Implementing a Service Management System in a Federated Multi-Supply Environment

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EGI Foundation
EGI Organisation and Operations

(very) High-level overview
• 23 Countries
• 1 EIRO: CERN

www.egi.eu/about/egi-foundation/
• 260+ data & computing centres
• Across 45+ countries
• 4.4 Billion CPU core wall time delivered in 2018
  — 1, million computing cores
  — 356 PB disk & 380 PB tape storage
• +1170 open access publications in 2018
• +41 new international projects
• 31 large scale ESFRI projects/landmarks supported
Funding Model

Local infrastructure capacity building and operations
- National funding
- ESIF
- Research funds

Federation services and processes
- EGI council fees
- EGI participants’ in kind contributions
- H2020
- Paid services & consultancies

Research and Innovation Human networks
- National funding
- H2020

EGI Participants

EGI Foundation

EGI Community
EGI Governance & Management bodies

Terms of Reference (ToR) - Common Process (PDP) - Common Glossary (GCG)

Services & Solutions - Technology - Security - Operations - Users

SSB - TCB - SPG - OMB - UCB

Primary group - Supporting group

EGI Council
EGI.eu Executive Board

EGI Council
EGI.eu Executive Board

SIB

EGI Council
EGI.eu Executive Board

Terms of Reference (ToR)
Common Process (PDP)
Common Glossary (GCG)

Services & Solutions
Technology
Security
Operations
Users

SSB - TCB - SPG - OMB - UCB

Primary group - Supporting group
EGI Foundation Governance
EGI Federated Operations

OMB

Internal portfolio services

Operations Centre

Operations Centre

Operations Centre

Operations Centre

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

RC

National Infrastructure

National Infrastructure

National Infrastructure

Research Infrastructure
IT Service Management

Introduction
• Why IT service management (ITSM)?
  ▪ About 80% of all IT service outages originate from "people and process issues"
  ▪ Duration of outages and degradations significantly dependent on non-technical factors

• IT service management
  ▪ Focuses on the provision of high quality IT services that meet customers' and users’ expectations
  ▪ Defines, establishes and maintains service management processes through assigned roles and responsibilities

Reasons for service outages [Gartner]
• Shift in expected results
  ➢ FP7 -> H2020 = Publications -> Services
  ➢ Focus on Sustainability!
  ➢ Major cultural shift

• Increased customer expectations
  ➢ Commoditization of digital services
  ➢ XaaS (Anything as a Service) now commonplace

• Skills, experience and knowledge gap
  ➢ Limited to no formal training in how to professionally plan, deliver, operate and control IT services

We are now service providers?
FitSM adoption

Research / Academia

Organizations

![Logos for organizations](image1)

Federations / Projects

![Logos for federations/projects](image2)

*Non-exhaustive list
• **Service is...**
  - ... a means of delivering *value* to customers ...
  - ... by supporting them in **achieving** their *goals*
  - ... and can be provided (sold) **on its own**

• **What is value from a customer perspective?**

```
Utility + Warranty = Value
```

- What is the **key purpose** of the service?
- Which additional factors will impact the customers’ service **quality / performance perception**?
ITSM Success Factors

- **People**
  - Responsibilities
  - Skills
  - Awareness

- **Processes**
  - Defined activities
  - Effectiveness and repeatability

- **Technology**
  - Support people in their roles
  - Increase process effectiveness and efficiency

**Typical tools for service management:**
- Workflow support tool
- (Trouble) ticket tool
- Wiki
- Excel sheets
- Word templates
- ...

**Typical service management processes:**
- Service portfolio management
- Service level management
- Incident management
- Change management
- Capacity management
- Information security management
- ...

