openETCS Project Cooperation Charta

November 13, 2013

Goals and Vision

In a demanding engineering domain – such as rail transportation signaling, in particular the European Train Control System (ETCS) as part of the wider European Rail Traffic Management System (ERTMS) – safety-critical and embedded systems development must meet several important requirements.

- **Innovation:** Ensuring the highest levels of safety, reliability, service, and performance implies a continuous effort of research and development, not only with the products themselves but also with the development methods and tools.
- **Computer Assistance and Automation:** The numerous and complex operations required to develop and maintain industrial systems imply a high level of automation based on software tools.
- **Certification:** From EN50126, EN50128, EN50129, the development of safety-critical and embedded systems has to comply with strict regulations impacting not only the final product, but also the development process and the tools used to build it. Even though the focus for the openETCS Project Group is clearly on the EN50128 (EN50126, - 129), the goal is to develop or enhance tools in a way that they also can meet requirements for the other domains
- **Very Long Term Support:** Typical products have life cycles from 30 to 70 years. During this time, the tool chains must remain operational.

The *openETCS Project Group* (*oEPG*) aims at answering these needs by:

- Providing a set of industry-friendly as well as user-friendly open source tools, frameworks, and components
- Providing collaborative means to make open innovation easier
- Fostering exchanges between academics and industry partners
- Operating dedicated software repositories, build chains, test facilities, etc.
- Managing the quality and maturity of tools and components from early research prototypes through obsolescence
- Ensuring open innovation through the sharing of the research, development, and maintenance efforts as far as possible
- Organizing sustainable commercial services and ecosystems around the components
- Providing the documents and qualification kits required for certification
- Recognizing project maturity and company know-how and commitment through a branding process that is available only to *oEPG* Member organizations
- Teaming up with strong ecosystems like the POLARSYS industrial working group and the larger community of the Eclipse ecosystem by adapting their rules, processes and procedures as much as possible up to that extend that a future joining to this groups can be accomplished smoothly. Therefore "steeling" their best practice approach is not an accident but has been done on purpose.

Core Domains

openETCS focuses on techniques, frameworks and tools to fulfill its goal and vision, including

- Modeling – systems (in particular the ETCS System Requirement Specification [SRS], ERTMS Subset026 and related subsets), hardware and software Code analysis (static analysis)
- Debugging, tracing and other integration tools
- Lifecycle process support tools – configuration management, change tracking, technical facts management, project reporting
- Test and verification frameworks and tools targeting embedded software methods, simulation, and early validation
- Embedded components (RTOS, middleware, etc.)
- SoC (System on Chip) simulation and hardware logic (VHDL, SystemC, etc.)

Other domain specific techniques and tools may be proposed for acceptance by the *oEPG* Steering Committee.

Component Management

openETCS does not intend to systematically re-develop components. A lot of very good solutions answering some *openETCS* needs already exist in open source. But most of the time, specific issues like durability or certification are not taken into account. In this case, *openETCS* plays its part by completing components assets, setting up specific support, and coordinating development and support. Two kinds of projects are therefore supported in *openETCS*:

Hosted Projects

The technical artifacts are hosted by *openETCS* Project Group at the "www.openETCS.org" GitHub repositories.

Coordination Projects

Most of the technical artifacts are hosted elsewhere, and *openETCS* focuses on user coordination and specific artifacts (patches, qualification kits, etc.). One group of Projects important for the openETCS Ecosystem with respect to the very long term maintainability aspect of software tools is the POLARSYS Industrial Working Group (PIWG). The *openETCS* Project Group believes that the PIWG can help the oEPG to better reach their objectives and vice versa that development work for the openETCS activities can enrich the PIWG's results. Therefore Governance, Charta, Bylaws, Project Group Processes and Procedures for the openETCS Project Group have been created in a way to keep them as closely compatible as possible with the related POLARSYS Governance, Charta, Bylaws, Project Group Processes and Procedures and make cooperation as easy as possible.

