

Europe's Rail Joint Undertaking Governance and Process Handbook

Version 2.1

8 March 2022

Work in Progress

Table of Contents

Glossary	5
1 Introduction	6
1.1 Purpose and scope of the handbook	6
1.2 Position in the EU-Rail JU documentation hierarchy	6
1.3 Context	7
2 Programme Cycle	10
2.1 EU-Rail Master Plan	10
2.2 EU-Rail Multi-annual Work Programme (MAWP).....	10
2.3 From the Annual Work Plan (AWP) to the Project Kick-Off	10
2.4 Project life cycle	13
2.4.1 Flagship Projects.....	13
2.4.2 Other Projects	15
2.5 IKOP and IKAA reporting Cycle	16
2.6 Project closure and final review	16
2.7 Controls and audit	17
3 EU-Rail Governance.....	19
3.1 Basis of Authority and EU-Rail JU Governance Structure.....	19
3.2 Working with ERA.....	19
4 Programme implementation roles and responsibilities	23
4.1 Research and Innovation	24
4.1.1 Innovation Pillar	26
4.1.2 System Pillar.....	29
4.2 Corporate Services.....	31
4.2.1 Finance team.....	31
4.2.2 Legal officer.....	31
4.3 Flagship Project Manager.....	33
5 RACI matrix	34
6 Planning.....	36
7 Quality Management	36
7.1 Evaluation of proposals.....	36
7.1.1 Evaluation process.....	36
7.1.2 Scoring method	37
7.2 Financial Viability Check.....	37
7.3 Continuous monitoring	38
7.4 Additional criteria to be applied in the Flagship Project Maturity checkpoint.....	39
7.5 Use of EU-Rail label and EU-Rail position.....	40
8 Risk Management [under revision in 2022].....	42

8.1	Risk Policy.....	42
8.1.1	Introduction	42
8.1.2	Policy Objectives	42
8.1.3	Risk Management Principles	42
8.1.4	Risk management Governance rules	42
8.1.5	Alignment with European Commission.....	43
8.2	EU-Rail JU Risk Management Organisation and Process.....	43
8.2.1	Background	43
8.2.2	Framework principles	43
8.2.3	Organisation.....	43
8.2.4	EU-Rail JU layered approach	44
8.2.5	Internal Control	45
8.3	Risk Management Process	46
8.3.1	Establish the context	46
8.3.2	Identify risks.....	46
8.3.3	Analyse and evaluate risks	47
8.3.4	Treat risks.....	47
8.3.5	Monitor and review.....	47
8.3.6	Communicate and consult	47
8.4	Methodology	48
8.4.1	Gross criticality.....	50
8.4.2	Mitigating actions.....	50
8.4.3	Net Criticality	51
8.5	Reporting cycle.....	52
9	Requirement management applicable to Flagship Projects	53
10	Change Management	54
10.1	Changes to projects	54
10.2	Changes to the Programme	55
11	Programme Management Tools	56
12	Communication, Dissemination & Deployment.....	56
13	Programme closure [to be revised on the basis of S2R experience]	59
13.1	Programme completion	59
13.2	Non-completed projects	59
13.3	Final Closure.....	60
13.3.1	Financial obligations.....	60
13.3.2	Documenting and reporting.....	60
13.3.3	Final Programme Report.....	60
	Annex A: Templates.....	62
	Annex B: Contact persons of EU-Rail	63
	Annex C: ED Decision 2016/017, Guidance for members and their appointed auditors_20161118 final.....	64

Annex D: list of official EU-Rail technical positions and names of official EU-Rail representatives in external working group
65

Annex E: List of projects with level of ERA desired involvement 65

Annex F: Recommendations for Flagship Projects 66

 Recommendation for Flagship Projects’ governance 66

 Recommendation for Flagship Projects’ implementation roles and responsibilities 66

 Recommendation for Flagship Projects’ planning..... 68

Work in Progress

Glossary

AWP	Annual Work Plan
ED	Executive Director
ERA	European Union Agency for Railways
GAP	Grant Agreement Preparation
GB	Governing Board
HE	Horizon Europe
IKAA	In-kind contribution for additional activities
IKOP	In-kind contribution for operational activities
MAWP	Multi-Annual Work Plan
OLAF	EUROPEAN ANTI-FRAUD OFFICE
Private Members	any legal entity established under public or private law that is a member of EU-Rail joint undertaking other than the Union, participating states or international organisations
R&I	Research & Innovation
REA	Research Executive Agency
SBA	Single Basic Act
SC	Scientific Committee
SERA	Single European Railway Area
SIPB	System and Innovation Programme Board
SRG	State Representative Group

1 Introduction

1.1 Purpose and scope of the handbook

The purpose of the Governance and Process Handbook is to:

- Describe the governance and processes of the Europe's Rail Joint Undertaking (hereafter referred to as the EU-Rail JU);
- Define the roles and responsibilities of the EU-Rail JU;
- Specify the key documentation, reporting and evaluation requirements for the execution of the Programme, System Pillar, Innovation Pillar and Deployment Group.

The scope of the Governance and Process Handbook is limited to:

- The roles and responsibilities of the EU-Rail JU Programme Office and interfaces with the Members other than the Union (hereafter also Private Members) to implement the EU-Rail Programme;
- The roles and responsibilities of the Private Members and the interfaces between these Private Members;
- The roles and responsibilities of the EU-Rail JU and the Private Members towards other beneficiaries and third parties involved in the Programme.

Additionally, it provides recommendations for future Projects' governance in relation to the Programme implementation.

1.2 Position in the EU-Rail JU documentation hierarchy

The position of the Europe's Rail Governance and Process Handbook is based on the overall document hierarchy shown in Figure 1.

The Single Basic Act¹ (hereafter referred to as SBA) defines the rules underpinning the JU as body of the European Union entrusted with the implementation of the EU-Rail Initiative.

The EU-Rail Master Plan constitutes the JU's Strategic Research and Innovation Agenda within the meaning of Article 2(12) SBA. It provides guidance for EU-Rail's more specific tasks, namely an overview of the ambitions and the objectives of the JU, and defines a systemic, long-term and result-oriented delivery strategy for research & innovation in the railway sector (Article 86(5) of the SBA).

¹ COUNCIL REGULATION (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014

The Multi-annual Work Programme (MAWP) is the translation of the EU-Rail Master Plan into a detailed, medium-long term R&I plan that concretely identifies the activities, milestones, deliverables and large scale demonstrations to achieve the overall Master Plan objectives through setting out the Programme activities, detailing in particular the System Pillar and Innovation Pillar. The MAWP is implemented via Work Programmes adopted by the Governing Board and resulting in an integrated set of R&I activities from the awards of grants or contracts.

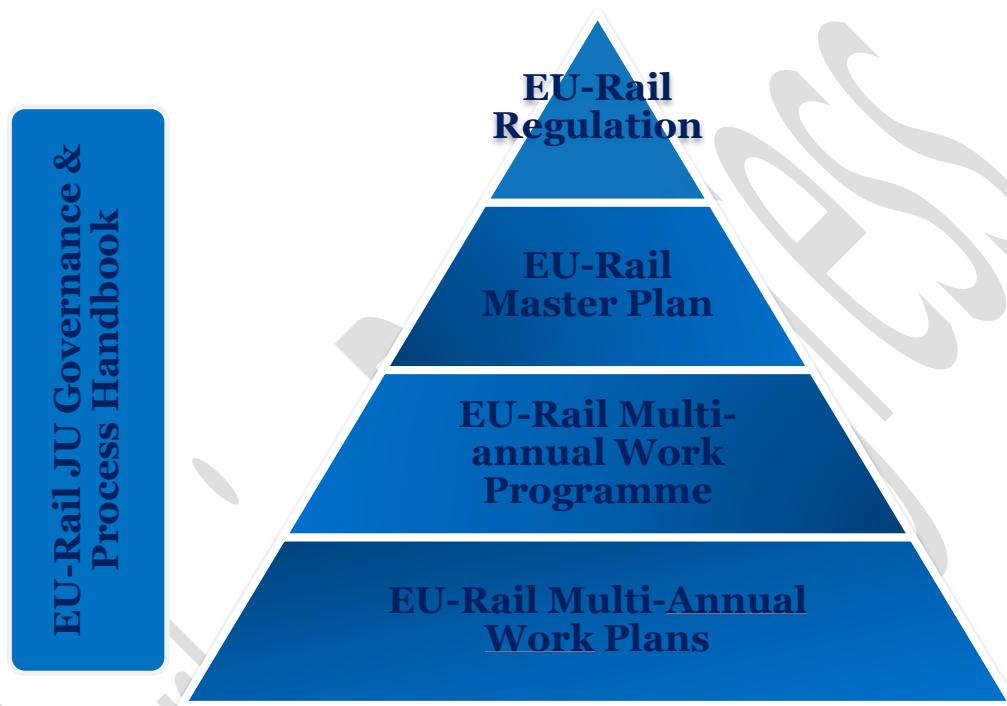


Figure 1 - Position of the Governance and Process Handbook

The EU-Rail JU Governance and handbook describes the Process procedures, processes and actions underpinning the implementation of the EU-Rail Programme and the roles and responsibilities of EU-Rail JU and its Private Members. The handbook defines and documents the Programme governance and relevant business processes, including relevant templates and guidelines.

1.3 Context

EU-Rail is the European partnership on rail research and innovation established under Horizon Europe, taking over and building on the achievements of the Shift2Rail Joint Undertaking (S2R or S2R JU)².

² Council Regulation (EU) No 642/2014 of 16 June 2014 establishing the Shift2Rail Joint Undertaking

Starting from the building blocks and technology enablers delivered by S2R, the objective of EU-Rail should be to deliver a high capacity integrated European railway network by eliminating barriers to interoperability and providing solutions for full integration, covering traffic management, vehicles, infrastructure and services, aiming at faster uptake and deployment of projects and innovations. This should exploit the huge potential for digitalisation and automation to reduce rail's costs, increase capacity, and enhance its flexibility and reliability, and should be based upon a solid Reference Functional System Architecture shared by the sector, in coordination with the European Union Agency for Railways.

In addition to the objectives set out in Articles 4 and 5 of the SBA, the EU-Rail shall also have the following general objectives:

- contribute towards the achievement of the Single European Railway Area;
- ensure a fast transition to more attractive, user-friendly, competitive, affordable, easy to maintain, efficient and sustainable European rail system, integrated into the wider mobility system;
- support the development of a strong and globally competitive European rail industry.

In addition, EU-Rail shall also have the following specific objectives:

- facilitate research and innovation activities to deliver an integrated European railway network by design, eliminating barriers to interoperability and providing solutions for full integration, covering traffic management, vehicles, infrastructure also including integration with non-standard national gauges, such as 1520, 1000 or 1668 mm railway, and services, and providing the best answer to the needs of passengers and businesses, accelerating uptake of innovative solutions to support the Single European Railway Area, while increasing capacity and reliability and decreasing costs of railway transport;
- deliver a sustainable and resilient rail system: by developing a zero-emission, silent rail system and climate resilient infrastructure, applying circular economy to the rail sector, piloting the use of innovative processes, technologies, designs and materials in the full life-cycle of rail systems and developing other innovative solutions to guided surface transport;
- develop through its System Pillar a unified operational concept and a functional, safe and secure system architecture, with due consideration of cyber-security aspects, focused on the European railway network to which Directive 2016/797 applies, for integrated European rail traffic management, command, control and signalling systems, including automated train operation which shall ensure that research and innovation is targeted on commonly agreed and shared customer requirements and operational needs, and is open to evolution;
- facilitate research and innovation activities related to rail freight and intermodal transport services to deliver a competitive green rail freight fully integrated into the logistic value chain, with automation and digitalisation of freight rail at the core;
- develop demonstration projects in interested member states;

- contribute to the development of a strong and globally competitive European rail industry;
- enable, promote and exploit synergies with other Union policies, programmes, initiatives, instruments or funds in order to maximise its impact and added value.

In carrying out its activities, the Europe's Rail Joint Undertaking shall seek a geographically balanced involvement of members and partners in its activities. It shall also establish the necessary international connections in relation to rail research and innovation, in line with the Commission priorities.

Work in Progress

2 Programme Cycle

2.1 EU-Rail Master Plan³

The Master Plan of the EU-Rail JU was developed by the European Commission services in close cooperation with the Candidate Founding Members, and in consultation with rail stakeholders. Inter alia, it serves as a reference document for the call of associated members to achieve a more competitive and resource efficient European transport system to address major societal issues such as rising traffic demand, transport safety and security of energy and climate change. It contains key priorities and the essential system activities and innovations required to achieve impact at EU level while providing guidance in the development of the objectives of the EU-Rail JU.

The Master Plan constitutes a common, forward-looking roadmap based on a system view that identifies the areas of intervention within the scope of the Europe's Rail Joint Undertaking. It contains the EU-Rail JU's priority research and innovation activities, and overall system architecture and harmonised operational approach, including large-scale demonstration activities, required to accelerate the penetration of integrated, interoperable and standardised technological innovations necessary to support the SERA.

2.2 EU-Rail Multi-annual Work Programme (MAWP)

As already indicated, the Multi-annual Work Programme (MAWP) provides a high-level view of what needs to be done; it explains why and by when. It sets the framework for the research and innovation (R&I) activities to be performed within and beyond the EU-Rail Programme and the deployment activities to be carried out by all operational stakeholders, coordinated to achieve the Single European Railway Area.

It is as well as the translation of the EU-Rail Master Plan into a detailed, medium-long term R&I plan that concretely identifies the activities, milestones and deliverables to achieve the overall Master Plan objectives. The MAWP is implemented through R&I activities awarded in the form of grants or contracts.

2.3 From the Annual Work Plan (AWP) to the Project Kick-Off

Taking into consideration the current legal framework, the EU-Rail Programme is implemented through Work Plans (AWPs) adopted on an annual basis which detail the R&I activities to be performed in the years to come (from 12 to 48 months indicatively).

³ xxxxx

Each AWP follows a specific management cycle in line with the provisions of the EU-Rail Financial Rules⁴. It is established on the template provided by the Commission Services for all the JUs.

The AWP for year N is established as from October year N-2.

The JU Programme Office, following a consultation process with the EU-Rail members and the JU advisory bodies, is preparing “topics” per Flagship Areas/Exploratory Research and Other which detail how the activities are expected to be implemented and performed to achieve the MAWP.

The AWP input shall be received by the members, scientific advisors, SRG, etc. not later than end of December of the year N-2, in order to ensure that the EU-Rail ED is in the position to submit the Preliminary Draft Budget for year N to the EC Services by 31 January N-1.

The Preliminary Draft Budget for year N includes the request to the Union in terms of Commitment and Payment Appropriations necessary to realize the activities planned in the AWP year N.

The Preliminary Draft Budget for year N is discussed with the Commission Services and becomes part of the overall negotiations with the Union Budget Authority, the European Parliament and Council.

During year N-1, the Programme Office takes over the input received, performs the institutional consultations provided for in the SBA and Financial Rules with the objective of its adoption at the GB meeting planned in the last quarter N-1.

In this respect, a consultation process with the EU-Rail members at technical expert level will be organized around Q2 of year N-1, to assess the initial input against the MAWP and the progress achieved so far in ongoing R&I activities. The final contributions to the AWP for year N by the EU-Rail member at technical expert level shall be provided to the respective Programme Office not later than Q2 N-1.

In the same Q1 period N-1, EU-Rail presents the draft AWP to the scientific advisors and the States Representatives Group (SRG); they provides their scientific and political advice/input in line with the SBA. This will be taken into account in the final draft of the AWP to be submitted to the GB.

The European Union Agency for Railways (ERA) contributes in their advisory role (see section 3.2) and are part of the consultation process.

During the same period, as far as possible, the draft AWP shall be presented also to the Commission Services in order to anticipate any possible comments and suggestions to reduce the final approval process within the GB.

