

Technical Specifications (In-Cash Procurement)

TECS_2025-06_CFT_IT Engineering Tools Support

The document titled "Technical_Specifications_IT Engineering Tools Support.docx" provides a comprehensive overview of the technical specifications and support mechanisms for IT engineering tools. It covers various aspects such as system requirements, installation procedures, configuration guidelines, and troubleshooting steps. The document also outlines the roles and responsibilities of the support team, along with the escalation process for resolving complex issues. Additionally, it includes ...

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1. Preamble

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) – [Ref 1] that constitutes a full part of the technical requirements.

In case of conflict, the content of the Technical Specification supersedes the content of Ref [1].

2. Purpose

The IT Project Tools section is responsible for the maintenance and evolution of various CAD and commercial data management systems primarily CATIA/ENOVIA V5 from Dassault Systèmes, and SmartPlant Materials & Foundation from Hexagon as well as other software listed in the [Technical Environment](#) section.

The objective of this technical specification is to define the overall frame of services for those software platforms used by the ITER Organization.

3. Acronyms & Definitions

3.1. Acronyms

The following acronyms are the main one relevant to this document.

Abbreviation	Description
CRO	Contract Responsible Officer
GM3S	General Management Specification for Service and Supply
IO	ITER Organization
PRO	Procurement Responsible Officer

3.2. Definitions

Contractor: shall mean an economic operator who have signed the Contract in which this document is referenced.

4. Applicable Documents & Codes and standards

4.1. Applicable Documents

This is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the contractor to seek clarification from IO.

Upon notification of any revision of the applicable document transmitted officially to the contractor, the contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

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Ref	Title	IDM Doc ID	Version
1	General Management Specification for Service and Supply (GM3S)	82MXQK	1.4

4.2. Applicable Codes and Standards

This is the responsibility of the contractor to procure the relevant Codes and Standards applicable to that scope of work.

5. Scope of Work

This section defines the specific scope of work for the service, in addition to the contract execution requirement as defined in Ref [1].

The framework contract will be set up for 5 years (3 firm years + 2 options of 1 year each) with task(s) order(s) to be established according to the needs identified by IO .

5.1. Service for Development & Support (DEV)

The purpose of this service is to support the development configuration and customization whenever required of functionalities of the different software involved. This covers the configuration and customization based on specifications from IO, bug-fixing, testing, deployment of the standard and specialized packages and global user's incident and service requests handling.

The expected deliverables are:

- Source code
- Data migration, correction scripts
- Development and support how-to
- Manuals, presentations
- Code documentation describing technical implementation based on specification,
- Test cases results
- Software configuration management guidelines (release and deployment management)
- Activity reports containing details on tickets managed, severity of the issue identified, solution implemented and possible system improvements

It also covers the integration between the different software described previously but also with other large-scale data management systems at ITER primarily ICP (ITER Collaboration Platform) using various interfacing technology including API, and messaging.

5.2. Service for Solution Benchmarking and Architecture (ARCH)

The purpose of this service is to support the delivery of the system and data integrated architecture, formalisation of relevant processes and methods, functional and technical

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specifications for systems components and systems interfaces, deployment and relevant implementation plan.

It also addresses the evaluation of new technologies to benefit ITER construction around plant / machine digitalization, AR/VR/XR through technical watch, market surveys and proof of concepts/pilots.

The expected deliverables are:

- Manuals, presentations for business stakeholders
- Software architecture document
- Users Scenarios, Use-Cases and integrated Methods
- High level interfaces design document including integrations timeline
- Data migration requirements and high-level design document
- Activity reports containing details on tickets managed severity of the issue identified, solution implemented and possible system improvements.

5.3. Service for Engineering DevOps and Support (OPS)

The purpose of this service is to support the platform administration & configuration of the different software involved and assisting DEV & ARCH services with the smooth build & deployment of various customizations and other software/hardware related needs.

It covers but not limited to the day-to-day maintenance and monitoring of the health of the various production, test, and training environments; the IT infrastructure supporting those environments (Windows & Linux server, containers, cloud resources, jobs scheduler, interfaces, etc.) on-premised and in MS Azure cloud in collaboration with IT infrastructure teams. It also covers the resolution of technical issues between internal user teams and software vendors (e.g Dassault Systèmes) and the support for deployment including the release management and software configuration management.