Governance and Precedence
Applicable Documents

- **openETCS Bylaws**
- **openETCS Project Group Process**
- **openETCS ITEA2 Project Cooperation Agreement (short: PCA)**
- **openETCS Development Process**
- **openETCS Foundation e.V. Statutes**
- **openETCS IP Due Diligence Process**

All *openETCS* Consortium Members must be either party to the "*openETCS ITEA2 Project Cooperation Agreement*" (PCA), or Member of the openETCS Foundation e.V. (which is party to the PCA), or may have signed the "*openETCS Declaration of Acceptance for openETCS@ITEA2 Project Partner*s" (short: oE-DoA), including the requirement set forth in Article 8 of the PCA to follow the Bylaws and then-current policies of the *openETCS* Consortium as defined in Article 1 of the PCA. In the event of any conflict between the terms set forth in this *openETCS Project Group Charter* and the *openETCS* PCA, Bylaws, Membership Agreement, *openETCS* Development Process, *openETCS* Project Group Process, or any policies of the *openETCS* Foundation, the terms of the *openETCS* PCA shall take precedence.

IP Management

The Intellectual Property Policy of the *openETCS* PCA will apply to all *openETCS* activities. *openETCS* will follow the "*openETCS* IP due diligence process" in order to provide clean open source software released under "*openETCS Open License Terms*" (*openETCS OLT*) as defined in Article 8 of the PCA or any other licenses approved by the *oEPG* through the openETCS Project Management Board (PMB) and/or openETCS Project Cooperation Committee (PCC) according to Article 4 of the PCA and after the termination of the ITEA2 project, approved by the *openETCS* Foundation Board of Directors, such as EPL, BSD-like and LGPL or other EUPL compatible licenses.

Development Process

The "*openETCS Development Process*" will apply to all *openETCS* work packages and tasks. In particular, the project lifecycle model and review process will be followed by all *openETCS* work packages and tasks.

Membership

In order to participate in *openETCS*, an entity is recommended to be at least a "Further Consortium Member" (FCM) according to PCA Chapter 3.5 (d) and/or at least a **Solutions Member** of the *openETCS* Foundation, and adhere to the requirements set forth in this charter. Terms and conditions for these memberships are determined as described in the **openETCS Bylaws** and detailed in the **openETCS Consortium Membership Agreement** or alternatively in the **openETCS Foundation Membership Agreement.**

Classes of Membership

Steering Committee Members

Steering Committee Members are organizations or selected individuals that view *openETCS* as a strategic Project Group and are investing resources to sustain its activities. Typical Steering Committee members include industry users of the technologies and projects supported by *openETCS*. Per definition, for the duration of the openETCS@ITEA2 Project all openETCS@ITEA2 Project Consortium Members, who have signed the PCA and who are receiving public funding based on the ITEA2 funding Scheme, or who (without such funding) have signed the PCA or the "*openETCS Declaration of Acceptance for ITEA 2 Project Partners*" (short: oE-DoA) and contribute to the openETCS project at least 50,000 EURO per year or seconding at least one full time qualified engineer or ICT or signaling expert to the project on a self-funded basis.

<Need to be further detailed>

Participant Members

Participant Members are organizations that view *openETCS* as an important part of their corporate and product strategy and offer products and services based on, or with, *openETCS*. These organizations want to participate in the development of the *openETCS* ecosystem. Typical Participant Members are services providers for the technologies and products supported by *openETCS*.

<Need to be further detailed>

Guests

Guests are organizations who have been invited for one year by the Steering Committee of *openETCS* to participate in some aspects of the activities of the ITEA2 Project Group. Typical guests includes R&D partners, academic entities, and potential future full-fledged members who want to have an closer look before deciding on their strategy. When guests are invited to an *openETCS* body for meetings, they have no right to vote. Invitations may be renewed by the Steering Committee. Guests are required to sign a participation agreement.

Committers

Committer Members are individuals who through a process of meritocracy defined by the *openETCS* Development Process are able to contribute and commit code or non-code content to *openETCS* projects for which they are responsible. Committers may be members by virtue of working for a member organization, or may choose to complete the membership process independently. For further explanation and details, see the **OpenETCS Committer Membership** page.

openETCS Membership Summary

	openETCS Steering Committee Member	*openETCS* Solutions Member	Committer	Guest
Member of the Steering Committee	X	Elected	-	Invited
Member of the Architecture Committee	X	Elected	-	Invited
Quality and Branding Committee	X	Elected	-	Invited
Member of Project Planning Committees	X	X	-	Invited
Access to the open collaboration infrastructure	X	X	X	X
Write Access to open source code repositories	-	-	X	-
Access to the VLTS Build Infrastructure	X	X	-	-
Access to VLTS binary releases	X	X	-	-
Host custom build on *oEPG* infrastructure	X	-	-	-
Maturity assessment program	X	X	-	-
Access to qualification kits	X	X	-	-
IP due diligence	X	X	X	X
Branding process	X	X	-	-
Host private R&D projects	X	X	-	X

Services are detailed in the **Services** section.