⁴ <https://shift2rail.org/wp-content/uploads/2020/01/S2R-JU-Financial-Rules.pdf>

As from July N-1 to the final submission to the GB, the Programme Office elaborates the final draft of the AWP for year N, running specific consultations with its bodies.

Q4, the final draft AWP is sent to the GB for its adoption by the end of October N-1. The adoption of the GB shall be formalized after having duly consulted the SC and SRG.

The adopted AWP for year N is published on the EU-Rail JU website on the date of the relevant GB Decision. Unless the budget of the Union is adopted before that date, it shall contain a disclaimer indicating that the final amounts and content are subject to the final adoption of the budget of the Union for the relevant year.

As a result of the AWP adoption, the ED instructs the Programme Office to launch the publication of the call for proposals and/or call for tenders. The call(s) for proposals are expected to be available on the Funding & Tender opportunities website of the European Commission in accordance with the indicative calendar contained in the AWP; similarly for the call(s) for tenders.

The call(s) for proposals should allow for sufficient time for the preparation of the proposals, with in principle a minimum of three months.

As from submission deadline, during a period of around 1 to 2 months, all receivable proposals are evaluated by panels which consist of the EU-Rail JU Programme Office representative that moderates the meetings, a representative of the Commission Services and/or ERA as observers (where appropriate) and independent experts. The latter are selected by the Programme Office from the Expert Management database of the European Commission for Horizon Europe, and retained for evaluation following a verification of the expert Conflict of Interest with the submitted proposals. The independent experts remain anonymous to the beneficiaries.

The first step of the evaluation consists of an individual assessment by the independent experts. These individual assessments are provided to a rapporteur or recorder who will prepare the first draft of the evaluation report. A consensus meeting for each of the panels is then organised. During the panel meeting, all evaluators come together and try reaching consensus of the evaluation and relative score. The process is observed by an independent expert (called observer) to assess any possible issue, qualitative aspects, transparency, etc. This evaluation process is aligned with the evaluation of proposals described in Section 7.1.

In parallel to the operational evaluation, the legal and administrative evaluation of the proposals is performed by the EU-Rail Corporate Services with the support of some of the Commission Services and the Research Executive Agency (REA).

The panel reports are transmitted to the EU-Rail JU ED who, taking into account the outcome of the evaluation process, submits a report to the GB including his recommendations on the proposals' ranking and financing.

The Governing Board shall approve the list of actions selected for funding, subject to the relevant provisions on Confidentiality and Conflict of Interest of the GB Rules of Procedure⁵. The GB meeting is planned to take place 1.5 – 2 months after the date of call submission. As from then, the Grant Preparation phase starts in view of the signature of the awarded grants in the following 2 months. As from the grant signature, the 'Project life cycle' starts.

2.4 Project life cycle

Supervision and monitoring activities of the Programme Offices have been designed taking into consideration the nature of the Flagship Projects versus other projects and tender procedures.

2.4.1 Flagship Projects

In order to support the collaboration in and between Flagship Projects, the EU-Rail JU makes available a EU-Rail dedicated platform to organize meetings, share documents, review deliverables, share information, monitoring consumption of resources vis-à-vis the progress of the Projects, management of risks and opportunities, etc. The platform is built with different levels of access, depending to the nature of the information.

In addition, a dedicated area of the platform, is dedicated to Members of the JU which are beneficiaries of the Flagship Projects' grants to report Member contributions' certifications.

In addition, the EU-Rail platform should allow to feed data directly to the EU-Rail Website, where the different projects are presented. No other website costs will be considered eligible in the grants.

The Projects are nothing else than the administrative instrument to implement the EU-Rail Programme and the focus should be on the delivery of the Programme results through the means of Project activities; the individual branding of a project is irrelevant while the belonging to the EU-Rail Programme is essential.

The review and monitoring of the Flagship Projects are based on a calendar year cycle (see Figure 2). The reporting period for interim payment ends at the end of December each year. Where a projects would starts in the middle of the year with a duration during that year shorter than 6 months, the first period will end in December of the year N+1. Based on the rules of Horizon Europe, the Project Coordinator has 60 days as from that date to submit both their periodic financial and technical reports

⁵ <https://shift2rail.org/about-europes-rail/europes-rail-structure-of-governance/europes-rail-governing-board/#collapseOne>

(i.e. by the end of February N+1), through the Horizon Europe Portal. The EU-Rail platform should be able to facilitate this reporting phase.

The last reporting period⁶ for final payment based on the rules of Horizon Europe will coincide with the project end.

As from then, the Programme Office has 90 days to review, assess and decides about the interim or final payment of the co-funding. The Programme office, helped by independent experts when needed, may carry out the review of the reporting/deliverables for the next 2 calendar years after the payment of the balance.⁷

Subject to the timely submission of the Financial and Technical Reports, the annual review is carried out during April N+1, when the EU-Rail Programme Managers supported by experts and observers (External and/or ERA and/or Commission) will assess the performance of the Projects in accordance with the criteria established in the EU-Rail Financial Rules, Horizon Europe Rules of Participation and the Grant Agreement and summarized in Chapter 7 – Quality management.

These indicators will also be reported to the meetings of the GB as well as the SC and SRG. Based on the work performed on the indicators, the aforementioned three may be subject to revision.

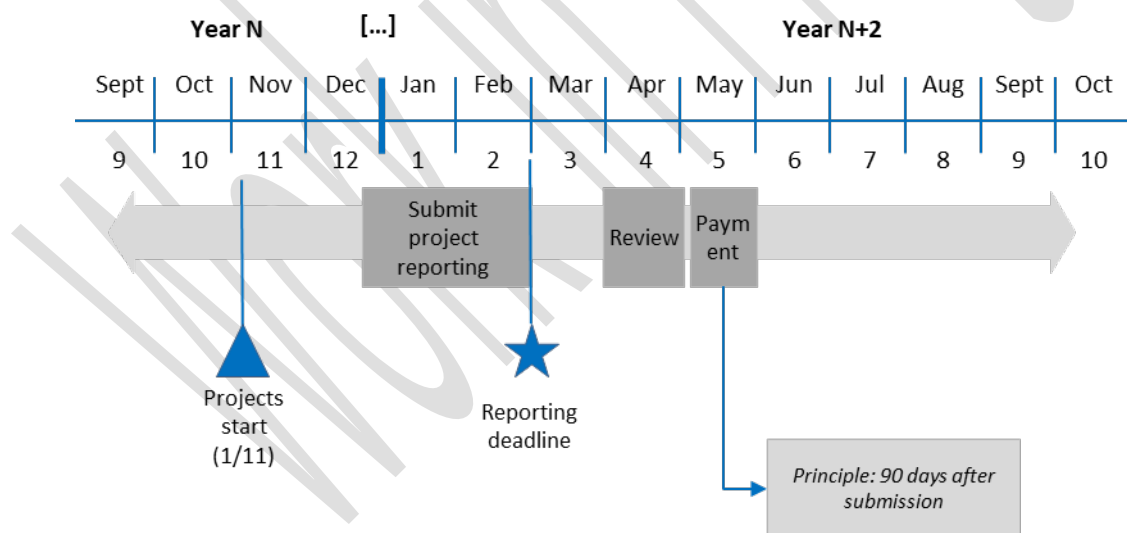


Figure 2 - Flagship Projects

The project review is performed through quantitative and qualitative data, as described in Chapter 7 – Quality Management.

⁶ Refer to Article 21 of the HE General MGA

⁷ Refer Article 25 of the HE General MGA

In parallel to the Annual Review, the Financial Reporting will be subject to initiation and verification in accordance with the EU-Rail Financial Rules and any available vademecum / procedure / guideline applicable to Horizon Europe Grants.

As the Flagship Projects will be funded under the multi-annuality by instalment mechanisms, the results of the Annual Review and the Financial Review will converge in

- a recommendation to the EU-Rail Authorizing Officer on the interim and final payment of the co-funding in accordance with the relevant grant agreement provisions;
- request(s) for additional information, clarifications, etc. in accordance with the procedure established in the Grant Agreement;
- a recommendation on the release of additional pre-financing for the following year, and/or a revision of the project considering its performance, or the termination of the grant. The Executive Director will seek the advice of the System and Innovation Programme Board based on the recommendation from the Programme Office with regard the latter.

2.4.2 Other Projects

With regard to other projects – no flagship projects - the cycle is in line with the usual practice applied within HE projects. Consequently, the reporting period for interim payment ends is not necessarily combined with the annual cycle but may be set every 12 months after the start of the project, for projects between 18 to 24 months, and every 18 months for longer life projects. Based on the rules of HE, the Project Coordinator has 60 days as from that date to submit both their periodic financial and technical reports, through the HE Portal.

EU-Rail will assess the periodic review and will decide on a case by case basis on the need for a project review with experts etc.

These projects do not benefit from the EU-Rail platform access and their dissemination and communication activities will be independent while aligned to the EU-Rail Communication Strategy, both internal and external (public). EU-Rail will ensure the connection with its website to create a platform for the Railway R&I.

A visualization is depicted in Figure 3:

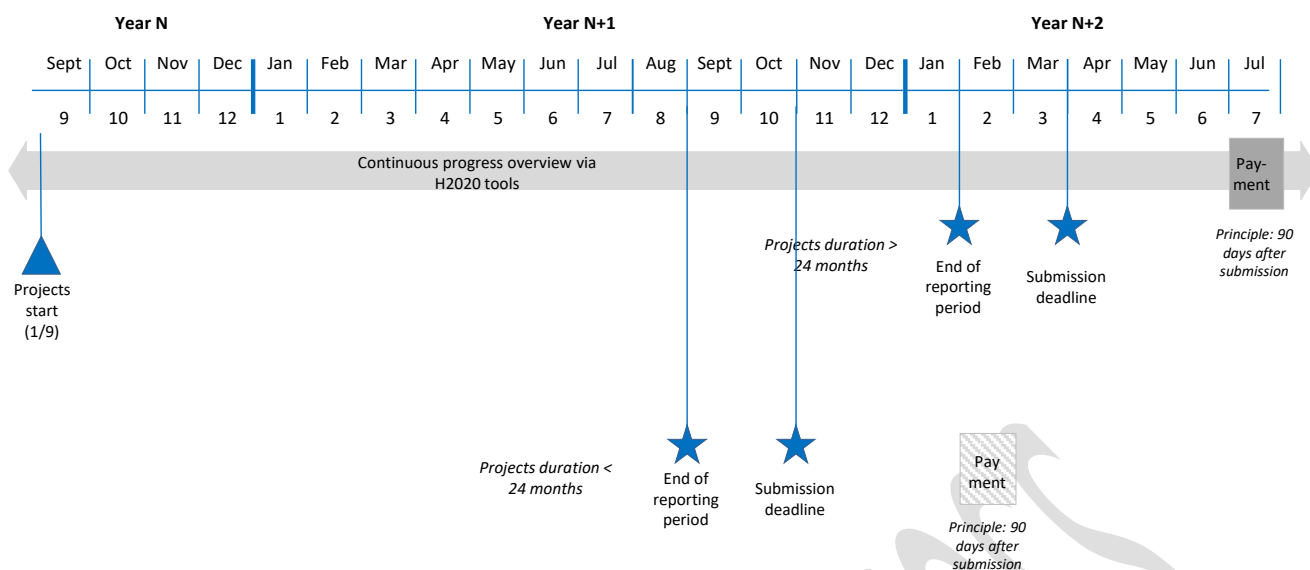


Figure 3 – other projects

2.5 IKOP and IKAA reporting Cycle

As specified in article 11(2) of the SBA regarding the Contributions from private members:

“The private members shall report by 31 May each year at the latest to their respective governing board on the value of the contributions referred to in paragraph 1, point (b), made in each of the previous financial years. For the purpose of valuing these contributions, the costs shall be determined in accordance with the usual cost accounting practices of the entities concerned, to the applicable accounting standards of the country where the entity is established, and to the applicable International Accounting Standards and International Financial Reporting Standards. The costs shall be certified by an independent audit body appointed by the entity concerned and shall not be audited by the joint undertaking concerned or any Union body. The valuation method may be verified by the joint undertaking concerned should there be any uncertainty arising from the certification. In duly specified cases, the governing board may authorise the use of lump sums or unit costs for valuing those contributions.”

Considering that the Lump Sum Grant will be used for the implementation of the Programme activities and that the projects shall not submit any certificate on financial statements, the Members of the JU shall certify the Total Project Cost of their activities in accordance with Article 11(2) by analogy and not only the IKAA. This is required to ensure that the Private Members’ contributions are accounted for in the Annual Accounts of the JU.

2.6 Project closure and final review

The objective of project closure is to ensure that the project is closed efficiently and effectively. This is done by ensuring that the agreed scope has been completed, costs are in line with the contract, status is documented, project objectives have been achieved, no work or actions are left outstanding, and all parties agree and have been informed of the project closure. Project closure takes place when a project has completed all its goals or if a decision is taken to end the project early.

This process will take place in accordance with the procedures established in Articles 21 & 25 of the Grant Agreement.

A final review, compliant with the internal quality process, will be performed at the end of each project. This review will follow the same process as the annual reviews, described in section 2.4.

2.7 Controls and audit

According to Article 25 of the Grant Agreement, the EU-Rail JU and/or the Commission can perform checks, reviews and audit of the proper implementation of action by the beneficiaries in accordance with the provisions of the relevant grant agreements, lump sum or other.

The checks are conducted by EU-Rail JU and, as an example it may consist in asking to the coordinator (or directly to the beneficiaries) for additional information, at any time during the action or afterwards.

The reviews normally concern mainly the technical implementation of the action, but may also cover financial and budgetary aspects or compliance with other obligations under the Grant Agreement. For Flagship Projects checks are foreseen for the Maturity checkpoints (see section 7.4). They are conducted by the EU-Rail JU, making use of external experts as needed, consist of in-depth examinations of the progress of the action and they could be conducted at any moment and until the time-limit set out in the Grant Agreement Data Sheet.

The audits may cover financial, technical or compliance aspects with the obligations under the Grant Agreement (e.g. use of the logo). They may be performed by EU-Rail JU, Commission services or any appointed entity on behalf of the EU-Rail and they could be conducted at any moment and until the time-limit set out in the Grant Agreement Data Sheet.

In accordance with the Grant Agreement, audits, checks and investigations can be performed by the European Court of Auditors and OLAF.

If the checks, reviews, audits or investigations show ineligible costs or serious breach of obligations, it may lead to cost rejection or grant reduction and, if necessary, recovery (as per art. 27 & 28 of the Grant Agreement).

The Impact Evaluations of the action, may also be performed according to Article 26 of the Grant Agreement, measured against the objectives and indicators of the EU programme funding the grant. They are conducted by the EU-Rail JU, making use of external experts as needed, and such evaluations may be started during implementation of the action and until the time-limit set out in the Grant Agreement Data Sheet.

If the impact evaluation shows ineligible costs or serious breach of obligations, it may lead to cost rejection or grant reduction and, if necessary, recovery (as per art. 27 & 28 of the Grant Agreement). As already indicated, EU-Rail will apply the Lump Sum approach for the Grants awarded. This is regarded as an administrative simplification as there is no requirement for certification of the financial statements, monitoring or reporting of eligibility of costs in accordance with HE, etc. It should be noted although that records should be kept in the Beneficiaries' systems in accordance with their accounting practice. The checks and reviews made by the JU will focus on the full accomplishment of the work committed in Annex 1 (Description of the action) of the Grant Agreement, checking in each reporting period which work packages have been successfully concluded and releasing the corresponding lump sum share amount only for those ones. During the final payment possible partial releases of the lump sum share could happen. Audits on financial implementation are therefore also not applicable and audits would focus on the technical aspects or compliance with other obligations under the Grant Agreement. In general all kind of checks, reviews, audits and investigation conducted by JU or ECA, OLAF are always possible under exceptional circumstances.