In addition, the management of resolution of technical issues ensuring they are identified, registered, and managed successfully to conclusion following standard IT process for service delivery (ITIL) and to participate to the technical configuration of various solutions including the development of scripts following infrastructure-as-code best practices.

The expected deliverables are:

- Solution of the issues reported by users related to IT infrastructure
- Ansible Playbooks / Roles / Terraform scripts/ Software code to automate the routine system admin tasks
- SQL for data analysis and migration when needed
- P & O configuration and data model customization when required.
- Specialisations packages deployment; Customisations deployment
- JIRA tasks and Git wherever required.
- Activity reports containing details on tickets managed, severity of the issue identified, solution implemented and possible system improvements

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6. Location for Scope of Work Execution

Contractor can perform the work on IO site or at their own location.

7. IO Documents

No input is expected from IO.

8. List of deliverables and due dates

The Supplier shall provide IO with the documents and data required in the application of this technical specification, the GM3S Ref [1] and any other requirement derived from the application of the contract.

All the deliverables are to be completed at the same time as all the Scopes of Work are executed in parallel.

8.1. IO General Deliverables

IO IT provides in-house developed tools to record exhaustive work completed and to log activities. These tools are mandatory to use as they provide a basis for accounting and invoicing.

- Descriptions of work completed: Jira Worklogs and Confluence Pages.
- Logging of time spent: Jira Worklogs and WorklogPro approved timesheets
- Records of absence: Confluence Team Calendars and WorklogPro time logged in Absence Tickets.

Monthly activity reports contain qualitative and quantitative detailed information about the issues the Contractor has been confronted to, about the solution proposed and implemented, the innovations introduced in the processes and the ideas to further improve the service. These reports shall be agreed and accepted from IO TRO to release the corresponding payment.

8.2. Acceptance Criteria

Deliverables must be validated by the ITER technical RO.

9. Quality Assurance requirements

The Quality class under this contract is [4], [Ref 1] GM3S section 8 applies in line with the defined Quality Class.

10. Safety requirements

Not Applicable

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10.1. Nuclear class Safety

Not Applicable

10.2. Seismic class

No specific safety requirement related to PIC and/or PIA and/or PE/NPE components apply.

11. Special Management requirements

Requirement for [Ref 1] GM3S section 6 applies completed/amended with the below specific requirements:

11.1. Expected skills and experience of the team

All resources shall have higher diploma or certificates in Engineering, Computer Science or equivalent, be fluent in English and have good ability to work in a team environment.

In addition, all resources involved with project & service management activities shall have required certifications and trainings (PRINCE 2, PMI, Agile, ITIL, etc.)

11.1.1. Profile Senior Business Expert, Solution & System Architect (SEXP)

At least 10 years of experience in business expertise, solution & system architecture covering the various requirements described for the following services ARCH and DEV described in section 5.

Major expertise areas expected and activities of the SEXP profile are (but not limited to):

- Strong experience in implementing CAD/PDM/PLM/BIM/GIS systems in complex IT environments or comparable CAD/PDM/PLM/BIM/GIS systems.
- Strong business experience in design management processes, configuration management, change management, requirement management and how to realize, implement and manage them with CAD/PDM/PLM/BIM/GIS systems.
- Strong experience in defining with customer functional requirements and delivering coherent solution and/or system architecture.
- Strong knowledge of innovative technologies, including AI, AR/VR/XR, and how to leverage these for enhanced business solutions.
- Experience in integrating AI-driven insights and AR/VR/XR technology into CAD/PDM/PLM systems to improve user experience and efficiency, including platforms such as Unity, Unreal Engine, GAMMA AR, Techviz, Meta Quest, and Nvidia Omniverse.
- Experience with BIM and GIS platforms such as Navisworks, Hexagon iConstruct, Autodesk Construction Cloud, QGIS, and QWC in the context of engineering data and digital plant integration.
- Familiarity with integration and document management systems such as ENOVIA V5 R34, EDB, SMDD, IDM, and Autodesk Platform Services.
- Understanding of catalog and material management systems such as SmartPlant Materials and CADENAS.

