by which EGI communities may assess whether a requirement may be submitted to the TCB. However, the following criteria are not exhaustive, and may require reviews to further tailor the level of requirements the TCB may wish to deal with.

In no particular order, the criteria are defined as follows:

- The requirement involves more than one Software Product providing distinct computing services
- The requirement involves more than one Technology Provider
- The requirement may cause a non-backwards compatible change of an interface
- The requirement is of a strategic nature and may cause a fundamental change in the production infrastructure
- The requirement was previously submitted as a GGUS ticket but got rejected by the Technology Provider (or the responsible Product Team)
- The requirement captures the need for a new Capability offered by the EGI production infrastructure

6 REFERENCES

R 1	TCB Terms of Reference (ToR), https://documents.egi.ey/document/109
R 2	MS 508: EGI Software Provisioning Process, https://documents.egi.eu/document/505
R 3	4th TCB meeting (F2F), http://go.egi.eu/TCB-4
R 4	7th TCB meeting (F2F), http://go.egi.eu/TCB-7
R 5	

APPENDIX A SUPPORT TOOLS AND DOCUMENTS

A.1 EGI RT FOR REQUIREMENTS

EGI RT (https://rt.egi.eu) is used to engineer, track and manage requirements. At that level of access and detail, requirements are mainly processed by the UCB, UCST and OMB, and associated communities. In particular, RT tickets capturing requirements are used as a focused means of communication and engineering until the respective requirement has matured enough for further processing either through GGUS, or by submitting it to the TCB.

Albeit primarily used and owned by the TCB, the status of a requirement should be tracked in RT for automation purposes and the TCB therefore encourages the maintainers of the corresponding RT queue to capture the requirements states defined in section 3.5 with appropriate means.

Therefore RT tickets reflecting requirements at the TCB level will be managed and updated by a variety of actors, including Technology Providers. To ensure smooth collaboration, two custom fields are provided for TCB purposes. Their use is described below:

TCB Status:

This field reflects the status of the requirement during its management by the TCB. The allowed values reflect the states described in section 3.5.

The value *null* shall denote this ticket is out of scope of the TCB. RT tickets that are in terminal state for the TCB (*Returned*, *Delivered*), must stay in this state, i.e. must mot be set back to *null*.

Next Action:

This field reflects which stakeholder must act on the respective ticket. It may be set to more than one stakeholder, as required, For example, to indicate that a Technology Provider has compiled a statement of solution for a requirement, the Technology Provider representative would set the pertinent Next Action field to "TCB" (and the TCB status field to "Assessed").

The policy shall be that TCB stakeholders acting on requirement tickets **must not** change any other fields on the requirements tickets, except replying and commenting on them.

A.2 TCB REQUIREMENT STATUS DASHBOARD

The TCB uses a dashboard of managed requirements in the EGI Wiki at the publicly available address https://wiki.egi.eu/wiki/Track_UMD_Requirements. The dashboard is used for quick glances at the current status of requirements.

APPENDIX B AUXILIARY PROCESS INFORMATION

The TCB requirements engineering process is integrated with other processes within EGI. This appendix provides cursory descriptions of the associated processes, referring to additional information as required.

B.1 REQUIREMENTS ENGINEERING

Requirements engineering happens at large within the EGI communities, and is supported and governed by the respective management bodies – currently the User Community Board (UCB), the Operations Management Board (OMB) and the Deployed Middleware Support Unit (DMSU).

Conceptually, this phase includes separating requirements that are suitable for further tracking and management via GGUS from those that should be submitted to the TCB for further coordination. The exact processes are to be described elsewhere. However, the main interaction and integration points between those processes and the TCB requirements management process are:

- Requirements are captured in RT tickets, in the *requirements* queue.
- Each management bodies may follow individual process for engineering requirements.
- The pertinent management bodies in EGI submit a joint CoR to the TCB, attached as an electronic document to the respective TCB meeting agenda.
- Requirements are updated in RT reflecting their membership in the CoR.
- The pertinent management bodies accept the TCB decisions to request clarification for requirements, or to return requirements for further off-line processing.

B.2 PROCESS AND ACTIVITY TIMELINE

The following table provides a summary of the actions and their chronological synchronisation around a series of TCB Face-to-Face meetings, following a set of hypothetical of requirements through its lifetime by referring to the formal process and activity labels used in the figures throughout this document:

Point in time	TCB	UCB and/ or OMB	Technology Provider
2 weeks before meeting		Submit CoR	
During the meeting	Analysing requirements		
In between meetings			Assessing requirements
2 weeks before next meeting			Submit SoS
During next meeting	Prioritising requirements		
After meeting n+1	Monitor software provisioning		Implement software
UMD released			

Table 6: Timeline and ownership of activities in the TCB requirements management process