3 EU-Rail Governance

This chapter introduces the elements of governance created to manage the different programmes and describes the committees, boards and groups that are used to steer the programmes and their activities.

3.1 Basis of Authority and EU-Rail JU Governance Structure

The SBA constitutes the basic act of the JU. Section 4 of the MAWP provides details concerning the governance of the JU.

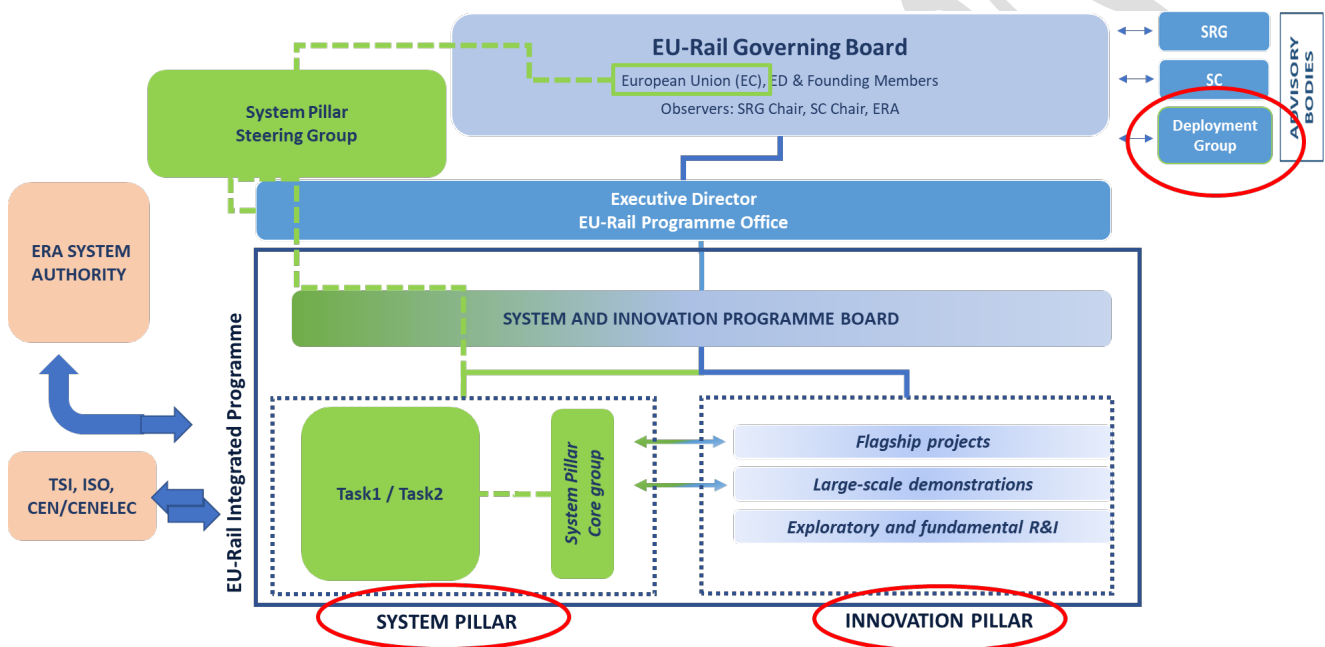


Figure 4 - Governance Structure

3.2 Working with ERA

The EU-Rail JU should ensure a close collaboration with the European Union Agency for Railways, considering Article 40 of Regulation (EU) 2016/796 of the European Parliament and of the Council, and Article 98 of the SBA. In accordance with the latter: that collaboration shall consist of the following advisory tasks:

(a) input on research needs relating to the realisation of the Single European Railway Area for consideration by the Europe's Rail Joint Undertaking in the Master Plan and its amendments as well as in the work programmes;

- (b) feedback and advice on interoperability and safety to be considered in the research innovation activities and, more specifically, in the context of project activities and results for the objectives identified in Article 86(5), point (a);*
- (c) support to the Europe's Rail Joint Undertaking in identifying needs for any additional specific validation or studies to be performed by it, including via the involvement of national safety authorities;*
- (d) provide advice as regards the System Pillar;*
- (e) ensure that the development of specifications including interfaces, functional requirement specifications, and system requirement specifications takes into consideration the experience and feedback on TSI or standards.*

The EU-Rail JU regularly informs ERA on matters relevant to their advisory role, though:

- Bilateral monthly (indicatively) meetings at EDs level
- Regular email exchanges;
- Ad-hoc coordination meetings and conference calls, happening on average every four months.

Representatives of the ERA shall be invited to attend the meetings of the Governing Board as observers and participate in its deliberations, but shall not have the right to vote. In addition, ERA will be represented in the System Pillar Steering Group. The recommendations of the System Pillar Steering Group will be adopted by consensus, but where consensus is not reached, the ED of EU-Rail will prepare a report to the Governing Board, in consultation with the ERA and the Commission.

ERA provides inputs to the Annual Work Plans as indicated in the section 2.3 of this document.

Taking into account the above and in order to ensure that the results from the EU-Rail projects do not encounter a regulatory blocking point because of their novelty, the EU-Rail JU has defined with ERA and DG Move a process for collaboration at project level.

1. The EU-Rail JU will provide the possibility to ERA to attend the evaluation of the call proposals as observer. ERA does not have voting right but has the possibility to access to the relevant documentation and provide to the JU and the independent evaluators with feedback on the aspects related to interoperability and safety included in the proposals;
2. ERA will provide to the EU-Rail JU, within 2 calendar weeks after the GB approval of the list of actions/projects selected for funding, the *“the level of desired involvement”* in those projects within the scope of its activities⁸;
3. The EU-Rail JU will discuss the involvement of ERA in the indicated projects with the relevant Project Coordinator to ensure their participation as appropriate. This should be defined during the Grant Agreement Preparation (GAP) phase, as far as possible;

⁸ see Annex E

4. ERA will provide to the EU-Rail JU the name and contact details of the ERA representative who will be following up the indicated projects;
5. EU-Rail will provide the possibility to the ERA representative(s) to attend the respective Project Kick-off meeting, and may involve him/her as observer during the Review meetings or Projects checks and may request ERA to provide written advice on specific Project deliverables or reports.

The level of desired involvement is defined as follow:

0	ERA has minimal direct interest/competence and does not attend any meeting, conference, seminar, workshop or any other event organised and managed by the EU-Rail research project management.
1	ERA attends at least one of the major events organised and managed by the EU-Rail research project, e.g. kick-off, final conference, mid-term meeting or workshop.
2	ERA follows on a regular basis open meetings organised and managed by the EU-Rail research project. The Agency follows the discussion and has knowledge of the research project management activities.
3	ERA shows particular interest in the research project due to the specific match with its competence. In particular ERA follows the development of results by attending meetings and may act in a particular role, e.g. member of an advisory board.

For the level of involvement “2” and “3” the EU-Rail JU will discuss bilaterally with the Project consortium during the GAP and identify on a case by case analysis the Work Packages and appropriate meetings where the ERA could be directly involved, as well as access to project documentation. This involvement be formalised, including the possibility to assign to the ERA a specific role within the project (e.g. member of an advisory board), as far as possible in the Project Grant Agreement preparation.

During the course of the project, in case ERA estimates that a different level of involvement into the project is necessary, this will be communicated to the EU-Rail JU and following the same above procedure, then the EU-Rail JU will discuss it with the Project Coordinator.

In case ERA would like to have access to Project documentation where they have no access or that is not yet available (because not yet submitted as deliverable), ERA will provide the request of access to the EU-Rail JU. ERA will explain the need, possible time constraints and any other information that is important to take into account. The EU-Rail JU will agree with ERA the most appropriate course of action and discuss it with the Project Coordinator.

For the Flagship Projects using the EU-Rail platform, EU-Rail JU in agreement with the project coordinator may give access to ERA to the tool, in its entirety or partially for a certain project.

The ERA staff is subject to the Provisions of the Union Staff Regulations and in particular specific obligations in terms of confidentiality and non-disclosure in the performance of their duties, also after the end of their work contracts.

In a reciprocity manner, the EU-Rail JU will be attending the relevant ERA Committees working groups, including, for example, the participation of the EU-Rail ED to the ERA Management Board as observer in particular when matters related to the scope of activities of the JU are mentioned.

[The EU-Rail JU will also provide representatives (from its staff or Members) to the ERTMS Stakeholders' Platform meeting at Board level as well as in the relevant subgroups of the Platform created for addressing specific topics linked, for instance, to the "ERA Longer Term Strategy" (ATO project, Next Generation Telecommunications coordination group, and any other future groups to be created by ERA). The Coordination subgroup of the ERTMS Stakeholders' Platform may also be considered.]

This initial setup should be further considered in the future to avoid overlapping between design and R&I of innovative solutions and their certification and authorization.

In addition, ERA will also provide access to the nominated EU-RailJU representatives to other relevant committees linked to CCS activities (including ERTMS/ETCS) such as the ERA CCS Working Party or the ERA ERTMS Control Group, or any other relevant groups for example related to the DAC TSI implementation.

ERA will provide also access to the EU-Rail JU staff representatives to its Extranet and calendar of activities.

ERA will add in their relevant distribution lists the nominated EU-Rail JU staff representatives, ensuring the proper dissemination of the activities and information on workshop/events.

ERA will also request the EU-Rail JU staff representatives to attend their internal RSG (Research Steering Group), to ensure full alignment of activities.

4 Programme implementation roles and responsibilities

This section describes the roles and responsibilities of the JU staff accountable for the successful implementation of the EU-Rail Programme. In Annex B, the Programme Contact Persons of the EU-Rail JU can be found.

According to the xxxx GB decision, the JU is organized upon recommendation of the Executive Director in a manner to deliver its Programme mirroring the set up established in the SBA:

- The System pillar
- The Innovation pillar
 - Operations
 - Assets
 - Services
- The Deployment Coordination activities

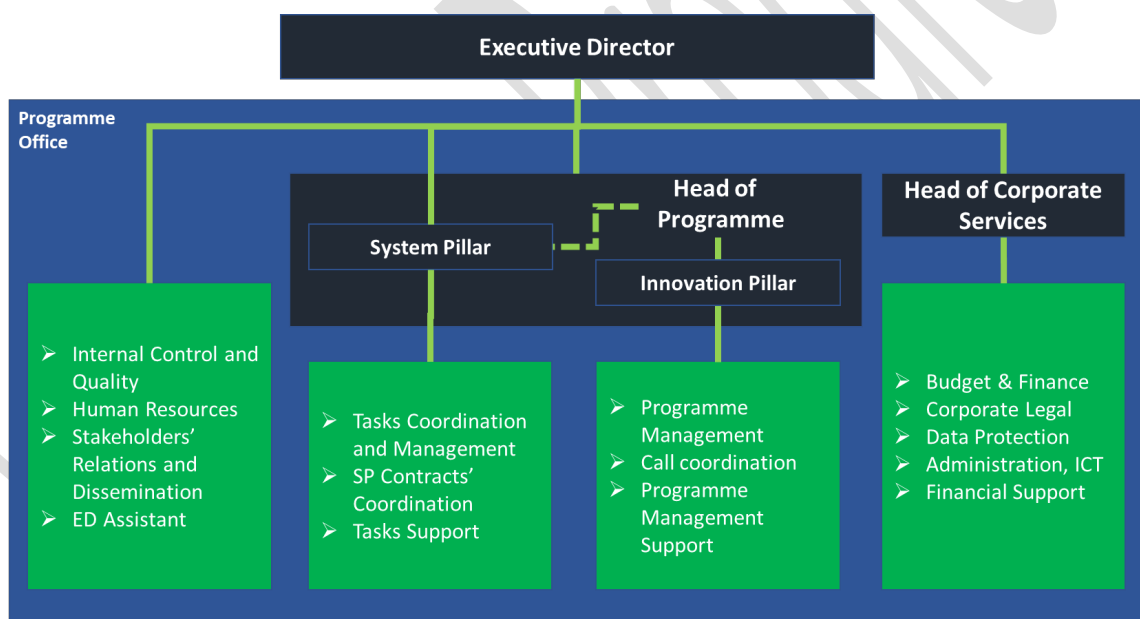


Figure 5 - EU-Rail organisational structure of the Programme Office

The EU-Rail **Management Team** meets on a weekly basis. The Management Team consists of the ED, the Head of Programme, the Head of Corporate Services, the Head of Unit SP, the Stakeholder Relations and Dissemination Officer, the Internal Control Coordinator and the HR Officer; the assistant of the Executive Director participate to the meetings of the Management Team.

On a weekly basis, a **Staff Meeting** takes place, where each Staff Member is invited to intervene and share with colleagues their experiences, priorities and activities. On a regular basis, each Member of

the Management Team will present activities and events having shared impact or critical for the performance of their own areas of responsibilities.

The Head of Programme will convene joint weekly meeting of the **System Pillar Unit** and **Innovation Pillar Unit**; the **Head of Corporate Services** will ensure weekly meetings for the staff reporting to him.

4.1 Research and Innovation

The **Head of Programme** (HofP) reports to the Executive Director of the EU-Rail JU. He is responsible for the Innovation Pillar and entrusted, also, with the coordination of the Programme, in particular the two Pillars. The implementation of the programme shall be in compliance with the internal control framework of the JU The HofP should perform the following:

- Contribute to the design and implementation of the EU-Rail Programme and its evolution, in accordance with the strategic direction established by the Executive Director;
- Be responsible for the Programme coordination and integration of the activities performed under the System and Innovation Pillars, interfacing with the System Pillar HoU, delivering R&I outputs defined in the Multi-Annual Work Programme and Annual Work Plans;
- Be responsible for the Innovation Pillar activities and managing/organising tasks in particular, with the possible support of a deputy;
- Supervise and ensure the effective and efficient implementation of the EU-Rail Programme, its continuous coordination with the Head of Corporate Services , including the overall grant process, from the planning to the closure of grants, providing the necessary information for the corporate reporting;
- Contribute to building synergies and appropriate relation with other EU and national programmes, in respect of R&I as well as future deployment activities;
- Provide input to support to EU policies, balancing the public and private interest of the PPP;
- Develop the competences and skills of the personnel reporting to her/him and evaluate their performance;
- Represent, as delegated, the JU Programme in meetings, working groups, conferences, etc.;
- Keeping constructive and professional relations with the EU-Rail Members and stakeholders, as relevant;
- Foster a culture of leadership by example – tone at the top – starting from the EU-Rail ingredients, towards a culture ethical atmosphere in the workplace.

The HofP is supported by an **Administrative Assistant**, who will provide support to the Programme in its entirety, with the following responsibilities .

- Assist the HofP in ensuring the follow-up of unit meetings and agreed assignments;

- Provide secretarial support by taking notes, keeping up-to-date the EU-Rail JU calendar and mailing lists, contact databases, answering and filtering phone calls, taking messages, responding to general inquiries and managing e-mail exchanges;
- Provide support in the preparation and reporting of duty travels for the Unit staff or as back-up of other assistants;
- Participate in the planning of logistics needs;
- Assist the Research and Innovation Unit colleagues in other tasks upon request, subject to the agreement of the HofP;
- Maintain well organized filing in accordance with the Document Management System;
- Contribute to administrative quality checks on files for signature;
- Receive guests and prepare meetings organized by the Unit's staff or the JU;
- Provide administrative and logistical support for the organization of internal and external events such as meetings, works, conferences, consensus weeks and public events;
- Subject to the knowledge, become a back-up of the Call Coordinator;
- In the interest of the service additional tasks might be considered in agreement with the HofP.

A **Call Coordinator and Programme monitoring**, report to the HofP, and have the following responsibilities.