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"FitSM"
Implementing FitSM

7-Step Approach
What is FitSM

- Standards family for lightweight IT service management
- Suitable for IT service providers of any type and scale
- Main design principle: Keep it simple!
- All FitSM parts are freely released under Creative Commons licenses
- FitSM is operated and managed by ITEMO (non-profit)
- Certification provided by ICO-Cert and APMG International

www.fitsm.eu  FitSM_Standard

*The development of FitSM was originally funded by the European Commission through an EC-FP7 project "FedSM"*
Third way of ITSM

FitSM Solution
- Less unfamiliar
- More achievable
- More suitable
- Path to ‘full’ ITSM
- Freely available

‘Full’ commercial ITSM

ISO/IEC 20000
Implementing FitSM

7-Step Approach

1. Define the rationale and scope for implementing service management and get top management commitment and support
2. Identify/assign roles and responsibilities for planning/implementation
3. Ensure training and awareness
4. Perform an initial organisation maturity assessment
5. Define a service management plan with overall goals and milestones
6. Start defining polices, activities and procedures for each process
7. Re-assess progress through formal reviews or audits (e.g. annually)
EGI Services

Customers
- Internal
- External

Service Types
- IT
- Non-IT

Provisioning Model
- Distributed
- Centralized

Funding
- Fees
- Projects

...
EGI Service Portfolio

The list of services that EGI as a federation offers for research & innovation

<table>
<thead>
<tr>
<th>Compute</th>
<th>Storage and Data</th>
<th>Training</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Compute</td>
<td>Online Storage</td>
<td>FitSM Training</td>
<td></td>
</tr>
<tr>
<td>Cloud Container Compute BETA</td>
<td>Archive Storage</td>
<td>ISO 27001 Training</td>
<td></td>
</tr>
<tr>
<td>High-Throughput Compute</td>
<td>Data Transfer</td>
<td>Training Infrastructure</td>
<td></td>
</tr>
<tr>
<td>Workload Manager BETA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Security

Check-in BETA
EGI Internal Service Portfolio

The list of services delivered internally to the EGI federation to enable the EGI providers to work together

**Coordination**
- Communications
- Project Management and Planning
- Strategy and Policy Development
- Community
- Operations and Support
- IT Service Management

**Operations**
- Accounting
- Collaboration Tools
- Configuration Database
- Helpdesk
- Operational Tools
- Service Monitoring

**Security**
- Attribute Management
- Check-in
- Validated Software and Repository
- Marketplace BETA
• **Integrated management system** is the framework of policies, processes and procedures used by EGI Foundation to ensure that it can fulfil all the tasks required to achieve its objectives.

• **The objective:**
  ▪ to ensure systematic and professional operation and delivery of EGI Foundation services.
  ▪ to plan, implement, monitor and continually improve all business processes under the responsibility of EGI Foundation.

• It integrates all of the distributed organization's systems and processes into **one complete framework**, enabling an organization to work as a **single unit with unified objectives**.
Core Management System
• The management system implemented to plan, implement, monitor and continually improve all business processes under responsibility of EGI Foundation.

General Service Management
• The management system implemented to deliver all services covered by the service catalogue of EGI Foundation.

IT Service Management
• The management system implemented to deliver all IT services covered by the service catalogue of EGI Foundation.
IMS: Core Processes

Risk management
• The systematic and regular identification, assessment and treatment of risks of any type

Finance & administration
• Effective management of finance, business and office administration

Human resources
• Ensure effective management of human resources

Business development & stakeholders
• Stakeholder management (including Council participants and funding agencies/policy makers), review the EGI Strategy and its implementation

Information security management
• Manage information security to ensure confidentiality, integrity and accessibility of relevant information assets

Continual improvement
• Identify, prioritize, plan, implement and review all improvements
## IMS: General Processes