All matters related to membership in the *openETCS* Foundation and the *oEPG* will be governed by the *openETCS* Bylaws, Membership Agreement, and *openETCS* ITEA2 Project Group Process. These matters include, without limitation delinquency, payment of dues, termination, resignation, reinstatement, assignment, and the distribution of assets upon dissolution.

Members who resign or otherwise terminate their membership in the *oEPG* lose their rights to access and use the private assets (repositories) and data of *openETCS* after the date of the termination.

The private assets of terminated members, such as test cases or custom build chains, shall be archived and the archive returned to the terminated member. The private assets of members terminated can be removed from *openETCS* storages forty-five (45) days after the termination. Nevertheless, the terminated member can request to the Steering Committee that their archived private assets be stored for two (2) years. This request shall be sent within thirty (30) days after the termination and is accepted at the sole discretion of the Steering Committee.

The survival of any licenses to *openETCS* private assets acquired by a member during the period of membership shall be as specified in the license.

Services
Collaboration Infrastructure

The *oEPG* leverages the usual *openETCS* open source collaboration infrastructure. As such, source code repositories, Bugzilla, wikis, forums, project mailing lists, and other services provided as the open source collaboration infrastructure are publicly visible at the openETCS.org domain. Committers have write access to this infrastructure, and as such have the rights and obligations as set forth in the *openETCS* Development Process and the various *openETCS* committer agreements. The catalog of *openETCS* components is part of this collaboration infrastructure.

In addition, a private, members-only collaboration infrastructure for the exclusive use of Members of the *openETCS Project Group* will be provided. Access rights to, and the licensing terms for, this infrastructure will be determined by the Steering Committee, with the approval of the oEMO (*openETCS* Management Organization).

VLTS Build and Test Infrastructure

Additionally, *openETCS* aims to provide a specific build and test infrastructure for Very *Long Term Support* (VLTS). This infrastructure will enable build and test of specific long term releases for a duration of up to 10 years in a first version, and up to 40 years with an adequate usage of virtualization technologies.

Access to VLTS Binary Releases

openETCS will produce public binary releases modeled after the *openETCS* release train process, including Service Releases SR1 and SR2.

openETCS long term support releases (post SR2) are only accessible to *openETCS* member companies. Such binary code may not be redistributed unless it is integrated into, or updates, a commercial software product or custom-developed software, and is distributed pursuant to an Object Code License.

Hosting Custom Build on the *openETCS* Infrastructure

This service gives the capability of using the *openETCS* test and build infrastructure in order to create member-specific bundles. These bundles can create another combination of *openETCS* components and are private to the member who defines and uses them.

Maturity Assessment Program

Maturity assessment is at the core of the *openETCS oEPG* 's goal of providing industrial quality tools and *openETCS* product artifact (documents, models, code). It consists of the evaluation of component maturity according to a classification similar to **TRL levels** (TRL: Technology Readiness Level). This evaluation is done collaboratively by component developers, component integrators, and component users.

Access to Qualification Kits

Many *openETCS* components are used in the development of certified and qualified embedded software. As such, specific documentation is needed and is adapted in the context of a given certification process. These documents, like development plans and test plans, are part of the *openETCS* qualification kits available for the components.

IP Due Diligence

IP due diligence is necessary for verifying that the committers have the right to open-source the code they put in *openETCS* repositories. It is also necessary to check that the different integrated components have compatible licenses. This is even more important in *openETCS*, as we allow for all newly developed artifacts within the ITEA2 project context only the openETCS Open License Terms, as stated in the PCA (Project Cooperation Agreement). Exceptions are possible but have to be decided and approved by the oEMO [PMB (Project Management Board) and if requested by at least 3 partners, decided by the *openETCS* Steering Committee respective the PCC (Project Cooperation Committee)] if new artifacts need to be combined with legacy software or non-code content that is not available under EUPL or a EUPL compatible license.