- Manage the lifecycle of calls in particular in terms of call preparation, publication, evaluation, selection and award in compliance with applicable rules of HE and EU-Rail processes;
- Be responsible for the independent expert selection (in collaboration with the colleagues in charge of a project), contracting and managing them for assisting the EU-Rail for the evaluation of proposals, as well as for the project reviews or specific issue reviews;
- Ensure liaison with HE EC support services and follow the EC research family relevant transversal groups;
- Contribute to the implementation of EU-Rail obligations in relation to the dissemination of project results, in particular in ensuring an up-to-date project results information on the website and newsletters, to be provided to the Stakeholders Relations and Dissemination Officer and/or contractor;
- Coordinate and monitor the Grant Agreement Preparation Phase toward the achievement of its conclusion within the target set Time-to-Grant;
- Develop, prepare and maintain the Programme's dashboard, in view of planning and reporting, as well as the JU's KPIs;
- Develop and maintain the EU-Rail Programme templates;
- Contribute to the definition and maintenance of the EU-Rail Governance and Process Handbook;

- Based on the input provided by the Programme Managers, who are accountable for it, maintain decisions, issues and risk register;
- Keeping constructive and professional relations with the EU-Rail Members and stakeholders, as relevant;
- In the interest of the service additional tasks might be considered in agreement with the HofP.

A **Grant & Legal Officer** support the Programme on compliance aspects of related to grants in relation to the specific implementation in the rail environment, considering the integration between the system and innovation pillar. In this role, s/he also provides support to the Joint Undertaking bodies, as per SBA. S/he reports to the Head of Programme and has the following responsibilities.

- Ensure compliance of the grants' lifecycle and provide support to the rail related R&I activities, mainly by:
 - Managing during the proposal evaluation stage the eligibility checks, expert conflicts of interest and ethics evaluation processes;
 - Providing during GAP/GA the necessary compliance checks, assessment and follow-ups, as verifying compliance of beneficiaries and third parties to EU-Rail rules and programme framework;
 - Providing necessary support to the Programme team on grant-related questions and provision of necessary compliance advice or documents;
- Provide appropriate support to the EU-Rail JU governance bodies, mainly by organizing meetings; drafting Decisions for adoption; drafting amendments, liaise with group members;
- Liaise with other JUs in relation to grant implementation and compliance, as well as with the relevant services;
- Keeping constructive and professional relations with the EU-Rail Members and stakeholders, as relevant;
- In the interest of the service additional tasks might be considered in agreement with the HofP.

4.1.1 Innovation Pillar

The Innovation Pillar is headed by the **HofP** and is organized in a two layer structure, with the Senior Programme Managers leading Programme Managers teams organized around the Flagship Areas established in the Multi-Annual Work Programme.

The **Senior Programme Managers** report to the **HofP**.

The Senior Programme Managers ensure that an integrated set of R&I activities is designed to achieve a system impact – taking into account EU-Rail system requirements – measured with one or more

demonstrators, with input to the legislator and with continuous visible outputs. With their role, they support the **HofP** contributing to the design and implementation of EU-Rail R&I Programme.

Each Senior Programme Manager supervises and manages her/his Team Programme Managers.

The **Senior Programme Managers** have the following responsibilities:

- Support the **HofP** contributing to the design and implementation of EU-Rail R&I Programme;
- Manage and coordinate the overall progress of the R&I Area for which they are responsible.
- Supervise and manage the Programme Managers' assignments in particular for Flagship Projects activities, ensuring that the research outcomes and demonstration are delivered as planned in the Multi-Annual Work Programme and the impact is in line with the Master Plan, with the required quality and maturity (including performance expectations) and undertaking if needed appropriate corrective measures;
- Ensure that Flagship Projects are taking up upon the System Pillar requirements and do contribute to the definition of interfaces leading to a European rail system architecture that is implementable and allows for innovation take up;
- Provide input, draft, ensure the quality of the Calls for proposals, tender specification and/ or request for services, coordinate and run the technical evaluation, ensure the finalization of the process up to the signature of the relevant agreement directly or supervising the relevant Programme Managers;
- Organise and coordinate projects progress reviews and other verifications, in particular, managing the Maturity checkpoints with the relevant experts in view of assessing the Flagship Project activities maturity progress (TRL), alignment on requirements, architecture and achievable performance towards the Programme objectives;
- Ensure an effective and efficient implementation of the Flagship Areas and Transversal Topic activities interdependencies, as well as any other synergies with other projects, JUs, PPPs or national activities;
- Be responsible for the assessment of the Projects results and implementations, including the 'certified correct' for payments and/or supervise the work of the Programme Managers in this respect;
- Manage the risks linked with the Innovation pillar activities, including their relation with the System pillar activities;
- Ensure efficient coordination with Project Managers in order to steer them towards EU-Rail JU expectations and deliver upon harmonised processes and approaches;
- Provide monthly reporting required to establish and maintain an accurate view of the status of the Projects to support the **HofP** in contributing to the corporate reporting of the JU, as well as report as requested to the to the relevant JU governing bodies, prepare answers to EC policy requests;
- Participate as needed to project meetings/activities within the remit of funding authority, in particular for monitor purposes;

- Supervise the project execution of dissemination & exploitation activities, in particular, ensure the harmonised and quality input for standardisation and regulation as well as their technical KPIs and Impacts;
- Contribute to the promotion of EU-Rail JU activities in line with the established communication strategy;
- Act as Business partner and keep constructive and professional relations with the EU-Rail Members and stakeholders, as relevant;
- In the absence of a Programme Manager, the Senior Programme Manager will take the responsibility of the projects under the PM responsibility;
- Take on additional tasks as required in the interest of the service, in agreement with the support the **HofP**.

The **Programme Managers** report hierarchically to the **HofP**; they are organized into R&I Areas Teams supervised and managed by a Senior Programme Manager. With regard to performance assessment, the HofP will request the respective Senior Programme Manager to provide the necessary input in relation to the performance of a Programme Manager or delegate the assessment to a Senior Programme Manager. A Programme Manager should perform the following:

- Support the **Senior Programme Manager** contributing to the design and implementation of EU-Rail R&I Programme;
- Conduct the continuous assessment of the Projects, with the support of external experts as needed and focusing on the objectives to be reached, of projects deliverables and milestones and their alignment with the respective grant/procurement contract;
- Follow-up on projects implementation, monitoring contractual obligations via the supervision of reporting activities, conducting checks and reviews, attending project meetings and dealing with amendment requests in a timely manner and in accordance with H2020 and HE rules and maintain an overview of progress and financial expenditures of projects;
- Contribute, under the supervision of the Senior Programme manager, to the Calls for proposals, tender specification and/ or request for services, the technical evaluation and the finalization of the process up to the signature of the relevant agreement;
- Contribute, under the supervision of the Senior Programme manager, to the assessment of the Projects results and implementations, including the 'certified correct' for payments;
- Monitor and control the projects achievements against the Grant agreement, including the Communication, Dissemination & Exploitation activities, projects technical KPIs, their Impact and input into standards and regulations ensuring their timely delivery;
- Ensure that the EU-Rail has all the necessary and up to date information on the status of the projects(e.g. with project planning, progress reports with resources and budget, amendments, etc.) in support to the monthly report of the Senior Programme Manager, required to establish and maintain an accurate view of the status of the action;

- Verify quality of the information on risks reported by projects supporting the Senior Programme managers in identifying needed mitigation measures or action at S2R/ EU-Rail Programme level;
- Contribute to the promotion of EU-Rail JU activities in line with the established communication strategy;
- Prepare input for EU-Rail bodies, including support in the preparation of answers to EC policy requests, and draft reports and meeting minutes;
- Act as Business partner and keep constructive and professional relations with the EU-Rail Members and stakeholders, as relevant;
- Take on additional tasks as required in the interest of the service, as indicated by the Senior Programme Manager in charge in agreement with **HofP**.

4.1.2 System Pillar

The System Pillar is headed by a Head of Unit.

The Head of Unit System Pillar reports to the ED; to ensure the overall R&I Programme Coordination, a functional reporting line to the HofP is established.

- Contribute to the design and implementation of the EU-Rail Programme, with particular responsibility for the System Pillar and its evolution, in accordance with the strategic direction established by the Executive Director;
- Be responsible for the System Pillar activities and managing/organising tasks in particular;
- Ensure the efficient and effective undertaking of the System Pillar activities, delivering upon the Master Plan objectives;
- Organise the System Pillar Steering Group and monitor the follow up (e.g. actions);
- Manage the System Pillar Core Group;
- Ensure that the Unit contributes to the preparation of the Calls for proposals, tenders specifications and request for services, to the technical evaluation of the proposals/tenders and to the finalisation of the relevant agreements;
- Manage the implementation of actions under the System Pillar ensuring resources are used in the most efficient, effective and economic manner;
- Supervise the execution of exploitation activities and in particular ensure the strategic planning and implementation of the EU-Rail “Standardisation and TSI input plan”;
- Organise the allocations of tasks to Programme managers;
- Manage the risks linked with the system pillar activities, including their relation with the innovation pillar activities;

- Develop the competences and skills of the personnel reporting to her/him and evaluate their performance;
- Represent the System Pillar in meeting, working groups, conferences, etc., as requested and delegated;
- Keeping constructive and professional relations with the EU-Rail Members and stakeholders, as relevant.
- Foster a culture of leadership by example – tone at the top – starting from the EU-Rail ingredients, towards a culture ethical atmosphere in the workplace.

The **SP Programme Manager** report to the HoU System Pillar and has the following responsibilities.

- Conduct the continuous assessment , focusing on the objectives to be reached, of contracted services.
- Ensure timely outputs and proper administration of experts and control of projects outcomes and milestones with their alignment with the respective grant/procurement contracts;
- Follow-up on projects/service contracts implementation, monitoring contractual obligations via the supervision of reporting activities, conducting checks and reviews, attending meetings and dealing with amendment requests in a timely manner and in accordance with HE and EU Financial rules and maintain an overview of progress and financial expenditures of projects;
- Contribute to the Calls for proposals, tender specification and/ or request for services, the technical evaluation and the finalization of the process up to the signature of the relevant agreement;
- Contribute to the assessment of the Projects results and implementations, including the 'certified correct' for payments;
- Monitor and control the projects achievements against the agreement, including the Communication, Dissemination & Exploitation activities, projects technical KPIs, their Impact and input into standards and regulations ensuring their timely delivery;
- Ensure that the EU-Rail has all the necessary and up to date information (e.g. with project planning, progress reports with resources and budget, amendments, etc.) required to establish and maintain an accurate view of the status of the action;
- Verify quality of the information on risks reported by projects and identify needed mitigation measures or action at S2R/EU-Rail Programme level;
- Contribute to the promotion of EU-Rail JU activities in line with the established communication strategy;
- Prepare input for EU-Rail bodies, including support in the preparation of answers to EC policy requests, and draft reports and meeting minutes;
- Act as Business partner and keep constructive and professional relations with the EU-Rail Members and stakeholders, as relevant;

- Take on additional tasks as required in the interest of the service, as indicated by the Senior Programme Manager in charge in agreement with the Head of Unit System Pillar.

4.2 Corporate Services

The **Head of Corporate Services** reports to the Executive Director of the EU-Rail JU. The Head of Corporate Services carries overall managerial responsibility for financial and administrative issues. More specifically, the Head of Corporate Services is responsible for the following activities:

- Ensure the coherence among the work elements assigned to the Administration;
- Manage the EU-Rail JU budget (annual budget preparation and presentation, follow-up and co-ordination, monitoring of expenditures, preparation of reconciled financial reports, etc.);
- Tendering and contracts management, including contract laws and regulations;
- Infrastructure and facilities management;
- Overall security matters, including physical and cyber-security;
- Maintain a harmonized knowledge management framework across the EU-Rail JU;
- Develop the competences and skills of the personnel reporting to her/him and evaluate their performance;
- Lead the effective and efficient implementation of EU-Rail's internal control framework.

4.2.1 Finance team

The Finance team reports to the Head of Corporate Services of the EU-Rail JU. The activities expected from the finance department cover a wide range from basic financial statements to providing clear information to assist management in making strategic decisions, as well as being responsible for managing cash flows and ensuring sufficient funds are available. In particular, the finance department will carry out following tasks:

- Financial initiation transactions, i.e. invoices, cost statements, payments, in-kind contribution declarations, etc.;
- Financial support to EU-Rail JU operational activities (including assisting Programme Managers, analysing financial viabilities and following up financial implementations of grants);
- Advice on financial practices in line with EU-Rail JU budgetary, financial and contractual rules;
- Provide assistance for control and audit missions;
- Prepare financial reporting tables and reports.

4.2.2 Legal officer

The Legal Officer reports to the Head of Corporate Services. His role is to ensure the legal soundness of the actions and decisions of the EU-Rail JU, in the specific context of rail research and innovation, rail market and sector knowledge and membership. In addition to overseeing the work of the legal support function, the Legal Officer is responsible for the following:

- Procurement and other legal administrative issues, in relation to the rail research and innovation programme, IP and SP;
- Monitor the implementation of applicable rules, regulations and procedures within the JU;
- Advise management and staff on the validity and conformity of procedures with the standing rules and regulations, to ensure the legality and regularity of the implementation of the rail R&I programme;
- Improve quality and consistency of the JU's output from a legal standpoint;
- Provide legal analysis and advice in support of EU-Rail JU policies and input to DG Move policy making;
- Advise management on possible litigation risks and contribute to find solutions to avoid litigation;
- Ensure the follow up of litigation in liaison with the relevant services such as the Commission's Legal service, the Ombudsman and OLAF;
- Contribute to the production of manuals for management and units on legal and procedural issues;
- Deal with issues relating to protection of data and access to documents in the JU.

4.3 Flagship Project Manager

Each future Flagship Project shall be set up in accordance with the respective Grant Agreement requirement, i.e. a Project Coordinator representing the Consortium which shall carry out the necessary duties.

Building upon the experience of the S2R JU Projects, EU-Rail consider necessary to avail itself with one dedicate Project Manager per relevant Flagship Projects to ensure the cost effective and efficient delivery of the project, taking into consideration the interdependencies between different Flagship Projects and with the System Pillar and the need to ensure a systemic approach to the implementation of the Programme.

This Flagship Project Manager is contracted by the JU: her/his tasks will be defined by the Executive Director or his delegated representatives, on the basis of the agreement with each Flagship Project Steering Committee. The FP Project Manager shall not undertake any of the tasks of the Project Coordinator. S/he will be reporting to the Steering of the FP as well and called to report at the System and Innovation Programme Board. In addition, the JU will be provided with regular reporting on the performance of the Project and of the Flagship Project Manager herself/himself.

Where needed and appropriate, the role might be carried out by a dual-leadership or co-leadership, including to reflect properly the involvement of major groups of stakeholders in the performance of the project.

The EU-Rail Programme Manager shall be the first liaison contact point for the Flagship Project Manager; the two roles shall be independent, as the first is entrusted with the responsibilities deriving from the JU as funding body in accordance with the Financial Rules.

In principle, the Flagship Project Manager will be contracted by the JU implementing Article 43.4 of its Financial Rules, opening a call to its Founding Members to propose the required Flagship Project Managers, subject to the budgetary availability made available by the Governing Board.

5 RACI matrix

Via a RACI matrix (Table 1) an overview is created of which role needs to do what during a certain task or event.