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service portfolio management</strong></td>
<td>Manage the service portfolio; alignment of new or changed services with organisation strategy</td>
<td>- Manage the service portfolio; alignment of new or changed services with organisation strategy</td>
</tr>
<tr>
<td><strong>Service level management</strong></td>
<td>Maintain a service catalogue; define, agree and monitor relevant agreements (SLA, OLA, UA)</td>
<td>- Maintain a service catalogue; define, agree and monitor relevant agreements (SLA, OLA, UA)</td>
</tr>
<tr>
<td><strong>Service reporting management</strong></td>
<td>Specify all service reports and ensure its production according to specifications in a timely manner to support decision-making</td>
<td>- Specify all service reports and ensure its production according to specifications in a timely manner to support decision-making</td>
</tr>
<tr>
<td><strong>Customer relationship management</strong></td>
<td>Identify, record and analyse customer opportunities; manage service orders and maintain a good relationship with customers</td>
<td>- Identify, record and analyse customer opportunities; manage service orders and maintain a good relationship with customers</td>
</tr>
<tr>
<td><strong>Supplier &amp; federated members relationship management</strong></td>
<td>Establish and maintain a healthy relations with suppliers supporting the services; ensure the required capacity and monitor performance</td>
<td>- Establish and maintain a healthy relations with suppliers supporting the services; ensure the required capacity and monitor performance</td>
</tr>
<tr>
<td><strong>Budgeting &amp; accounting management</strong></td>
<td>Ensure effective management of budgeting, accounting for services</td>
<td>- Ensure effective management of budgeting, accounting for services</td>
</tr>
<tr>
<td>Process Area</td>
<td>Description</td>
<td></td>
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<tr>
<td>--------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Capacity management</strong></td>
<td>• Ensures sufficient capacities to meet agreed service levels and monitor performance requirements for services</td>
<td></td>
</tr>
<tr>
<td><strong>Service availability &amp; continuity management</strong></td>
<td>• Ensure sufficient service availability to meet agreed requirements and adequate service continuity in case of exceptional situations</td>
<td></td>
</tr>
<tr>
<td><strong>Incident &amp; service request management</strong></td>
<td>• Restore normal / agreed service operation in case of an incident; respond to user service requests</td>
<td></td>
</tr>
<tr>
<td><strong>Problem management</strong></td>
<td>• Investigate the root causes of (recurring) incidents in order to avoid future recurrence of incidents</td>
<td></td>
</tr>
<tr>
<td><strong>Configuration management</strong></td>
<td>• Provide and maintain an information about logical model of service components and its configuration</td>
<td></td>
</tr>
<tr>
<td><strong>Change management</strong></td>
<td>• Ensure changes are planned, approved, implemented and reviewed in a controlled manner</td>
<td></td>
</tr>
<tr>
<td><strong>Release &amp; deployment management</strong></td>
<td>• Manage releases, so that changes can be tested and deployed to the live environment</td>
<td></td>
</tr>
</tbody>
</table>
IMS: Quality Control

- Internal audits
- External audits
- Management reviews
Certificate: ISO 9001

The Certification Body of TÜV SÜD Management Service GmbH certifies that

EGI Foundation / EGI.eu
Science Park 140
1098 XG Amsterdam
Netherlands

has established and applies a Quality Management System for

A management system to deliver all services covered by the service catalogue.

An audit was performed, Report No. 707057543.
Proof has been furnished that the requirements according to

ISO 9001:2015

are fulfilled.
The certificate is valid from 2018-02-19 until 2020-03-06.
Certificate Registration No.: 12 100 53643 TMS.

Certificate: ISO 20000

The Certification Body of TÜV SÜD Management Service GmbH certifies that

EGI Foundation / EGI.eu
Science Park 140
1098 XG Amsterdam
Netherlands

has established and applies a Management System for IT-Services.

A management system to deliver all IT services covered by the service catalogue.

An audit was performed, Report No. 707057543.
Proof has been furnished that the requirements according to

ISO/IEC 20000-1:2011

are fulfilled.
The certificate is valid from 2018-02-19 until 2020-03-06.
Certificate Registration No.: 12 110 53644 TMS.
IMS: What benefits does it bring?

• It puts in place standard processes, procedures and agreements for managing the infrastructure efficiently and effectively.

• It increased clarity on expectations between EGI partners and also customers.

• It made decision-making clearer between organisations and individual teams.