Branding Process

The branding process aims at rewarding the skills and investment of service providers. The brand recognizes that service providers are able to extend or provide long term support for a component.

Hosting Private Projects

In order to promote the maturation of research prototypes and to foster open innovation, *openETCS* provides the ability to host members' time-limited private projects that may become new *openETCS* components. Private projects may only be initiated by Steering Committee members. The Steering Committee, with the approval of the oEMO, will establish the licensing requirements for private projects. Guests may participate in private projects at the request of the Steering Committee.

Governance

openETCS is designed as

- A user driven organization
- A means to foster a vibrant and sustainable ecosystem of components and service providers
- A means to organize the community of each project or component so that users and developers define the roadmap collaboratively

In order to implement these principles, the following governance bodies have been defined (each a "body"):

- The Steering Committee
- The General Assembly (= Project Cooperation Committee, PCC, as long as the openETCS@ITEA2 project is active)
- The Architecture Committee
- The Quality and Branding Committee
- Project Planning Committees
- Project Management Committees

Common Dispositions

The dispositions below apply to all *openETCS* bodies, unless otherwise specified. For all matters related to membership action, including without limitation meetings, quorum, voting, electronic voting action without meeting, vacancy, resignation, or removal, the terms set forth in Section 6 of the *openETCS* Bylaws apply.

Good Standing

A representative shall be deemed to be in good standing, and thus eligible to vote on issues coming before the body he in which he participates, if the representative has attended (in person or telephonically or web meeting) a minimum of three (3) of the last four (4) body meetings (if there have been at least four meetings). Appointed representatives on the body may be replaced by the member organization they are representing at any time by providing written notice to the Steering Committee. In the event a body member is unavailable to attend or participate in a meeting of the body, he or she may send a representative and may vote by proxy, which shall be included in determining whether the representative is in good standing. As per the *openETCS* Bylaws, a representative shall be immediately removed from the body upon the termination of the membership of such representative's member organization.

Voting

Super Majority

For actions (i) requesting that the *openETCS* Board of Directors approve an additional distribution license for *openETCS* projects (any activity on an active openETCS.org [GitHub] Repository is considered an "*openETCS* Project": e.g. *openETCS@ITEA2* Working Package or Task); (ii) amending the terms of the *openETCS* Participation Agreement; (iii) approving or changing the name of *openETCS*; (iv) approving changes to annual member contribution requirements; any such actions must be approved by no less than two-thirds (2/3) of the representatives in good standing represented at a Steering Committee meeting at which a quorum is present. Any openETCS@ITEA2 Project Consorium Member can request to bring the issue to the PCC (Project Cooperation Committee) and request a voting according to the PCA (Project Cooperation Agreement, Article 3) during the active phase of the openETCS@ITEA2 project term.

Term and Dates of Elections

This section only applies to the Steering Committee, the Architecture Committee and the Quality and Branding Committee.

All representatives shall hold office until their respective successors are appointed or elected, as applicable. There shall be no prohibition on re-election or re-designation of any representative following the completion of that representative 's term of office.

Steering Committee Members

Steering Committee member representatives shall serve in such capacity until their removal by their respective appointing member organization or as otherwise provided for in this charter.

Elected Representatives

Elected representatives shall each serve one-year terms and shall be elected to serve from April 1 to March 31 of each calendar year, or until their respective successors are elected and qualified, or as otherwise provided for in this charter. Procedures governing elections of representatives may be established pursuant to resolutions of the Steering Committee provided that such resolutions are not inconsistent with any provision of this charter.

Meeting Management

Place of Meetings

All meetings may be held at any place that has been designated from time-to-time by resolution of the corresponding body. All meetings may be held remotely using phone calls, video calls, web meetings, or any other means as designated from time-to-time by resolution of the corresponding body.

Regular Meetings

No body meeting will be deemed to have been validly held unless a notice of same has been provided to each of the representative in good standing at least thirty (30) calendar days prior to such meeting, which notice will identify all potential actions to be undertaken by the body at the body meeting. No representative will be intentionally excluded from body meetings and all representatives shall receive notice of the meeting as specified above; however, body meetings need not be delayed or rescheduled merely because one or more of the representatives cannot attend or participate so long as at least a quorum of the body (as defined in the **Common Dispositions** section above) is represented at the body meeting. Electronic voting shall be permitted in conjunction with any and all meetings of the body, the subject matter of which requires a vote of the body to be delayed until each such representative in attendance has conferred with his or her respective member organization as set forth in the **Voting** section above.