Actions	GB	ED	Head of Programme	Head of Corporate Services	EU-Rail private member expert	Project coordinator (+ FP manager)	System Pillar core Group	System engineer	Independent experts	SC	Deployment group	SRG
Content & budget for AWP	A	R	C	C	C		C	C		C	C	C
Publication of calls		A	R	C						I	I	I
Evaluation of proposals		A	R	C		I	I		C			
Evaluation of (interim) project results		A	R	R		I	I		C		I	
Payment to project consortia		A	C	R		I	I					
Scope changes to the projects/programme	A	C	R	C	C	C	C	C		C	I	
Audit preparation	I	A	R	R		I	I		C			
Verify end deliverables		A	R	R		I	I		C		I	
IT security		A	C	R		C	C					
Communication and Dissemination		A	C			R	R					
Risk management		A	C	R		R	R	C	C			C
Change management		A	R	C	C	C	C	C				C
Requirement management	I	I	C			R	R	C				

Table 1 - RACI matrix

Four types of roles are defined:

- Responsible: “R”: Refers to the person who must ensure that activities are completed successfully. In a RACI chart, answers the question: **Who is getting the task done?** Roles taking the main operational stake in fulfilling the activity listed and creating the intended outcome.

- **Accountable: “A”:** The individual, group or entity that is ultimately responsible for a subject matter, process or scope. In a RACI chart, answers the question: **Who accounts for the success of the task?**
- **Consulted: “C”:** Refers to those people whose opinions are sought on an activity (two-way communication). In a RACI chart, answers the question: **Who is providing input?** Key roles that provide input. Note that it is up to the accountable and responsible roles to obtain information from other units or external partners, too; however, inputs from the roles listed are to be considered and, if required, appropriate action has to be taken for escalation, including the information of the process owner and/or the steering committee.
- **Informed: “I”:** Refers to those people who are kept up to date on the progress of an activity (one-way communication). In a RACI chart, answers the question: **Who is receiving information?** Roles who are informed of the achievements and/or deliverables of the task. The role in ‘accountable, of course, should always receive appropriate information to oversee the task, as do the responsible roles for their area of interest.

6 Planning

Planning is an iterative and collaborative exercise for all contributors of the partnership:

- The multiannual work programme set high level planning targets: dates are defined for bringing R&I challenges to given TRLs.
- The preparation of call for projects requires specific care to anticipate cross dependencies (e.g. transversal needs such as telecommunication)
- The project execution should follow the planning defined in the grant. Detailed planning elements will be needed to orchestrate expertise and demonstrators (e.g. integration in a project of solutions developed in another flagship area)

EU-Rail programme planning should be about breaking down a project in phases and identifying high level milestones in order to facilitate and enable alignment within consortium members and outside (e.g. other Flagship areas, system pillar, ERA, ESO). Clear milestones allow for presenting progress and organising timely decision points.

7 Quality Management

7.1 Evaluation of proposals

7.1.1 Evaluation process

The proposals are evaluated according to the Horizon Europe award criteria and must meet the minimum thresholds in order to be funded (See Figure 7). Each proposal has to sufficiently demonstrate its added value in according to the award criteria of 'excellence', 'impact' and 'quality and efficiency of the implementation' in order to be funded by the EU-Rail JU.

The evaluation should take into consideration the coherence of the proposal with the MAWP and AWP, which provides a benchmark for the different criteria evaluated (i.e. expected level of technical ambition, expected level of innovation potential, expected level of progress beyond state of the art, or expected level of impact of the proposals).

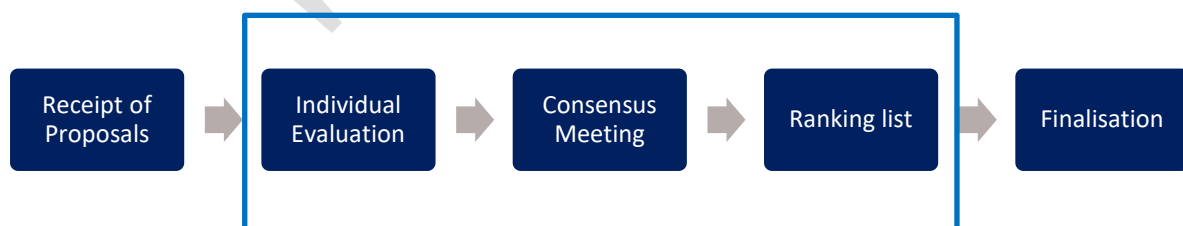


Figure 6 - Evaluation process

After the individual evaluations, consensus meetings are conducted in the different established panels, covering the different flagship area themes, which attribute scores (0 to 5) on 3 core capabilities of Excellence, Impact and Measures to maximise the impact.

This consensus meeting is held in Brussels where the different evaluators start their discussion from the individual evaluations. First, an agreement must be found on comments before a final score can be given.

7.1.2 Scoring method

EU-Rail scoring method does not differ in any manner from Horizon Europe; in case of discrepancies, Horizon Europe guidance material prevails. A score between 0 and 5 is awarded to each criterion, as can be seen in Figure 8. In order for a proposal to be considered for funding, scores must pass the threshold of 3 out of 5 on each criterion and the total score of the proposal must be above the overall threshold of 10 out of 15. The criterion Impact is given a weight of 1.5 to determine the ranking.

All proposals considered for funding are subject to ethics screening and possible assessment.

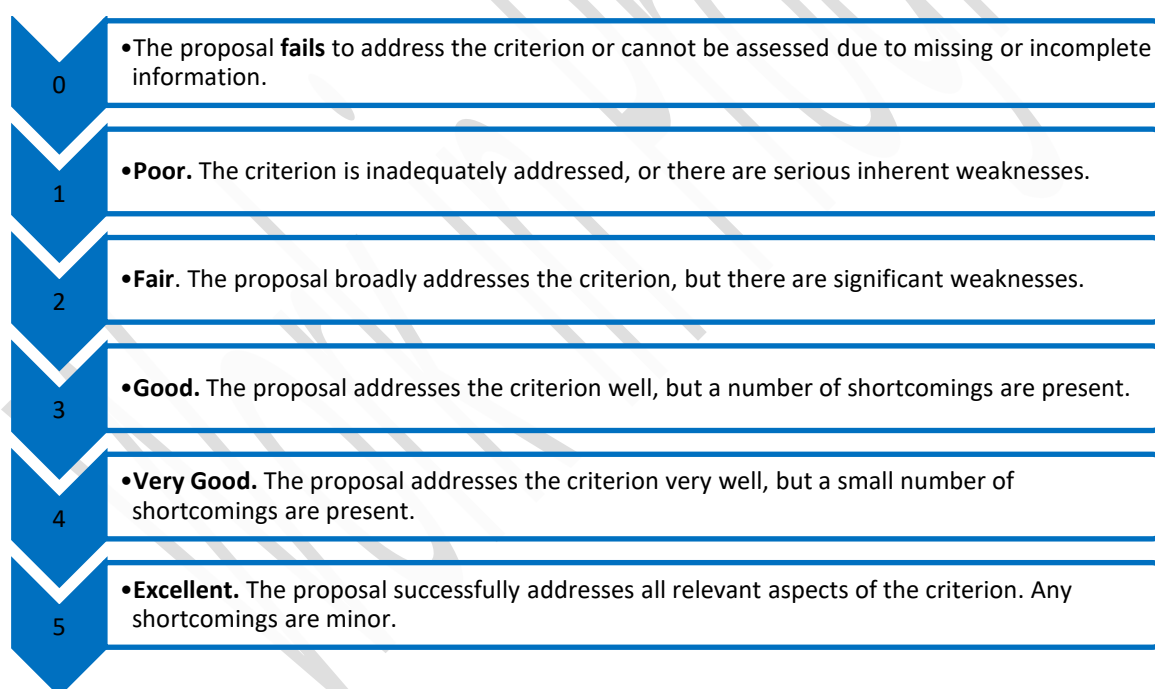


Figure 7 - Scoring scale

7.2 Financial Viability Check

EU-Rail financial viability check does not differ in any manner from Horizon Europe; in case of discrepancies, Horizon Europe guidance material prevails.

A coordinator of a consortium which submitted a successful proposal in answer to a call shall be subject, under certain conditions to a viability check by EU-Rail JU through the competent Commission Services (Article 27 of the Horizon Europe Rules for Participation)⁹.

If there are grounds to doubt the financial capacity of an applicant, or if there is a higher risk due to the participation in several ongoing actions funded by Union R&I programmes, the Commission or the JU shall also verify the financial capacity of other applicants.

In the circumstance where the financial viability check result is weak, the JU Finance Team or the Commission may make participation of the applicant conditional on provision of a declaration on joint and several liability by an affiliated entity.

The contribution to the Mechanism set out in Article 37 of the Horizon Europe Regulation shall be considered to be a sufficient guarantee under Article 152 of the Financial Regulation and no additional guarantee or security shall be accepted from beneficiaries or imposed upon them.

7.3 Continuous monitoring

Monitoring is a continuous task that takes place in various forms throughout the project (and beyond).

In order to ensure good implementation, therefore the projects are monitored on:

- technical: compliance with the description of the action (DoA)
- financial: compliance with the GA rules on cost eligibility
- other: compliance with all other obligations under the grant agreement. In particular for EU-Rail project the major importance of Article 3 of the GA which specify that the grant is awarded for an action which aims to implement the FA part of the Multi-Annual Work Programme ('MAWP') and that is 'complementary' to another grant.

The EU-Rail Project Managers are responsible for the monitoring and liaising with other colleagues for legal, financial, or administrative issues. They are assessing the deliverable at any moment before approving the periodic reports (these latter are assessed accordingly to the timeline indicated in the sections 2.4.1 and 2.4.2 of this document).

Beneficiaries are requested to regularly report, in 2 different ways¹⁰:

- **Continuous reporting:** The beneficiaries must continuously report on the progress of the action (e.g. deliverables, milestones, outputs/outcomes, critical risks, indicators, etc; if any), in the Portal Continuous Reporting tool and in accordance with the timing and conditions it sets out (as agreed with the granting authority).

⁹ In addition to the exceptions mentioned in Article 198(5) of the Financial Regulation, the financial capacity shall be verified only for then coordinator and only if the requested funding from the Union for the action is equal to or greater than EUR 500 000

¹⁰ Refer to Article 21 of the Horizon Europe General MGA

- **Periodic reporting:** In addition, the beneficiaries must provide reports to request payments
 - for additional prefinancings (if any): an additional prefinancing report
 - for interim payments (if any) and the final payment: a periodic report

EU-Rail JU may suspend at any moment payments, in whole or in part for one or more beneficiaries, in accordance with the conditions defined in the art. 30 of the grant agreement. In particular, in such cases the EU-Rail may also initiate a technical Audit in accordance with art. 24.1.3 of the JU.

If the ineligible costs or serious breach of obligations are detected, it may lead to cost rejection or grant reduction and, if necessary, recovery (as per art. 27 & 28 of the Grant Agreement).

7.4 Additional criteria to be applied in the Flagship Project Maturity checkpoint

To enable controlled execution of the programme the Flagship Projects should follow project phases and use stage gate planning of the maturity checkpoints. This will enable a clear status to be reached before proceeding to the next phase and facilitate consistency across and interaction between the Flagship Areas. The process will be a management activity within the project and part of the governance process of the integrated programme.

Following the process described in the planning section 6, checkpoint maturity review will be used to assess in a qualitative and quantitative manner the progress of the project and the compliance with the predetermined criteria to move to the next phase and will consider the following:

- Follow-up of previous project maturity checkpoint recommendations
- Evaluation criteria related to the quality of the project outputs
- Compliance with the 'Description of Action' and the objectives and indicators, including TRL
- Interfaces with other Flagship Projects and the System Pillar
- Review of the risk, opportunity, and mitigation plans
- Dissemination & exploitation of project results
- Any adjustments required to the Multi-Annual Action Plan or future calls
- The assessors will be provided access to all relevant information prior to the review, including agenda, decisions, and project outputs

The output of the review can have the following assessment criteria:

Green: Project is under control and objectives have been achieved. Recommendation to continue to the next phase as planned. However, there may be an action plan with minor corrective actions to be completed. This could cover issues and improvements identified at the review that impact on the project, such as process improvement, schedule alignment or content refinement.

Amber: Issues have been identified which pose a threat to a successful outcome of the project and deliverables. Recommendation to continue to the next phase against a corrective action plan, which

will be monitored. Typical reasons for an amber status may include but are not restricted to some of the following:

- Project management team not demonstrating adequate control
- Significant non-synchronisation of dependencies
- Overconsumption of effort in comparison with the achievements of the project
- High level of risk identified by the project but with inadequate mitigation plans

Red: Major deficiencies with the project's management, milestones have not been completed to the required quality in one or several WPs. The concerned WP(s) should not proceed to the next phase until deviations have been rectified. Typical reasons for a red status may include but are not restricted to some of the following:

- Project milestones and associated deliverables have not been completed
- Key deliverables assessed as critically deficient or with major reservations
- Excessive change in scope
- The level of risk very high without any mitigation plan

The JU programme manager will send the Review Report to FP Steering Committee no more than 10 days after the review. The FP Steering Committee shall provide its comments, follow up to the Review Report within 15 days. Subject to the results of the Review, the comments received and any other element, the case might be presented by the Head of the Programme to the SIPB for advice before the Executive Director taking a decision on the Flagship Project or escalating the matter to the Governing Board. Once the course of action is agreed, the Flagship Project is expected to implement the necessary actions within the following 60 days, including initiating the necessary amendments or any other relevant mitigating measure.

EU-Rail JU may also suspend the Grant Agreement, in accordance with art. 31.2 of the GA, in particular when significant deviations are detected.

It may also launch, or considering such checkpoint as part of, an **Impact Evaluation**, in accordance with art. 26 of the GA. If ineligible costs or serious breach of obligations are detected out of the impact evaluation, it may lead to cost rejection or grant reduction and, if necessary, recovery (as per art. 27 & 28 of the Grant Agreement).

7.5 Use of EU-Rail label and EU-Rail position

The EU-Rail funded Projects must make use of the EU-Rail logo as described in the Grant Agreement.

A particular attention should although be paid on Projects documents with the EU-Rail logo, or documents developed within a EU-Rail project (by beneficiaries of EU-Rail JU Grant Agreements or external contractors of EU-Rail JU procurement contracts) for external stakeholders (e.g.

standardisation organisations), which they can only represent a EU-Rail position if the following conditions are all met:

- a) There is an agreement within the Project and following the Project decisional procedure set in the respective Consortium Agreement or Grant Agreement
- b) There is an agreement with the SIPB
- c) There is an official agreement from the EU-Rail JU, through a written confirmation of the EU-Rail ED

Each Project beneficiary should therefore not distribute documents labelled EU-Rail without having taken the above steps or taken the necessary measures to explain that the document do not represent a EU-Rail position.

Similarly, any Project beneficiary or EU-Rail Member can only officially represent a EU-Rail position if:

- the conditions a, b and c above are all met in case of a Project beneficiary
- the conditions b and c above are all met in case of a EU-Rail Member

The Project Coordinator or the concerned EU-Rail Member will need to promptly inform the EU-Rail Programme Manager assigned to the Project or the EU-Rail Head of Programme should such cases arise.

A list of official EU-Rail positions, including possible names of official EU-Rail representatives in external working groups will be listed and made available in Annex D.

8 Risk Management [under revision in 2022]

8.1 Risk Policy

8.1.1 Introduction

The EU-Rail Joint Undertaking is responsible for the execution of the EU-Rail Master Plan leading to the modernisation of the European Rail system, and contributes to the completion of the Single European Rail Area (SERA); it is therefore essential to set up a risk management system to enable the Joint Undertaking to fulfil its mission in the most efficient way.

Risk is defined as: *“Any event that could occur and adversely impact the achievement of the EU-Rail Joint Undertaking strategic and operational objectives. Lost opportunities are also considered as a risk”*.

8.1.2 Policy Objectives

The EU-Rail JU adopts a Risk Management system aiming at optimising the ratio between the level of acceptable risk by the EU-Rail JU and the use of the relevant resources by anticipating and proactively identify, analyse, treat, control and monitor risks and opportunities. The objectives are:

- Enable informed decision making;
- Determine the acceptable level of risk;
- Prevent the occurrence and mitigate the impact of risks;
- Seize opportunities and enhance their benefits;
- Establish and implement internal control.

