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Quality Assurance in European Projects: Analysis, Challenges, and Best Practices[5]

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Abstract
Quality Assurance (QA) is an essential component for the success and effectiveness of European projects, which are characterized by intrinsic complexity, multinational collaborations, and the management of structural funds. This article explores the role of QA, outlining its theoretical framework, analyzing specific challenges, and presenting best practices adopted to mitigate them. Through the examination of case studies, the adaptability and relevance of QA in various sectors funded by the European Union are highlighted, integrating a critical reflection on the current debate regarding the upcoming Framework Programme 10 (Horizon Europe 2028–2034) and the positions of the European University Association. The article concludes with a discussion of future prospects and emerging areas of research, emphasizing how QA can act not only as a management tool but also as a systemic guarantee of autonomy, transparency, and scientific excellence.

Keywords: Quality Assurance; European projects; Project management; European funds; International collaboration; FP10; Best practices.

1. Introduction

The management of international projects presents a significant challenge and opportunities that require meticulous attention to quality assurance practices. The ability to deliver projects that meet or exceed stakeholder expectations across diverse cultural, regulatory, and operational landscapes underscores the necessity for robust quality assurance frameworks. Quality Assurance in European projects is a fundamental element of project management: it ensures that requirements and objectives are met at every stage of the project life cycle, according to a principle already recognized as effective for large-scale initiatives (Churchill, 1988). In this context, quality is intrinsically linked to the project's ability to meet the specifications defined during the preparation and implementation phases (Kozień, 2018). The importance of QA is further accentuated by the complex nature of European

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projects, which are often characterized by complex funding mechanisms—such as the European Union's structural funds—and the need to adhere to strict eligibility criteria for the efficient absorption of resources (Szczepaniak, 2020). In general, QA is recognized as an effective strategy for managing large-scale projects: it aims to ensure fitness-for-purpose and minimize the economic and other impacts of potential failures, thereby strengthening stakeholder confidence (Churchill, 1988; Reaiche et al., 2022). The QA is strongly interconnected with key themes, such as the importance of communication strategies, risk management, and the need for adaptive quality measures that resonate with local and international standards Moreover, the literature consistently emphasizes the multifaceted nature of quality assurance, outlining how cultural dimensions and geographic variances impact project Another point to de discussed is the critical role of knowledge transfer across borders, as well as the challenges posed by differing quality expectations between partners from developed and developing countries

In recent years, the debate has been enriched by new dimensions: the European Commission's proposal for the next Framework Programme 10 (Horizon Europe 2028–2034) introduces challenges and opportunities that directly affect the design and application of QA. Discussions on FP10, which began in 2023, have highlighted the need for long-term academic commitment to policymaking, given the impact of Framework Programs at the national level (Jolivet, 2024). Two key issues concern the total budget and its allocation among funding instruments, decisions that fall to national finance ministers (Jolivet, 2024). According to the European University Association's analysis, the risk of confusion between Horizon Europe and the new European Competitiveness Fund threatens the program's autonomy and integrity, raising crucial questions about governance, transparency, and quality assurance at the systemic level (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). This context highlights how the European Commission is evolving from a mere funding agency to a key policy maker in the field of research (Wilsdon & Rijcke, 2019).

2. Theoretical framework

The theoretical framework of QA in European projects is based on established models and methodologies that guide its implementation and evaluation. A general approach takes the form of quality improvement plans that emphasize the dynamic and iterative nature of QA throughout the entire life cycle, requiring adherence to formal, content-related, and technical criteria in project management (Kozień, 2018). Quality is influenced by multiple factors—political, economic, institutional, technical, social, and cultural—and by the management methodology adopted, which includes management of scope, integration, time, costs, quality, human resources, communication, risk, procurement, stakeholder involvement, and knowledge. Governance regimes and frameworks are crucial for safeguarding the quality of decision-making and ensuring project success. These regimes, defined as the processes and systems employed to ensure the quality of decision-making,

adhere to good governance principles such as accountability, transparency, and effectiveness (Olsson et al., 2019). Fair governance, specifically, seeks to balance stakeholders' interests by fostering transparency, providing opportunities for voice, ensuring fairness in processes, and offering avenues for recourse against unfavourable decisions (Unterhitzenberger & Moeller, 2021). Integrated approaches, such as the EFQM model, allow for holistic assessments (Laurett & Mendes, 2019; Santos & Abreu, 2019; Díez et al., 2020). The EFQM model has been widely applied in various contexts, including higher education and the construction industry, demonstrating its utility as a performance management tool (Vukomanović et al., 2014; Laurett & Mendes, 2019).