Actions

The body may undertake an action only if it was identified in a body meeting notice or otherwise identified in a notice of special meeting.

Invitations

The body may invite any *openETCS* member to any of its meetings. These invited attendees have no right of vote.

Steering Committee
Powers and Duties

Steering committee members are required to

- Define the strategy of the *oEPG*
- Define the global roadmap
- Discuss and amend the charter and the participation agreement
- Define the budget and fees each year
- Define and follow marketing and communication activities
- Invite guest members

Composition

- Each Steering Committee Member of the *oEPG* has a seat on the Steering Committee.
- At least one seat is allocated to participant members. An additional seat on the committee shall be allocated to the participant members for every additional five (5) seats beyond one (1) allocated to Steering Committee members. Participant member seats are allocated following the *openETCS* "single transferable vote", as defined in the *openETCS* Bylaws.
- The Steering Committee elects among its members a chairman who will represent the *oEPG* . They will serve from April 1 to March 31 of each calendar year, or until their respective successors are elected and qualified, or as otherwise provided for in this charter.

Meeting Management

The Steering Committee meets at least twice a year.

General Assembly
Powers and Duties

Approve changing the name of *openETCS*.

Composition

Each Steering Committee and Participant Member of the *oEPG* has a seat on the General Assembly.

Meeting Management

The General Assembly meets at least once a year.

Architecture Committee
Powers and Duties

Architecture Committee members are required to

- Ensure the technical consistency of *openETCS* projects
- Ensure that *openETCS* projects achieve VLTS objectives
- Recommend technologies
- Establish technical guidelines
- Validate new project proposals

Composition

- Each Steering Committee Member of the *oEPG* has a seat on the Architecture Committee.
- Each Project Planning Committee elects one of its members to the Architecture Committee.
- The Architecture Committee elects a chairman who reports to the Steering Committee. This chairman is elected among the members of the Architecture Committee. He will serve from April 1 to March 31 of each calendar year, or until his successor is elected and qualified, or as otherwise provided for in this charter.

Meeting Management

The Architecture Committee meets at least twice a year.

The Quality and Branding Committee
Powers and Duties

The Quality and Branding Committee members are required to

- Ensure the consistency of the branding process and attribute maturity labels (see the Branding Charter Wiki Page)
- Define the *oEPG* quality kit and maturity process
- Validate that the projects conform to the *oEPG* quality kit
- Validate that the projects apply the IP process

Composition

- Each Steering Committee member of the *oEPG* has a seat on the Quality and Branding Committee.
- At least one seat is allocated to participant members. An additional seat on the committee shall be allocated to the participant members for every additional five (5) seats beyond one (1) allocated to Steering Committee members. Participant member seats are allocated following the *openETCS* "single transferable vote", as defined in the *openETCS* Bylaws.
- The Quality and Branding Committee elects a chairman who reports to the Steering Committee. This chairman is elected among the members of the Quality and Branding Committee. He will serve from April 1 to March 31 of each calendar year, or until his successor is elected and qualified, or as otherwise provided for in this charter.

Meeting Management

The Quality and Branding Committee meets at least twice a year.

Project Planning Committees

Each component or release train (bundle) in the *oEPG* is driven by a Project Planning Committee.

Powers and Duties

Project Planning Committee members are required to

- Instantiate *oEPG* global roadmaps for the project
- Apply the Architecture Committee recommendations
- Plan and arbitrate defects fixes and improvements implementation
- Ensure the relationships with the technical team of the project

Composition

- Each Steering Committee or participant member of the *oEPG* can have a seat on the Project Planning Committee.
- Each Project Planning Committee elects a chairman who will represent it to the Architecture Committee. This chairman is elected among the members of each Project Planning Committee. He will serves from April 1 to March 31 of each calendar year, or until his successor is elected and qualified, or as otherwise provided for in this charter.

Meeting Management

The Project Planning Committees meet at least twice a year.

Project Management Committees

Any Project Management Committee (PMC) established by *openETCS* shall be governed by the *openETCS* Development Process.