8.1.3 Risk Management Principles

The following principles are at the basis of risk management:

- Risk Management is a continuous process which develops at different level of responsibility to ensure that the EU-Rail JU’s activities execution and objectives delivery;
- Risk Management is linked to the EU-Rail JU strategy and the risk policy is part of it;
- Risk Management is a process that identifying potential events affecting the ability of the EU-Rail JU to reach its objectives, allows the management to take actions and define mitigating measures giving them reasonable assurance on the achievement of the objectives maintaining the residual risk at an acceptable level;
- Risk Management covers both risks (potential events that may affect the EU-Rail JU negatively) and opportunities (potential events that may affect the EU-Rail JU positively).

When an event actually occurs it is managed outside the scope of this policy.

8.1.4 Risk management Governance rules

An effective risk management ensures that risks are managed at the appropriate level of responsibility, therefore it foresees a layered approach based on criticality and scope of the risk to be treated.

The process to identify risks starts at any level within the system. Escalating or cascading process ensures that risk is managed at the appropriate level.

The creation of a risk register ensures awareness within the system. The risk management activities coordination falls within the responsibilities of the Head Administration and Finance.

8.1.5 Alignment with European Commission

The EU-Rail JU follows the principles of the recognised international standards and aligns to the requirements of the European Commission as indicated in the Communication SEC (2005) “towards an effective and coherent risk management in the Commission services”.

The policy and the implementation of the risk management system will be subject to internal auditing.

8.2 EU-Rail JU Risk Management Organisation and Process

8.2.1 Background

The complexity of the EU-Rail JU activity with the involvement of many stakeholders participating to the execution of the Flagship Projects organised on the Flagship Areas (FA) with many interconnections between the projects, calls for the adoption of a common framework to manage risks and opportunities at the different levels. This introduces common language, process, procedures and methodology, providing a benchmark against which the EU-Rail JU could assess the progress made. This, based on the risk policy, also ensures consistency of information and data related to risks and opportunities enabling a comprehensive risk analysis at the level of the Programme and of the Joint Undertaking.

8.2.2 Framework principles

The main principle for the EU-Rail JU Risk Management is the integration and management within one single framework of:

- The risks relating to the EU-Rail Programme at all levels (Programme Risk Management);
- All risks relating to the EU-Rail JU activities other than the Programme.

The framework is based on organisation principles, processes and tools.

8.2.3 Organisation

The overall coordination of the risk management activities remains within the responsibility of the Head of Corporate Services. He reports to the Executive Director who in turn reports to the JU Governing Board who is responsible to oversight the execution of the EU-Rail JU.

8.2.4 EU-Rail JU layered approach

This approach shall be applied to treat both for operational risks and other non-operational risks.

Operational risks:

Layer 1 Joint Undertaking organisation level

Here are managed risks which may impact the achievement of the strategic objectives. The scope encompasses all the Joint Undertaking activities including governance, funding and resources risks. The Executive Director is responsible to take action on these risks informing the Governing Board and where necessary the EU budgetary Authorities.

Layer 2 Programme Activities

Here are managed risks which because of their criticality may affect the effective execution of the Programme. Considering the interdependency among projects, focus should be put on those risks that may have an impact throughout the Programme. The responsibility of risk management is with the Head of Programme who with the support of the Programme Managers will identify and analyse risks and implement mitigating actions. The System and Innovation Programme Board is charge of identifying risks and opportunities and related mitigating actions. The Head of Programme and the SIPB will report to the Executive Director.

Layer 3 Project level

Here are managed risks related to meeting objectives and performances of individual projects. The Flagship Project Steering Committee is in charge of deciding on risk mitigation measures to be implemented by the project. The FP Project managers monitor and manage risks related to the project they are responsible for with the support of the FA Project Office. The risk management of projects is also part of the section 7 Quality management described above.

The following table shows how risk management is distributed in respect of operational risks:

Risk Layer	Risk Manager	Supporting Group	Frequency of review	Report
Layer 1	Executive Director	Management Team	Once a year in AWP and in AAR	Governing Board
Layer 2	Head of Research and Innovation			Executive Director

Layer 3 (for Flagship Projects)	FP Steering Committee			SIPB
	FP Project Managers			FP Steering Committee
	WP Project Managers			FP Project Managers

Table 2 - risk management distribution

Similarly for non-operational risks:

Layer 1 Joint Undertaking organisation level

As above

Layer 2 Administration and Finance section level

Here are managed risks relating to the support functions that may affect the efficient and effective execution of the Programme, and may jeopardise the legality and correctness of the activities performed by the Joint Undertaking. The responsibility to manage these risks is with the Head of Corporate Services. However, risks relating to the Human Resources and Communication are directly under the responsibility of the Executive Director.

Layer 3 Sector level

Staff of each sector is responsible to identify and manage risks which are related to their activities and which may jeopardise the achievement of the specific sector objectives set. They will escalate the risk at the level above as appropriate.

This approach implies that risk management albeit centrally coordinated by a specific function facilitating and fostering compliance with the EU-Rail JU risk policy and application of the common framework and its processes, is a business owned and driven process.

8.2.5 Internal Control

Internal Auditor plays an important role in evaluating the effectiveness of the EU-Rail JU risk management process, regular review should be part of the Internal Auditor annual work plan. It should be noted however that to preserve its organisational independence and objective judgement, Internal Auditor should not take any direct responsibility for making risk management decisions or taking risk management functions.

8.3 Risk Management Process

The process is built on different steps and is iterative, the picture below gives a clear idea of how it is organised.

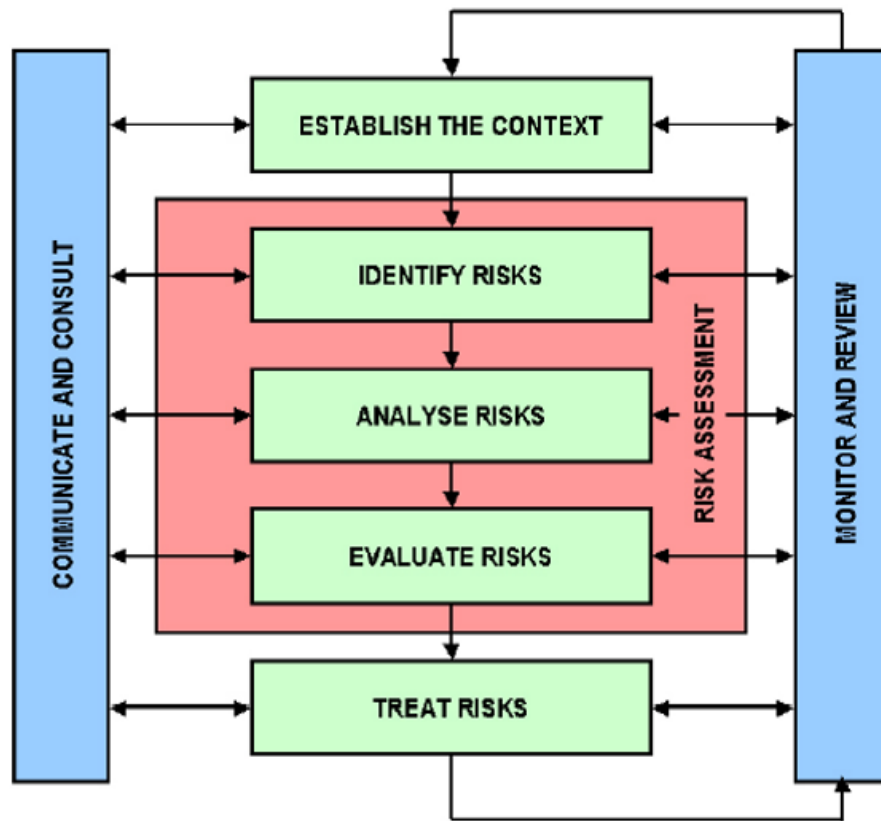


Figure 8 - Risk Management Process

8.3.1 Establish the context

A clear Risk policy communicates to the staff and stakeholders how the EU-Rail JU positions itself against risks defining what is the level of uncertainty is willing to accept (risk appetite) in respect to the achievement of its objectives and how it will manage it. The Executive Director approves the policy and set the tone, staff at the different levels implement the policy. The strategic objectives of the EU-Rail JU are set in the Regulation 642/2014 and are the reference to assess risks and opportunities. The strategic objectives are then broken down in specific objectives relating to the effective use of resources, reporting relating to the reliability of report giving a true and clear situation of the activities performed, and compliance objectives related to the respect of applicable laws and regulations.

8.3.2 Identify risks

Events are identified by management and staff considering a variety of internal or external factors which may give rise to risks and opportunities at different levels within the EU-Rail JU.

8.3.3 Analyse and evaluate risks

Managers and staff should assess the extent which a risk, or opportunity, have on the achievement of objectives. Risks are assessed from two perspectives, likelihood and impact both from a quantitative and qualitative potential impact. Risks are assessed on both an inherent and residual basis.

8.3.4 Treat risks

Having assessed relevant risks, management and staff determine how they will respond. Responses include risk avoidance, reduction, sharing and acceptance. Responses should be determined considering the effect on risk likelihood and impact as well as costs and benefits selecting a response that brings residual risks within the desired risk tolerance.

8.3.5 Monitor and review

Adherence to the risk policy and implementation of the response actions should be monitored at the different levels under the responsibility of the risk manager. Review of the process to identify new risks and verify that the criticality of those already identified remain within the limit of tolerance set.

8.3.6 Communicate and consult

Periodic reports should be produced at the different levels to reassure senior management on the implementation of risk management process and its effectiveness.

8.4 Methodology¹¹

The evaluation of a risk or an opportunity is influenced by the scenario in which the EU-Rail JU operates, this is the present environment or the future predicted one. The criticality of a risk is the result of the combination of the severity of the risk, and the probability that the risk actually occurs. The severity can be assessed as the impact of the risk occurrence on the activities of the EU-Rail JU. The severity of a risk can be assessed considering the impact on the EU-Rail JU activities and reputation. As an initial proposal the following impact can be considered:

- Cost;
- Delay;
- Performance;
- Reputation.

The severity can be evaluated on a scale from 1 to 4 as follows:

- Low;
- Medium;
- High;
- Very high.

As shown in the following tables:

Cost Impact Matrix		
#	Impact	Description
1	Very low	Incidental, maybe even avoidable impact resulting from non-optimal use of resources
2	Low	Minor impact resulting from non-optimal use of resources
3	Medium	Significant impact requiring a review of the underlying activity
4	High	Endangers the financial viability of the underlying activity with effects on other related activities (interdependencies)
5	Very High	Jeopardises the effective execution of the EU-Rail JU budget due to uncontrolled and excessive rise of costs

Table 3 - Cost Impact Matrix

Delay Impact Matrix		
#	Impact	Description
1	Very low	Delay conceivable but Programme planned execution not affected and delay may also be avoided
2	Low	Involves probable delay but does not affect the Programme planned execution
3	Medium	Requires a re-planning of the activity with minor impact on other related activities

¹¹ Methodology for operational risks: considering the similarity of risks identified at project level – Layer 3 (i.e. similar risks in different projects/grant agreements) - the Programme Managers will use the methodology developed in this chapter and escalate to the Programme Activities – Layer 2 – those risks identified as unique or as recurrent and that may have an impact throughout the Programme.

4	High	Determines non-compliance with set milestones with significant impact on interdependencies and causing substantial re-planning
5	Very High	Determines an unrecoverable delay affecting the whole execution of the Programme

Table 4 - Delay Impact Matrix

Performance Impact Matrix		
#	Impact	Description
1	Very low	Non-compliance so negligible that Program may not even be affected, but still conceivable
2	Low	Little non-compliance with the expected results requiring limited adjustments with no significant impact on the Program
3	Medium	Causes non-compliance which significantly affects the achievement of the objectives set
4	High	Determines important problem of non-compliance with very negative impact on interdependencies requiring a review of the objective set
5	Very High	Serious non-compliance that jeopardises the achievements of the Programme objectives

Table 5 - Performance Impact Matrix

Reputation Impact Matrix		
#	Impact	Description
1	Very low	EU-Rail JU reputation very unlikely to be damaged
2	Low	EU-Rail JU reputation damaged without affecting trust and involvement of stakeholders
3	Medium	EU-Rail JU reputation damaged and affecting trust and involvement of stakeholders requiring remedial actions through communications
4	High	EU-Rail JU reputation damaged in a way that specific and extensive communication and additional unplanned actions are needed to recover trust and involvement of stakeholders
5	Very High	EU-Rail JU reputation damaged in a way that trust and involvement of stakeholders is certainly lost and cannot be recovered.

Table 6 - Reputation Impact Matrix

Probability Matrix		
#	Impact	Description
1	Very low	Improbable – so unlikely that probability is close to zero
2	Low	One or no occurrence during the execution of the S2R JU Programme
3	Medium	Few occurrences may happen during the execution of the S2R JU Programme
4	High	Several occurrences may happen during the execution of the S2R JU Programme
5	Very High	Will almost certainly happen many occurrences expected during the execution of the EU-Rail JU Programme.

Table 7 - Probability Matrix

8.4.1 Gross criticality

Gross criticality is the combination of the probability and severity of the risk and is assessed before the any action is undertaken to reduce it.

It can be calculated using the matrix below:

Likelihood	Column1	Column2	Column3	Column4	Column5
	5	5	10	15	20
	4	4	8	12	16
	3	3	6	9	12
	2	2	4	6	8
	1	1	2	3	4
	1	2	3	4	5
Severity					

In order to assess the gross criticality it should be considered:

- Risk likelihood, which corresponds to the most probable scenario of the risk occurring;
- Risk severity, which corresponds to the most severe impact that could be assessed as resulting from the occurrence of the risk.

This is a conservative approach, which is sound with the activity performed by the S2R JU.

As shown in the above matrix, the criticality assessment results in four levels:

- Green – Very low / low criticality (from 1 to 6)
- Yellow – Medium criticality (from 8 to 12)
- Orange – High criticality (from 15 to 16)
- Red – Very high criticality (from 20 to 25)

8.4.2 Mitigating actions

Mitigating actions that should be taken at different level within the risk management system could aim at:

- Avoiding the risk as for example not performing a specific action;
- Transferring the risk as buying an insurance policy paying a premium;
- Mitigating the risk through actions reducing its severity or likelihood;

- Accepting the risk whereas the impact falls within the limit set as risk tolerance, or when mitigating actions are not possible.

A matrix could help measuring the mitigating action impact:

Mitigating action effectiveness Matrix		
#	Impact	Description
1	Very low	Negligible – almost no reduction at all
2	Low	Small reduction of severity/probability
3	Medium	Significant reduction of severity/probability
4	High	Important reduction of severity/probability
5	Very High	Risk criticality eliminated or reduced to non-significant level

Table 8 - Mitigating action effectiveness Matrix

8.4.3 Net Criticality

The effect of the implementation of the mitigating actions determines the residual risk.