• Knowledge and experience that can be reused by other e-infrastructures through consultancy, audits, workshops and trainings.
• FitSM Training
  ▪ Training according to the FitSM qualification scheme
  ▪ Topic-specific or tailored training (e.g. service specification)

• FitSM Consultancy – support in implementing IT service management based on FitSM
  ▪ Consultant hours
  ▪ Tailored Workshops
  ▪ Creation and provision of specific documentation templates / samples / guides

• FitSM Audit & Review
  ▪ Capability / maturity assessments
  ▪ Internal audit
  ▪ Certification audit (planned)
Thank you for your attention.

Questions?
Back-up slides
FitSM Training and Certification

Overview and EGI Offers
FitSM Training and Certification Scheme

Expert Level
- 2 days: Expert training in IT service management

Expert Bridge
- 3 days: ITIL Expert, ISO/IEC 20000 consultant and auditor

Advanced Level
- 2 days: Advanced training in service planning and delivery
- 2 days: Advanced training in service operation and control

Foundation Level
- 1 day: Foundation training in IT service management
FitSM Foundation Training

Topics and who should attend

• IT Service Management
  ▪ Introduction, Terms & Concepts

• The FitSM Standards Family
  ▪ Background and overview of FitSM standard
  ▪ General aspects and requirements
  ▪ Process model and requirements

• Benefits, Risks & Challenges of Implementing IT Service Management

• Related Standards & Frameworks

• Exam
  ▪ 20 multiple choice questions; 65% to pass

• Target Audience
  ▪ Everyone involved in the delivery of IT services
FitSM Advanced SPD Training

Topics and who should attend

• Repeat the most important Foundation knowledge

• Dive deeper into
  ▪ General aspects of “implementing” ITSM
    o Top management; Documentation; Scope; Continual Improvement
  ▪ 8 processes related to service planning and delivery
    o Service Portfolio; Service Level; Service Reporting; Service Availability and Continuity; Capacity; Information Security, Customer and Supplier Relationship Management
    o Process set-up and running; roles and responsibilities; interfaces; critical success factors and KPIs

• Exam
  ▪ 30 multiple choice questions; 70% to pass

• Target Audience
  ▪ SMS Manager
  ▪ At least process owners and managers of the processes covered
• Repeat the most important Foundation knowledge

• Dive deeper into
  ▪ General aspects of “implementing” ITSM
    o Top management; Documentation; Scope; Continual Improvement
  ▪ 6 processes related to service operation and control
    o Incident and Service Request; Problem; Configuration; Change; Release and Deployment Mgmt.; Continual Service Improvement
    o Process set-up and running; roles and responsibilities; interfaces; critical success factors and KPIs

• Exam
  ▪ 30 multiple choice questions; 70% to pass

• Target Audience
  ▪ SMS Manager
  ▪ At least process owners and managers of the processes covered
FitSM Expert Training

Topics and who should attend

• ITSM-related frameworks and standards
  ▪ ITIL, COBIT, ISO 9000, ISO2000, ISO 27000

• Understanding the organizational context of delivering and managing services

• Leadership and governance
  ▪ Effective policies and communication; Governance; Managing Risk

• Planning and implementing ITSM
  ▪ Plans; Roles; Training and awareness; Organizational Change

• Monitoring, reviewing and improving ITSM
  ▪ Conformity, effectiveness, and efficiency; KPIs; Auditing; Capability and maturity assessments; Management reviews

• Exam
  ▪ 30 questions (6 T/F each); 75% to pass (135 pts out of 180)

• Target Audience
  ▪ SMS Manager
  ▪ Any other internal contacts serving as go-to internal contact points regarding implementation
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FitSM Foundation</td>
<td>1 day</td>
<td>15</td>
<td>1,600€</td>
<td>1,360€</td>
<td>80€</td>
</tr>
<tr>
<td>FitSM Advanced (SPD or SOC)</td>
<td>2 days</td>
<td>15</td>
<td>3,200€</td>
<td>2,720€</td>
<td>160€</td>
</tr>
<tr>
<td>FitSM Expert</td>
<td>2 days</td>
<td>15</td>
<td>4,000€</td>
<td>3,400€</td>
<td>240€</td>
</tr>
<tr>
<td>FitSM Expert Bridge*</td>
<td>2 days</td>
<td>15</td>
<td>5,000€</td>
<td>4,250€</td>
<td>400€</td>
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</tbody>
</table>