From a current perspective, QA must also include the dimension of programmatic governance. The EUA analysis emphasizes the need to preserve the independence of the European Research Council and the bottom-up nature of the Marie Skłodowska-Curie Actions, which are essential tools for ensuring excellence and transparency (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). The ERC was designed to overcome national limitations and the excessive application-oriented focus of the Framework Programs as an independent funding agency, distinguishing itself by funding individuals and for non-predefined research areas (Gronbaek, 2003; Fishberg, 2022) Experience confirms that safeguarding the independence of the ERC and maintaining its bottom-up character are of fundamental importance, just as the bottom-up nature of the MSCA is a distinctive feature and a pillar of their success (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). The introduction of thematic directionality in the MSCA or interference in the governance of the ERC would risk weakening QA mechanisms at the system level, reducing the freedom of beneficiaries to define their research questions (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025) In parallel, initiatives such as the charter of principles promoted by EU-LIFE aim to protect the independence of research institutions and disseminate best practices. In the R&I domain, sectoral examples include a framework for software quality in GÉANT projects based on Boehm and McCall's models, integrating the funder's perspective (Wolski et al., 2017). These models have been central to the evolutionary analysis of software quality, from McCall's model to the ISO 25010 standard (Gordieiev et al., 2014). There are also tools for assessing the quality of qualitative research in complex projects, which address the challenges of establishing common quality criteria and ensuring rigor in exploratory, in-depth studies (Akkerman et al., 2006; Høyland et al., 2017; Stenfors et al., 2020; Yadav, 2021). In higher education, 'quality audit' policies have stimulated the development of internal QA systems; the Standards and Guidelines for Quality Assurance in the European Higher Education Area serve as a shared reference (OECD, 2008; Prisăcariu, 2015). EFQM approaches have also been applied to e-learning contexts, contributing to the measurement of e-learning course quality and related processes (Komsiyah, 2023; Imran & Almusharraf, 2024).

3. Key milestones and regulations influencing Quality Assurance

In project management, particularly when navigating the structured environment of the European Union, a clear and explicit definition of Quality Assurance (QA) is pretty important. Delineating the specific parameters of QA allows organizations to encourage an iterative and consistent process. This is good because it ensures adherence to regulatory standards, and it helps to enhance overall project efficacy. A good QA process not only mitigates risks linked to project deliverables, but it also fosters stakeholder confidence. It does so by establishing some transparent evaluation criteria. Subsequently, a well-defined QA framework is a pivotal foundation. It's used for continuous improvement and accountability during the project lifecycle, aligning with best practices in governance and operational integrity. Moreover, it is essential to really engage in thorough evaluation and data analysis, this helps make QA directly contribute to the realization of project objectives and the delivery of high-quality outcomes.

Historical context and socio-political dynamics have deeply influenced how quality assurance has evolved in the European Union (EU). Analysing the evolution of European projects, it is possible to state that the quality assurance (QA) standards have undergone significant changes, demonstrating their ability to keep pace with today's social and environmental needs. At first, QA was mostly about following rules and being efficient with public money. But now, these frameworks are putting more focus on sustainability, which shows a bigger move towards being environmentally conscious. Because of this, we need to look at QA from many angles, bringing together quality and sustainable performance in project management. For example, there are now models that incorporate structural, process, and product aspects to provide a comprehensive view of quality, encompassing social responsibility and environmental impacts, which aligns with the EU's objectives.

In European Union projects, the progression of quality assurance has been notably influenced by key regulatory frameworks and important milestones that have developed through the years. For example, the introduction of the Human Readiness Level (HRL) framework highlights the need to integrate human factors with advances in technology. This ensures a well-rounded approach to project management, in addition to reducing hidden risks associated with human-system interactions (Newton et al., 2017). At the same time, an examination of quality management risks in environmentally connected projects has pinpointed vital elements that impact quality assurance, emphasizing the importance of thorough organizational management alongside appropriate regulatory actions (Huang, 2024). Together, these advancements demonstrate a concerted effort to enhance quality assurance protocols, primarily aimed at improving safety, efficiency, and user acceptance across EU projects. Following these regulatory milestones not only aids technological innovation but also helps build a strong, responsible framework for quality assurance across diverse fields.