Likelihood	Column1		Column2		Column3		Column4		Column5	
	5	5	10	15	20	25				
	4	4	8	12	16	20				
	3	3	6	9	12	15				
	2	2	4	6	8	10				
	1	1	2	3	4	5				
		1	2	3	4	5				
Severity										

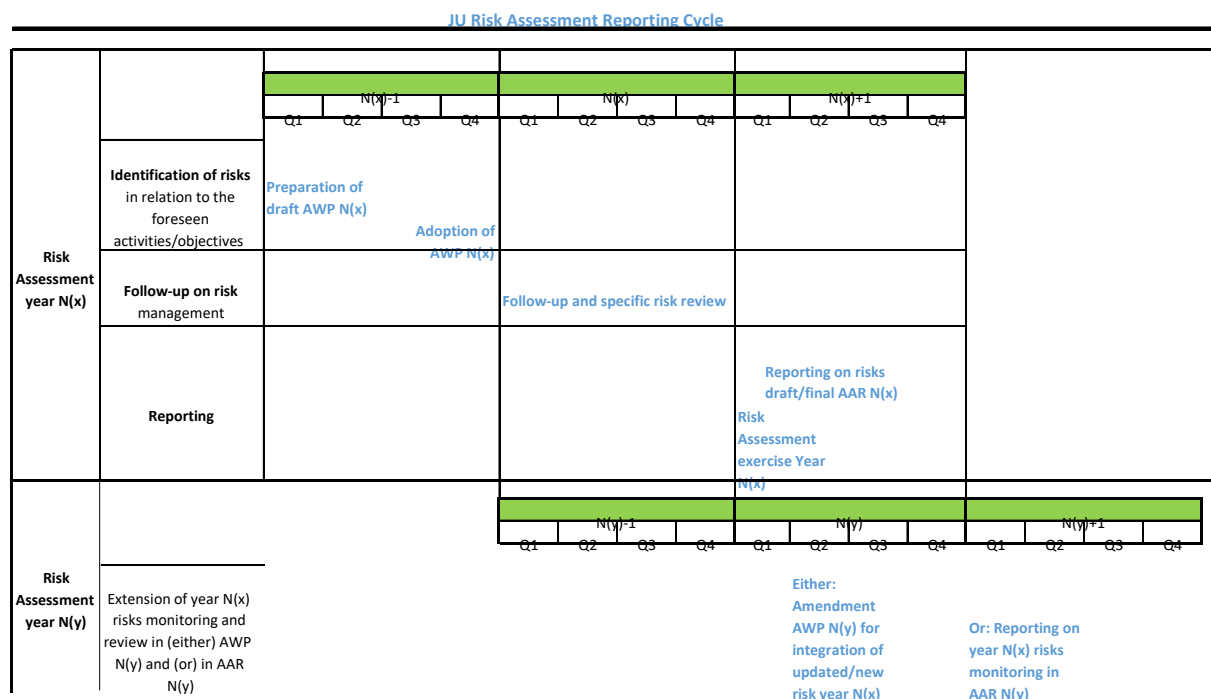
There are five levels of net criticality:

- Green – Low net criticality (1 to 3)
- Yellow – Medium net criticality (from 4 to 6)
- Orange – High net criticality (from 8 to 12)
- Red – Very High net criticality (from 15 to 16)
- Black – Unacceptable net criticality (from 20 to 25)

The net criticality indicates the residual risk the S2R JU has to manage and is an indication of the urgency and effectiveness of further actions as needed in order to secure the execution of the activities in line with the Programme.

8.5 Reporting cycle

Risk Management is part of the planning process insofar it identifies, analyses and treats risks which may jeopardise the achievement of the objectives set in the plan. Concerning the EU-Rail JU activity, risk management is encompassed in the Annual Work Plan process whereas risks and mitigating actions are identified and analysed. The actual results are then reported in the Annual Activity Report. These documents are drafted once a year providing stakeholders with an overall picture of the EU-Rail JU progress in the execution of the Programme.



9 Requirement management applicable to Flagship Projects

The requirements applicable to Flagship projects are requested in the call topic for Flagship Areas and set out in the Grant agreement of each flagship project. During the project execution, additional requirements should be collected and managed in a collaborative way, in particular when they are owned by external entities to the consortium (e.g. other flagship project, system Pillar, a regulation...).

During the execution of flagship projects, requirements should be capitalised. While high level requirements for solutions developed in projects will be openly published, some detailed requirements (e.g. industrial process) may need confidentiality.

The System pillar or other FAs may export requirements to a flagship project. After the grant agreement is signed, evolution of applicable requirements are handled in the flagship project change management process.

Report on requirements Status (allocation, change, validation, completeness, etc.) are monitored by the SIPB and FP steering committee as an important indicator on progress and quality.

10 Change Management

The objective of change management is to effectively control changes and emergency maintenance services throughout the execution phase of the projects or programme. This can be done by means of standards and procedures and by outlining the necessities towards the prioritisation and authorisation, impact assessment, tracking, reporting, closure and documentation of changes.

In the context of the EU-Rail JU Programme, changes on scope, schedule and budget are considered. For instance, specific changes to projects can be made, as well as more generic changes to the programme.

Change can be required for various reasons, but often act upon service requests, incidents or problems, for example, risk management, unavailability of resources, under- or overestimated workload, technical issues etc.

Possible changes shall be discussed at the lowest operational level and escalated at the correct decision making level, up to the Executive Director, in accordance with the approach defined in the SBA. The relevant FP Steering Committee may act as advisory board to the Programme Manager on the proposed change(s).

The following sections, visible in Figure 11, describe a standard procedure which can be applied. After identifying which elements are or need to be changed, it is key to analyse the situation with all relevant stakeholders and to define an appropriate approach. After implementation, the results are monitored via the quality management process.



Figure 10 - Change management process

10.1 Changes to projects

During the project implementation (Project Review, Maturity checkpoints for FP or in another period as necessary), or following the Change Management process for the SP/IP management, changes to the scope, timing, budget, etc. of the project may become necessary..

Proposed changes shall be brought to the attention of the Programme Manager who, with the assistance of the EU-Rail JU services, will recommend the necessary level of formalization, including a grant amendment as necessary.

If changes entail a change to the Grant Agreement, a formal amendment to the agreement is required. Project participants therefore need to define the nature of the change and on that basis assess what action is required. It should be noted that for Lump sums Pilot Grant Agreements specific rules apply to amendments,

Detailed guidance on the action required for different categories of changes is available in the following Horizon Europe information:

- [Amendments - Online Manual - Funding Tenders Opportunities \(europa.eu\)](#)

Project Coordinator is asked to follow the formal steps in the Horizon Europe's 'Funding & tender opportunities' website¹² and to use the amendment request template to explain the changes to the GA (cf. Annex A).

10.2 Changes to the Programme

Possible Changes which may have an impact at Programme level shall be brought to the attention of the SIPB by the EU-Rail Head of Programme. The FP Project Manager should also immediately warn the JU Programme Office in case of detection at Flagship project level. Where necessary, these changes will be formalized in amendments to the AWP to be proposed by the ED to the GB.

¹² [Search Funding & Tenders \(europa.eu\)](#)

11 Programme Management Tools

In addition to the IT Tools made available by the EC services for management of the HE projects, EU-Rail JU will set and provide a common monitoring and management tool for the implementation of both System and Innovation Pillars. This integrated tool jointly developed with other JUs will provide at least the following enablers:

- Documentation management platform for the storage, exchange and co-development of the project's documentation
- Integrated programme planning (Strategic level, Workplan level, Maturity check milestones, etc.)
- Supporting environment for Knowledge management (including reference document and template), Dissemination, Communication and Exploitations of results.

The developed tool will increase the efficiency of the JU (automation of tasks and processes with interfaces with the EU Grant Management environment) and harmonise practises across the different flagship areas by providing support to the Private Members in the management of the programme and preparation of the reporting.

-

12 Communication, Dissemination & Deployment

In order to ensure strong engagement from a wide range of stakeholders, communication must be truly integrated into the overall framework of the EU-Rail Programme and it is intrinsically related to the knowledge of the membership, the rail sector and its stakeholders.

A major point of attention in communication activities will be the need to ensure the involvement of stakeholders from the entire rail value chain, including actors from outside the traditional rail sector.

The current communication strategy will be update by 30 June 2022, once the objectives for the communication activities have been identified jointly with the JU's new Members.

EU-Rail communication activities aim to:

- **Continue to raise awareness about the JU** among key stakeholders across Europe from the rail sector and beyond, given the ambition of a better integration of rail with other transport modes for both passengers and freight managers, and the need to establish bridges with other thematic areas and sectors as identified in the EU Green Deal.
- **Support and promote the recognition of the JU's results at global level** to contribute to the competitiveness of the European railway industry.
- **Promote stakeholder engagement** along and across the value chain in order to facilitate cooperation and knowledge exchange. This objective will require the organisation of fora and conferences on specific topics stemming from the new key priority areas and adaptation of key messages to each stakeholder.

Both of the two aforementioned objectives will require close work with different stakeholders and their associations.

- **Promote the JU within the EU Institutional arena.** This objective consists of maintaining and further developing political support for EU-Rail from the EU institutions and EU Member States through the promotion of the JU, its objectives and achievements. Target audiences for this objective include the European Parliament and/or the Council (with particular attention to the rotating presidencies) and policymakers in EU Member States, the Committee of the Regions, the European Economic and Social Committee and other EU bodies, such as the European Union Agency for Railways (ERA), the European Environmental Agency (EEA) and other Joint Undertakings. This objective might require the organisation of events inside the European Parliament, participation in visibility events such as exhibitions, Open Days, and the production of publications and presentations of key achievements. It is essential to maintain efficient communication channels with DG MOVE and DG RTD and explore all possible collaboration with other DGs, EU Agencies and bodies (ERA, other JUs) where appropriate to further increase synergies between EU policy areas and rail transport. EU-Rail will also build synergies with other transport focused Joint Undertakings through joint initiatives to further reinforce the collaborative message.
- **Lead a coherent dissemination strategy** regarding projects' activities and achievements, notably via coordinating web, documents and event management of the projects, and their presence on the EU-Rail website as well as providing information to projects on Horizon Europe dissemination tools. This will include assisting the projects to disseminate their results through the JU's newsletter and social media channels, and providing guidelines to the projects on issuing coherent communication products and activities in line with the JU's corporate branding and messages.
- Pro-actively **publish communication material** with regard to external events and meetings related to the EU-Rail. A broad dissemination of factsheets, leaflets, reports and brochures will enhance the visibility of the JU towards other stakeholders, including the general public.
- **Establish and develop a network of press and media contacts** in order to achieve considerable visibility in both specialised and general media. This network could be useful to provide visibility to the publication of press releases and specific articles related to EU-Rail's activities.
- **Manage the EU-Rail website, newsletters and social media platforms** in order to stimulate the public interaction on key issues and improve public awareness on the JU's activities, and issue the corporate and visual identity of the new JU. To that effect, a bi-annual meeting will be set-up with the Communication officers of the Members to identify joint communication activities and channels, and in particular, this year, to elaborate the presence of the JU at major events such as Innotrans. Regarding branding, the new Members have been invited to contribute to the creation of a logo for the new JU, building on the existing branding but adding, through the visuals, the new objectives of the JU based on the three pillars identified in the Multi-Annual Work Programme.

Further to the above, EU-Rail will rely on key multipliers:

- JU Members, including JU project coordinators, corporate Communication managers and project participants, who will communicate the success of the JU to various audiences;
- ERRAC members, including policy makers and decision-makers;
- Members of the Scientific Committee (SC);
- Local stakeholders;

- Members of the States Representatives Group (SRG);
- Wider stakeholders reached through EU-Rail Information days and online channels Global stakeholders present at key events, within and outside the Union;
- European railway associations, including those in relation to passengers and staff;
- EU-Rail staff acting as ambassadors.

The implementation of the communication activities will continue to be supported through a framework contract established with a communication agency/ies as well as through inter-institutional framework contracts put in place by the European Commission. EU-Rail works in collaboration with other JU's to secure a joint framework contract for communication services.

Dissemination

The results of the ongoing activities and of projects/tenders will be disseminated by EU-Rail via its website (the platform for Railway R&I), press releases, newsletters, presentations at internal (EC, Governing Board, Scientific Committee, States Representatives Group) and external (conferences, Info days, etc.) stakeholder events, and through social media.

EU-Rail participates to the different working groups established by the European Commission on dissemination and exploitation activities, to ensure that R&I results are integrated with the overall work performed in the rest of Horizon Europe and, where appropriate, in the ERA activities. It is important to remind that access to information should be always driven by two principles: the need to be able to track and have access to all past information, while at the same time creating opportunities for further dissemination.

Exploitation

Although S2R Programme has already contributed to shortening of the innovation cycle in rail via an integrated research and innovation programme, EU-Rail is expected to accelerate further the introduction of innovative solutions. In order to deploy novel solutions, the sector needs to move towards new ways of working enabling the transformation of rail as one European integrated system.

Only via a coordinated and integrated deployment of system integrated solutions can rail reap the benefits of the investments made, accelerate its transformation and deliver new services to its clients.

There is a clear and shared sector vision that accelerating the deployment of future technological and operational solutions requires decisions that will shape also the execution of the future EU-Rail projects and a different approach: where the introduction of innovative solutions has a clear impact on rail in its systemic nature, deployment shall be coordinated and consistent to accelerate the return on investment and phase out legacy products. This new way of working shall be based on more flexibility and adaptability to user needs, creating solutions much more focused on prototyping and large scale demonstrations, and increased collaboration integrating new entrants, leading to a shorter innovation cycle and delivering impactful results.

Basic considerations regarding exploitation and deployment of results of R&I activities as per each Flagship Area and the Transversal Topic are included in EU-Rail's MAWP.

In terms of the market uptake of the future rail R&I solutions and their deployment, the SBA foresees an important role of the Deployment Group as an advisory body to the Governing Board.

13 Programme closure [to be revised on the basis of S2R experience]

The following chapter highlights the most important deadlines in order to close the Programme successfully. However, after Programme closure, a number of obligations may still remain.

13.1 Programme completion

Three dates are linked to the notion of Programme completion:

- Final date of eligibility of ‘calls for proposals’: this date is stated in the Programme Regulation as no later than 31 December 2027 under the Horizon Europe Research and Innovation Programme (In justified cases, calls for proposals may be launched until 31 December 2028 at the latest).
- Physical Programme completion date: this is when all outputs and deliverables in the project have been completed and all costs have been paid.
- Official Programme completion date: this is the date referred to in Article 1 of the Regulations where the EU-Rail JU shall be established until 31 December 2031.

The programme is completed when the final programme report (FPR) is approved and all outstanding financial obligations are settled. This final programme report will provide an overall assessment of the Programmes results and deliver a final balance. The FPR may not be drafted as long as bilateral activities, closing actions, outstanding issues, etc. are still being implemented.

13.2 Non-completed projects

At the time of the submission of the closing documents, Private Members have to ensure that all projects included in the programme closure are functioning, meaning completed, and in use.

The private Members may decide, exceptionally and on a case-by-case basis, provided that adequate justification exists, to include expenditure paid for a non-functioning project. In doing so it should take into account the reasons why a project is non-functioning and it should verify that the financial impact of the project justifies this special treatment.

By including a non-functioning project in the closing documents, the Member agrees to complete the project after the initial deadline, within a timeframe which is to be decided by the GB. The Project Coordinator should ensure funds are made available to complete the project in a timely manner. If

after this new deadline the project is still reported as incomplete, the Project Coordinator will reimburse the funds granted.

In the final programme report a list of all non-functioning projects will be included in order to be able to closely monitor these projects.

13.3 Final Closure

In order to fully close the Programme and submit the final programme report some administrative and operational tasks, i.e. financial obligations, reporting, communication, etc. need to be finalised first.

13.3.1 Financial obligations

A calculation of the final balance will be included in the FPR which implies that all administrative tasks must be completed beforehand. This means that all final payment claims must be filed, payments settled, funds reimbursed and management costs must be completed.

The Central Audit Service shall submit a final audit report and closure declaration to assess the validity of payments in the final balance.

13.3.2 Documenting and reporting

The ED must ensure that the completed Programme information is submitted. This information includes the summary of all project results (functioning and non-functioning), bilateral results as well as all financial information. The ED will ensure that:

- Information about the programme, the objectives, the implementation, results and the overall impact of the programme is made know to the citizens, beneficiaries and relevant stakeholders;
- Information on results and impact from the programme must be presented on the programme's website;
- The information and publicity measures are implemented in accordance with the Communication Plan;
- Project Coordinators have fulfilled their information and publicity obligations.