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- Ability to stay abreast of emerging technologies and evaluate their potential impact on current and future projects.
- Excellent leadership, communication, and interpersonal skills.
- Analyze & understand As-Is system architecture and customization.
- Strong expertise in designing To-Be system architecture and customization.
- Strong experience in engaging with ITER team during business requirement gathering.
- Aid ITER in identifying interface requirements, defining the interfacing strategy and high-level interface architecture.
- Aid ITER in identifying data migration requirements, defining the migration strategy and high-level design.
- Assist team by suggesting data governance best practices and preventing potential technical pitfalls.
- Provides input into future software functionality, implementation methodology and customization standards.

11.1.2. Profile Business Expert, Solution & System Architect (EXP)

At least 6 years of experience in business expertise, solution & system architecture covering the various requirements described for the following services ARCH and DEV described in section 5.

Major expertise areas expected and activities of the EXP profile are (but not limited to):

- Strong experience in implementing CAD/PDM/PLM/BIM/GIS systems in complex IT environments or comparable CAD/PDM/PLM/BIM/GIS systems.
- Strong business experience in design management processes, configuration management, change management, requirement management and how to realize, implement and manage them with CAD/PDM/PLM/BIM/GIS systems.
- Solid experience in defining with customer functional requirements and delivering coherent solution and/or system architecture.
- Strong knowledge of innovative technologies, including AI, AR/VR/XR, and how to leverage these for enhanced business solutions.
- Experience in integrating AI-driven insights and AR/VR/XR technology into CAD/PDM/PLM systems to improve user experience and efficiency, including tools such as Unity, Unreal Engine, GAMMA AR, Techviz, Meta Quest, and Nvidia Omniverse.
- Experience with BIM and GIS platforms such as Navisworks, Hexagon iConstruct, Autodesk Construction Cloud, QGIS, and QWC in the context of engineering data and digital plant integration.
- Familiarity with integration and document management systems such as ENOVIA V5 R34, EDB, SMDD, IDM, and Autodesk Platform Services.
- Understanding of catalog and material management systems such as SmartPlant Materials and CADENAS.
- Ability to stay abreast of emerging technologies and evaluate their potential impact on current and future projects.
- Excellent leadership, communication, and interpersonal skills.
- Analyze & understand As-Is system architecture and customization.
- Proposes To-Be system architecture and customization.
- Engage with ITER team during business requirement gathering.

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- Aid ITER in identifying interface requirements, defining the interfacing strategy and high-level interface architecture.
- Aid ITER in identifying data migration requirements, defining the migration strategy and high-level design.
- Assist team by suggesting data governance best practices and preventing potential technical pitfalls.
- Provides input into future software functionality, implementation methodology and customization standards.

11.1.3. Profile Senior developer or Technical Lead (DEV-SD)

At least 6 years of experience in development and/or technical lead covering the various requirements described for the DEV service described in section 5.

Major expertise areas expected and activities of the DEV-SD profile are (but not limited to):

- Strong knowledge of business processes like Engineering/Design change management, design data configuration management, part and component data management, BOM management, Drawing management, 2D/3D design, design collaboration (concurrent engineering) and software project management experience.
- Strong experience of enterprise application integration with other engineering and data management systems (preferably DELMIA, CADENAS, Autodesk Construction Cloud, SmartPlant Materials, and business intelligence tools).
- Knowledge of enterprise data (structured and unstructured) management, including experience with Microsoft SQL Server and Oracle.
- Experience of other development frameworks: .NET, VB. Practical expertise for interfaces design and development. Exposure to / working knowledge with SOA will be a plus.
- Experience with DevOps and automation tools such as Terraform, Ansible, Docker, AWX, Bamboo, and Nexus for deployment and configuration management.
- Familiarity with immersive technologies and their integration into engineering workflows (Unity, Unreal Engine, GAMMA AR, Techviz, Meta Quest, Nvidia Omniverse).
- Experience with GIS and BIM tools such as QGIS, QWC, Navisworks, and Hexagon iConstruct.
- Excellent leadership, communication, and interpersonal skills.
- Mentoring and coaching to other team members.
- Analyze & understand As-Is and To-Be system architecture and customization.
- Engage with ITER team during technical requirement developing and detailing.
- Aid ITER in specifying interfaces specification, interfacing strategy and detailed interface architecture.
- Aid ITER in specifying data migration, migration strategy and high-level design.
- Assist in clarifications for the ITER implementation teams.
- Assist/perform technical implementation teams in analyzing business requirements and contributes to the design.
- Assist team by defining data governance best practices and resolving technical issues.
- Aid the ITER Infrastructure team in installing, deploying, admin V5 (consult).
- Provides input into future software functionality, implementation methodology and customization standards.
- Reviews teamwork products to ensure that they are accurate, consistent, and meet client requirements.