Discounts for multiple courses available
EGI FitSM Service Packages

Workshops, Assessments and Consultancy
Example Service Packages

Workshops, Assessments and Consultancy

EP1: ITSM Kick-off (see slide 14)

EP2: ITSM Assessment (see slide 15)

Ongoing consultancy / support, focused workshops, additional training, audits, etc.
ITSM Kick-off

Example Package 1

• Target group:
  ▪ Organizations that need to develop and / or manage services during and after the project lifetime

• Content:
  ▪ Preparatory remote meeting to understand the organizational context
  ▪ 1 day certified Foundation training according to FitSM for up to 15 people (1 trainer)
  ▪ 1 day kick-off workshop with key players focusing on defining the service portfolio and setting up the service management plan (2 experts)
  ▪ 1 day follow-up report preparation and presentation (1 expert)

• Effort: 4 working days

• Cost: ~€6.500 (plus travel / expenses)

15% discount for EGI participants!
• Target group:
  ▪ Organizations requiring a detailed understanding of their current / existing ITSM capabilities to allow plans for improvement

• Content:
  ▪ Preparatory web call and planning
  ▪ Between 1.5 and 3 days on-site assessment / internal audit
  ▪ Provision of a detailed assessment / audit report
  ▪ Follow-up remote meeting to identify and prioritize improvements

• Effort: 1 auditor, total of 3.5 to 5.5 working days

• Cost: ~€5,500 - €8,500 (plus travel / expenses)

15% discount for EGI participants!
Consultancy

Indicative costs

- Indicative daily rates range between €900 - €1.600 (plus travel / expenses), depending on
  - Duration / volume
  - Level of expertise required

- Activities comprise
  - Onsite support (F2F meetings)
  - Offsite support (email, skype, phone meetings)
  - Creation and provision of templates / samples / guides
  - Documentation review
  - ...

15% discount for EGI participants!
EGI Policies and Procedures
## Policies

For more information, please refer to the EGI wiki page on policies and procedures:

https://wiki.egi.eu/wiki/Policies_and_Procedures

### Policies Table

<table>
<thead>
<tr>
<th>Policy group</th>
<th>Title</th>
<th>Applies to</th>
<th>Relevant agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPG</td>
<td>EGI Security Policy</td>
<td>Infrastructure / Users</td>
<td>RC OLA, RP OLA, VO OLA, VO SLA, UA</td>
</tr>
<tr>
<td>SPG</td>
<td>Acceptable Use Policy and Conditions of Use</td>
<td>Users</td>
<td>VO SLA</td>
</tr>
<tr>
<td>SPG</td>
<td>Service Operations Security Policy</td>
<td>Infrastructure / Users</td>
<td>RC OLA, RP OLA, VO OLA, UA</td>
</tr>
<tr>
<td>SPG</td>
<td>VO Operations Policy</td>
<td>Users</td>
<td>VO SLA</td>
</tr>
<tr>
<td>SPG</td>
<td>Virtual Organisation Registration Security Policy</td>
<td>Infrastructure / Users</td>
<td>VO SLA</td>
</tr>
<tr>
<td>SPG</td>
<td>Virtual Organisation Membership Management Policy</td>
<td>Users</td>
<td>VO SLA</td>
</tr>
<tr>
<td>SPG</td>
<td>Portal Policy</td>
<td>Users</td>
<td>VO SLA</td>
</tr>
<tr>
<td>SPG</td>
<td>Traceability and Logging Policy</td>
<td>Infrastructure / Technology Providers / Users</td>
<td>RC OLA, VO OLA, VO SLA, UA</td>
</tr>
<tr>
<td>SPG</td>
<td>Security Incident Response Policy</td>
<td>Infrastructure / Users</td>
<td>RC OLA, RP OLA, VO OLA, VO SLA, UA</td>
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<tr>
<td>SPG</td>
<td>Policy on e-Infrastructure Multi-User Pilot Jobs</td>
<td>Users</td>
<td>VO SLA</td>
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<tr>
<td>SPG</td>
<td>Policy on the Processing of Personal Data</td>
<td>Infrastructure / Users</td>
<td>RC OLA, RP OLA, VO OLA</td>
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<tr>
<td>SPG</td>
<td>Grid Policy on the Handling of User-Level Job Accounting Data</td>
<td>Infrastructure / Users</td>
<td>RC OLA, RP OLA</td>
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<td>SPG</td>
<td>Security Policy Glossary of Terms</td>
<td>Infrastructure / Users</td>
<td>VO SLA</td>
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<tr>
<td>SPG</td>
<td>Acceptable Authentication Assurance</td>
<td>Infrastructure</td>
<td>RC OLA, RP OLA, VO OLA, VO SLA</td>
</tr>
<tr>
<td>SPG</td>
<td>Security Policy for the Endorsement and Operation of Virtual Machine Images</td>
<td>Infrastructure / Users</td>
<td>VO SLA</td>
</tr>
</tbody>
</table>
# Procedures