13.3.3 Final Programme Report

The EU-Rail JU has the overall responsibility for reaching the goals and objectives as stated in Article 2 of the Regulations. The final report will provide an overview of the financial statements and implementation arrangements. In particular the final report should include following information:

- the number and type of funds granted during the Programme;
- an overall assessment of fund performance in terms of its contribution to the achievements of the objectives of the programme;
- a summary description of the Programme, the different projects results, deliverables and objectives reached;

- follow-up on irregularities;
- best practices;
- list of non-functioning projects;
- closure declaration from Central Audit Service;
- the overall Programmes result and acceptance.

Work in Progress

Annex A: Templates

- Templates for the Private Members' annual IKA declaration
- [Meeting Minutes](#)
- [Deliverable templates](#)
- [Template for Technical Periodic Report \(Lump Sum\)](#)
- [Template for Amendment explanation](#)

Work in Progress

Annex B: Contact persons of EU-Rail

To contact us : <https://shift2rail.org/about-europes-rail/contact/>

Work in Progress

Annex C: ED Decision 2016/017, Guidance for members and their appointed auditors_20161118 final

https://shift2rail.org/wp-content/uploads/2017/11/Annex-F-ED-Decision-2016017-Guidance-for-members-and-their-appointed-auditors_20161118-final.pdf

Work in Progress

Annex D: list of official EU-Rail technical positions and names of official EU-Rail representatives in external working group

Annex E: List of projects with level of ERA desired involvement

Annex F: Recommendations for Flagship Projects

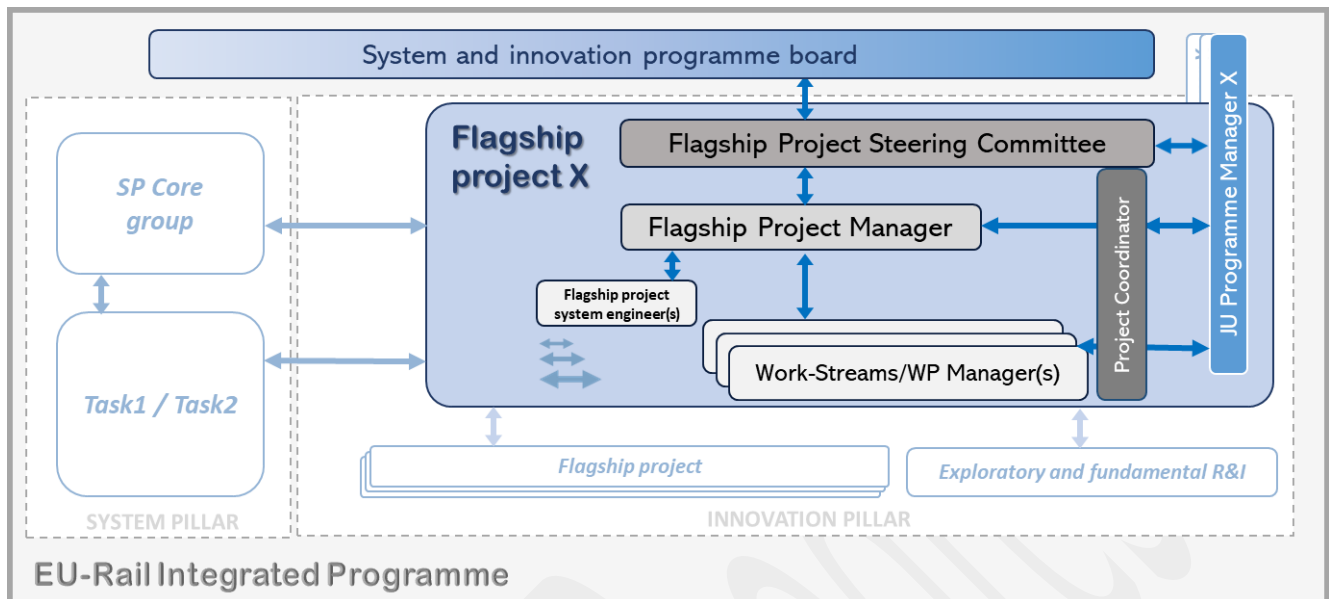


Figure xxx: recommendation of flagship project structure

Recommendation for Flagship Projects' governance

The Flagship Project (FP) Steering Committee is the decision making body of a Flagship Project. Where needed, it escalates any risks, issues and opportunities having a Programme impact to the System and Innovation Programme Board.

The FP Steering Committee consists of the FP beneficiaries; a JU representative is invited as observer.

The main responsibility of this committee is the overall direction of a given FP, including deciding on requests for change concerning content, planning or cost. They are in charge of review and challenge the overall progress of the project, specially its achievements and to monitor all project risks and mitigation measures. Part of their duties is to endorse the project results and, if necessary, to manage the project reprioritisation and critical success as directed by the SIPB.

This committee serves final decision authority in the escalation process of the flagship project before escalation an issue to the SIPB. Regarding their relation to the project manager, they provide guidance and can delegate certain tasks.

Recommendation for Flagship Projects' implementation roles and responsibilities

The FP Project Coordinator fulfils the following role as described in the Grant Agreement art. 7:

- monitor that the action is implemented properly
- act as the intermediary for all communications between the consortium and the granting authority, unless the Agreement or granting authority specifies otherwise, and in particular:
 - submit the prefinancing guarantees to the granting authority (if any)
 - request and review any documents or information required and verify their quality and completeness before passing them on to the granting authority
 - submit the deliverables and reports to the granting authority
 - inform the granting authority about the payments made to the other beneficiaries (report on the distribution of payments; if required)
- distribute the payments received from the granting authority to the other beneficiaries without unjustified delay.

This entails various tasks, such as monitoring the project schedule, creating templates, performing project reporting, financial reporting, organizing external meetings, performing risk management tasks, support project and WP participants in all questions regarding planning, reporting and project administrative management topic including amendments.

He/She provides and ensure usage of agreed project templates and tools to all WPs of the FA in line with EU-Rail Process and Governance Handbook.

The **FP System Engineers** have the technical skills necessary for the fields in which they operate and are in charge of providing support to the maintenance of the consistency between technical concepts and architecture within the FA and across the programme, notably interfacing with other FP system engineers.

They manage the assessment of system and architecture impact for all change request and requirements regarding content of all work streams / WP while ensuring system consistency of deliverables and providing content expertise to the FP PM and project partners. They provides the overall technical expertise to the project and ensure system consistency of deliverables and WP documentation. In addition they drive best design and engineering practice sharing between the WPs.

They safeguard the compatibility of different functional blocks between the WPs.

They take part in the collaboration with the System Pillar, they can be the FP single contact point for the System Pillar Core group. They share best practices, methods and tools among Flagship Projects and with the SP and ensuring alignment.

The **FP Work-Streams/Work Package Managers** main responsibility is to implement in concrete actions the defined targets according to the MAWP and the GA. They have the overall responsibility

of the work-stream/WP and are in charge of their coordination as well as the work package organization and the management of stakeholders.

Recommendation for Flagship Projects' planning

In order to facilitate common understanding between projects but also to optimise execution, minimum planning guidelines must be fulfilled:

- Flagship Project activities should target a given maturity (TRL) for a solution/R&I challenge
- Before delivering a solution to a given maturity, checkpoints should be organised with external entities having an interest in the project (e.g. other flagship project, SP, ERA...)
- Checkpoints should allow for alignment, typically on requirements, architecture, achievable performance and for ending project activities.

The following graphic presents a simplified approach for the iterative refinement of the TRL/milestone planning along the EU-Rail programme execution.

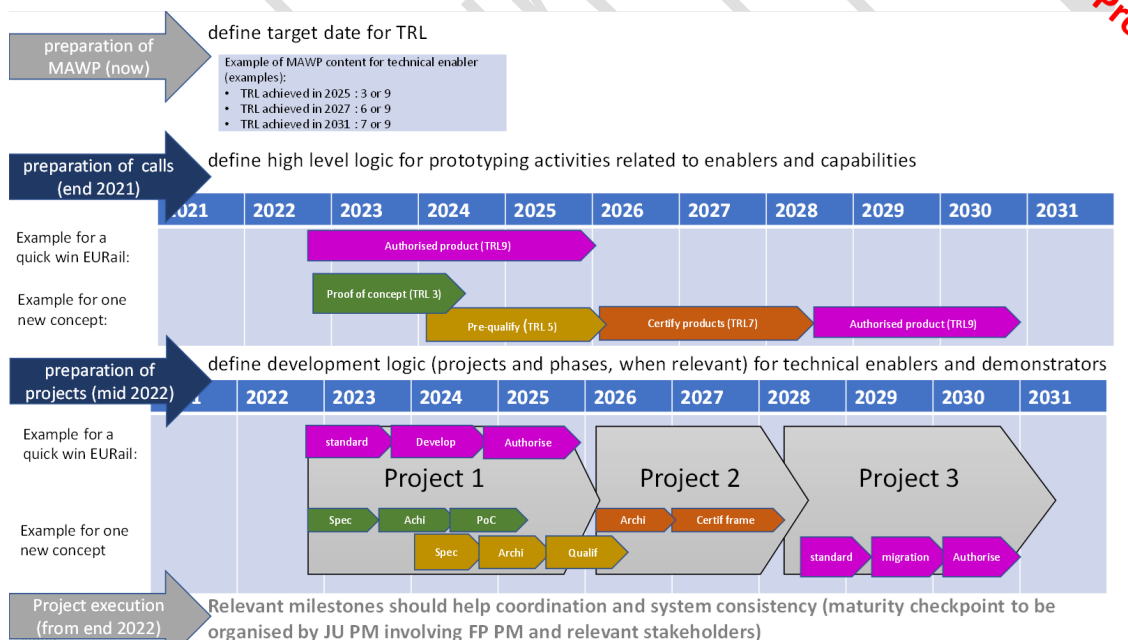


Figure 11 - Overview of the project planning

In addition, detailed planning should be adapted by each granted project for its specific need.

Minimum planning requirements for Flagship projects

When an innovative solution start from concept stage, the Flagship project activities should be structured into 4 phases aligning with the Technology Readiness Levels as follows:

- TRL 1-3 Basic Research
- TRL 3-5 Development
- TRL 6-7 Demonstration
- TRL 8-9 Early Deployment

Note : a R&I challenge may not need to follow all these phases, one after the other (e.g. when an activity build on Shift2Rail results, Flagship project may look at early deployment already in 2025) and agile approaches should be implemented wherever possible.

Each phases should contain 3 generic intermediate milestones that can be scaled to the technology level readiness as shown below:

- System Requirements Specifications, linked to Customer, regulatory requirements, standards
- Solution, linked to System Architecture / System Interfaces Description
- Prototype / Demonstrator, linked to performance prequalification tests and authorisation

Technology Readiness Level	Specification	Solution	Prototype /Demonstration
TRL 1-3 Basic research	Preliminary requirements	Preliminary architecture	Proof of concept
TRL 3-5 Development	Detailed requirements	Detailed architecture	Qualified performance
TRL 6-7 Demonstration	Final requirements	Final architecture	Certification framework
TRL 8-9 Early Deployment	Standard requirement	Migration into existing systems	Authorisation

Table 9 - Generic milestones to guide and support JU Programme

Maturity checkpoints (see chapter 7.4) will be organised by the JU Programme Manager, involving the FP PM and relevant stakeholders. The checkpoint process (i.e. what gate, what scope, when, who evaluate) will be defined and agreed during the grant preparation phase, then refined and steered by both the FP Steering Committee and System and Innovation Programme Board. This latter will be responsible of evaluating the results of such check points and provide recommendation. The Steering Committee will ensure the implementation of the relevant remedial measure in the respective FP, with the support of System and innovation programme board and under supervision of the Governing board.

The JU Programme Manager should invite any relevant stakeholder participating to the checkpoint assessment at least 20 working days before the checkpoint, release all material 10 days before the review.

Guidance on how to use key milestones as Flagship project checkpoints to anticipate maturity and measure quality

The following section present generic planning principles that can be implemented in a flexible way as long as the interaction of projects is efficient and quality can be controlled along execution.

General principles :

- Whatever the maturity level targeted for a solution in a flagship project, some key milestones are needed. Key intermediate milestones between start and end of projects are about specification/requirements, design/architecture, qualification/performance
- When a development follows a stepwise approach, from low to high TRL, a given milestone (e.g. specification or result from testing) may be scheduled several time along flagship project(s) execution (e.g. result from prototypes at TRL3, 6 and 8).

Checks to be done at specification stage:

- **For a low TRL solution, requirements can be preliminary, for TRL8/9 solutions, the requirements should be standardized**
- Within the project, there must be clarity on applicable requirements, external interfaces and detailed development planning. KPIs should be selected.
- Entities having an interest in the project must have common understanding on involved interfaces and synchronization needs.
- At specification stage, as far as possible, regulatory and standardization open issues must be identified and mitigated.

Check to be done at design/architecture (solution) stage :

- **For a low TRL solution up to TRL3, architecture can be preliminary, for TRL 4 to 7, architecture should be detailed and justified. For TRL8/9 solutions, the architecture should be the new standard for industrial purpose (i.e. migration into existing systems)**
- Within the project, design is justified and there is clarity on technological needs. Architecture can be frozen and is traced towards applicable requirements. Detailed targets are defined for KPIs.
- Entities having an interest in the project must have common understanding on interfaces that will be demonstrated and on verification and validation approach.
- At design stage, as far as possible, applicable regulatory and standardization frame is known.

Check to be done at qualification (prototype/demonstration) stage :

- **For a low TRL solution up to TRL3, proof of concept can be limited in scope and representativeness. For TRL 4 to 7, solution need to be qualified : the higher will be the TRL, the more complete should be qualification (e.g. moving from lab test to full**

scale experimentations). For TRL8/9 solutions, all performances targets, record and templates to get a (when relevant safety related) certificate should be clear.

- Within the project, performances for a given technical solution is defined (KPIs are measured). A dissemination plan is defined for the results of the project.
- Entities having an interest in the project must have common understanding on interfaces standardization needs (e.g. what flexibility) that will be demonstrated and on verification and validation approach.
- At qualification stage, as far as possible, solutions are ready to be deployed.

Check to be done before ending project activity:

- **For a low TRL solution up to TRL3, ensure that concept is defined and supported by investors. For TRL 4 to 7, solution meet expectation in term of performance and migration. For TRL8/9 solutions, the solution is ready for use, there is, when relevant, a community and process identified to manage continuous improvement loop.**
- Within the project, all applicable information is finalized, including identification of further R&I required. A sustainable organization for further feedback and exchange of experience is identified as part of reference information, when relevant.
- Entities having an interest in the project must have access to relevant knowledge gained (new documents, good practice...).

The following overview tables summarize the main targets for different involved entities for organizing checkpoints.

4 generic milestones

		Specification	Solution	Prototype	End demo
General maturity target		Requirements captured	Design justified	Performance identified	The solution ready for use
Within FA subproject		Detailed planning	Architecture frozen	Concept tested	Communication & Feedback loop
Outside subproject	In the FA	Contribution to KPI allocated	Detailed KPIs targets	KPI measured	Deployment scenario
	Within the innovation programme (across FA's)	Synchronisation planned	Requirements traced	Interfaces defined	Standard interface
	With SP	Interfaces identified	CDM agreed	Standardisation needs defined	Standardisation roadmap
	With ERA	Regulatory Open issues traced	Regulatory needs	Certification frame known	TSI revision plan
	With SC	Consistent with State of the art (academic, industry, on EU and global level)			
	With Deployment group	Consistent with migration needs			

JU Programme manager organise checkpoints in order for the SteCo to validate maturity of deliverables

Table 10 - Main targets for different involved entities for organizing checkpoints

The Key Milestones of the FP should be proposed (scope and date) by the FP Project Manager, assessed by the JU (Senior) Programme Manager and validated by the Flagship Steering committee.

Work in Progress