If involved with Dassault Systèmes products, the following experience is expected:

- At least 6 years Catia/Enovia customization experience using CAA libraries.

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- Experience with part/document lifecycle configuration/customization; ENOVIA V5 P&O (People and Organization) management and Rational data modeler.
- Customization experience using CATVBA and CATScript.
- Concept of CATIA Equipment and System (E&S), Mechanical design (MES) and Plant layout module.
- Concept of E&S and Mechanical catalogue management and related customization is added value.

11.1.4. Support Specialist (SUP)

Minimum 6 years of experience in technical support and system troubleshooting within complex engineering tool environments.

Core Responsibilities:

- Act as a transversal support point across the engineering tool landscape, ensuring continuity and reliability of operations across CAD, BIM, GIS, AR/VR/XR, and integration platforms.
- Provide first- and second-level troubleshooting for user-reported issues, including CAD/BIM tool errors, data inconsistencies, and access/configuration problems.
- Monitor the health and availability of engineering tools and environments, proactively identifying performance degradation, failed jobs, or system alerts, and escalating when necessary.
- Perform basic fixes and scripting (e.g., SQL, Python, PowerShell) to resolve recurring issues, automate routine tasks, and support data validation or migration.
- Monitor tool performance and proactively identify potential disruptions in collaboration with DevOps and infrastructure teams.
- Support the configuration and maintenance of user environments, including remote desktop setups (RDS for SSD), workstation readiness, and access to shared platforms.
- Assist in the deployment and validation of updates, patches, and hotfixes across tools such as CATIA V5 R34, ENOVIA V5, Autodesk Construction Cloud.
- Maintain and update support documentation, FAQs, and knowledge base entries to improve self-service and reduce ticket volume.
- Collaborate with developers and system architects to escalate complex issues and contribute to root cause analysis.
- Ensure traceability and transparency of support actions using tools like JIRA, Git/SVN, and Confluence.
- Provide support for GIS tools (QGIS/QWC), including configuration, and basic troubleshooting in coordination with GIS specialists.

Technical Environment Exposure:

- CAD Tools: CATIA V5 R34, AVEVA E3D, SEE Electrical Expert, ISOGEN
- BIM Tools: Navisworks, Hexagon iConstruct, Autodesk Platform Services
- GIS Tools: QGIS / QWC
- AR/VR/XR: GAMMA AR, Techviz, Unity, Unreal Engine, Meta Quest
- Integration & Document Management: ENOVIA V5 R34, EDB, IDM, Autodesk Construction Cloud
- IT Tools: Visual Studio, SQL Server, Oracle, VSCode, Docker, Azure, AKS, GitHub Copilot
- Remote Work: RDS for SSD
- Quality Checking: Q-CHECKER

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If involved with Dassault products services, the following experience is expected:

- At least 4 years of CV5, EV5 or any other CAD/PDM/PLM/BIM/GIS systems customization experience using core libraries / API (CAA for instance CV5/CV6)
- Customization experience using CATVBA and CATScript
- Working knowledge of Dassault Systèmes products such as CATIA V6/V5, DELMIA.