https://wiki.egi.eu/wiki/Policies_and_Procedures

<table>
<thead>
<tr>
<th>Policy group</th>
<th>Title</th>
<th>Applies to</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVG</td>
<td>EGI Software Vulnerability Issue Handling Procedure</td>
<td>Infrastructure / Technology Providers / Users</td>
</tr>
<tr>
<td>CSIRT</td>
<td>Security Incident Handling procedure</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>CSIRT</td>
<td>Critical Vulnerability Operational Procedure</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>OMB</td>
<td>COD escalation procedure</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>OMB</td>
<td>Operations Centre creation</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>OMB</td>
<td>Operations Centre decommission process coordination</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>OMB</td>
<td>Follow up of availability and reliability statistics - Process for quality verification</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Validation of a ROC/NGI Nagios</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Setting a Nagios test status to Operations</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Management of the EGI OPS Availability and Reliability Profile</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Adding new probes to SAM</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Resource Centre Registration and Certification Procedure</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>OMB</td>
<td>Decommissioning of Service Type Procedure</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>OMB</td>
<td>Procedure for the recomputation of SAM results and availability/reliability</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Resource Centre Decommissioning Procedure</td>
<td>Infrastructure</td>
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<tr>
<td>OMB</td>
<td>Production Service Decommissioning Procedure</td>
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<tr>
<td>OMB</td>
<td>VO deregistration procedure</td>
<td>Infrastructure / Users</td>
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<tr>
<td>OMB</td>
<td>VO registration procedure</td>
<td>Infrastructure / Users</td>
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<tr>
<td>OMB</td>
<td>Procedure for renaming a Resource Center</td>
<td>Infrastructure / Users</td>
</tr>
<tr>
<td>OMB</td>
<td>Procedure for decommissioning of unsupported software</td>
<td>Infrastructure / Technology Providers / Users</td>
</tr>
<tr>
<td>UCB</td>
<td>Virtual Research Community accreditation</td>
<td>Users</td>
</tr>
<tr>
<td>TCB</td>
<td>TCB Requirements management process</td>
<td>Infrastructure / Technology Providers</td>
</tr>
</tbody>
</table>
SPM - Process to manage & approve major changes

Changes with risk for major financial impact needs Council approval

Requirements

Service Portfolio Mgmt.

Service Level Mgmt.

Service catalogues

EGI Council

Services and Solutions Board

EGI website

EGI marketplace

EGI service catalogue brochure

Other external representations e.g. eInfraCentral

EOSC-hub marketplace

Simplified view