11.1.5. Profile DevOps / System Administrator (OPS)

At least 5 years of experience in system administration covering the various requirements described for the OPS service described in section 5

Major expertise areas expected, and activities of the OPS profile are (but not limited to):

- Extensive experience of Windows server administration (resource monitoring and optimization) with basic knowledge of networking and IT security
- Experience of MS SQL Server and Oracle database administration with knowledge of SQL.
- Experience for automation of system administration task using Python/VBScript/Powershell
- Knowledge of software configuration management tool (Git/SVN) and software release management procedure
- Experience with infrastructure as code (IaC) using tools such as Terraform or Ansible
- Hands-on experience with cloud platforms like AWS, Azure, or Google Cloud Platform (GCP)
- Familiarity with containerization technologies such as Docker and orchestration tools like Kubernetes
- Maintain and monitor the health of the production environments including the partners DA's and suppliers' location
- Maintain the workstations, the development, test and training environments.
- Monitor and maintain of IT infrastructure supporting the CAD/PDM/PLM activities. May require creation of services to automate server's starts.
- Monitoring of replication and other critical background tasks
- Catia workstation management and maintenance
- Timely solution of the IT infrastructures related issues reported by CAD users (second level support).
- Contribute to migration planning and execution
- Customize deployment including the release management and software configuration management
- Deploy the data model customizations, the software packages and hotfixes
- Open service requests when required and coordinating/following up with the software editor (Dassault Systèmes)
- Management and maintenance of other Catia/Enovia V5 environments including development, training and test environment.
- Automate the routine system admin task (including data base back up, replication) Python and VBScript
- Testing the basic functionality on update/ customization deployment

If involved with Dassault Systèmes products services, the following experience is expected:

- At least 3 years of advanced systems administration experience
- Good knowledge of Dassault Systèmes (CATIA, ENOVIA, DELMIA, etc).
- Knowledge of CATIA/Enovia customization using CAA code is added value.

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- Knowledge of Enovia V6 and V5 P &O and data model customization using Rational Data Modeler software is a big plus.

11.2. Description of the technical environment

Information management system: a distributed system consisting of

- **CAD Tools:** CATIA V5 R34, AVEVA E3D 3.1, CATIA V5 (Mechanical + E&S modules), AVEVA Diagrams, SEE System Design IGE+XAO, SEE Electrical Expert, ISOGEN
- **BIM Tools:** Navisworks software suite, Hexagon iConstruct. Autodesk Platform Services
- **Integration and Product Breakdown Management, Document Management:** ENOVIA V5 R34, EDB, SMDD, IDM, Autodesk Platform Service, Autodesk Construction Cloud
- **Catalogs:** SmartPlant Materials, CADENAS
- **Change Management:** PCR system, other embedded workflows
- **Maintenance Management:** SAP PM
- **AR/VR/XR tools:** GAMMA AR, Techviz, Autodesk XR, Meta Quest, Unity, Unreal Engine, Nvidia Omniverse
- **Assembly and Maintenance Simulation:** DELMIA, SYNCHRO PRO
- **CAD Quality Checking:** Q-CHECKER
- **GIS:** QGIS / QWC
- **Remote Work Tools:** RDS for SSD
- **IT tools:** Microsoft Visual Studio, Microsoft SQL Server / Oracle, Apache Tomcat / IBM WebSphere, VSCode, AWX, Terraform, Docker, Nexus, Azure, AKS, Git/SVN, GitHub Copilot, Confluence, JIRA, Bamboo, Windows 11, Windows Server 2019/2022, Microsoft Azure Entra, Active Directory, Office 365 including Teams, Copilot

11.3. Infrastructure requirements

In case of offshore services, the working environment shall be in accordance with the complexity of the task in general, and shall ensure:

- strong internet connection at least 15Mb/s download and 2.5 Mb/s upload to France (test can be performed on <http://speedtest.iter.org/>)
- individual workstation station with double screen of at least 22 inches diagonal and
- processor at least i7 or equivalent (4 core, 3GHz) and memory at least 16GB, 64bit OS, webcam and headset. accessibility to meeting room equipped with white board and projector for 10 persons

11.4. Meeting Schedule

Meeting Title	Frequency	Activities
Kick Off Meeting	Once	Review project scope, staffing, roles and responsibilities, contractual conditions
Weekly Status Meeting	Weekly	Project Progress, Risk/Issue monitoring. Escalations.
Monthly Status Meeting	Monthly	Overall project status; a summary of key project activity and the associated expenses; statistical volumetric information; a summary of service level performance; a list and a description of major events; risk and Issues status

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11.5. CAD design requirements

This contract does not imply CAD activities.