To effectively manage EU projects, especially as regulations shift, a solid grasp of quality assurance (QA) elements is really important. A core aspect involves setting up strong standards for gathering, handling, and reporting data. This makes sure that project results are tracked and judged accurately. Also, sticking to ethical guidelines, like those in the User's Guide to registries, is vital for keeping data trustworthy and protecting the rights of those involved. Another key thing is putting in place strict quality control steps that help regularly assess and improve how the project works. This constant back-and-forth between keeping a close eye on things and involving stakeholders is a must for promoting openness and responsibility in how the project is run. Generally speaking, when quality assurance becomes part of how the organization works, it helps the project last and be effective. This aligns with both the project's goals and what the EU expects from projects in general.

Key Components of a Quality Assurance Strategy:

- Project Implementation Monitoring - Regular tracking of project activities is essential for ensuring alignment with established timelines, budgetary constraints, and the original objectives of the project. Additionally, progress reports serve a critical function by delivering regular updates from partners on a predefined schedule—be it monthly or quarterly—highlighting key project milestones, resources expended, and any challenges encountered throughout the implementation process, thereby ensuring transparency and accountability.
- Monitoring and Assessment of Project Activities - regular feedback mechanisms can significantly enhance the quality of project execution. Tere are different approaches that can facilitate the process of assessment of project activities one of them can be the Focus Groups. The use of Focus groups facilitates regular discussions with partners and stakeholders to assess the relevance and quality of ongoing activities—a method recognized for its ability to foster deeper insights and engagement (Brits & du Plessis, 2007). Evaluation of Meetings: Implement structured evaluations of events, webinars, and workshops, among other activities, to ascertain that they effectively meet the predefined learning objectives, as highlighted in effective project management frameworks (Lu C, 2024). Such evaluations not only provide immediate feedback but also contribute to long-term improvements in project delivery, aligning with best practices in the field (Famularo J, 2023).
- Assessment of Project Deliverables-To evaluate the quality of project outputs (such as reports, publications, and resources), it is essential to employ a systematic assessment approach that ensures each deliverable is thoroughly examined. There are different tools that can be used for facilitating the assessment process Peer Review: A peer review process is implemented where each deliverable (such as reports, policy papers, and guidelines) is critically reviewed by other project partners or external experts, thereby enhancing the credibility of the assessments through diverse perspectives and expertise (Lu C, 2024). Utilize comprehensive checklists to guarantee that deliverables meet

established standards, which include clarity, relevance, and accuracy, providing a structured means of evaluation to uphold quality. This multi-faceted approach allows for the integration of feedback and improves the overall impact of the project's outputs by ensuring they are not only assessed rigorously but also refined through collaborative input (Jaber et al, 2018).

- Self-Assessment Forms: Allow partners to self-assess their contributions to deliverables based on predefined criteria, promoting accountability and reflective practice within the evaluation framework (Lu C, 2024). Templates with predefined quality criteria (such as timeliness, content, design, and dissemination) provide a structured approach to assess the final product's adherence to established standards of excellence, thereby enhancing the reliability of the evaluation process. Conduct interviews with key stakeholders, participants, and beneficiaries to assess the qualitative impact of the project, ensuring that both quantitative and qualitative data are utilized to provide a well-rounded evaluation of outcomes
- Feedback Loops and Continuous Improvement - integrate feedback from all stakeholders and ensure continuous improvement during the project. Regular meetings with stakeholders to collect feedback and discuss challenges, as well as opportunities for improvement, serve as critical platforms for dialogue and collaboration, reflecting the importance of stakeholder engagement in quality assurance practices (Parekh K et al., 2025). Utilizing tools like Slack or Microsoft Teams facilitates ongoing communication between partners, fostering an environment that promotes continuous improvement — essential for innovation and adaptability in project management (Parekh et al., 2025). Corrective Action Plans: When problems are identified, it is essential to develop corrective measures and action plans to systematically address these issues, thereby enhancing overall project quality and stakeholder satisfaction. Organizing reflective sessions to discuss the progress, pinpoint challenges, and explore potential improvements in project implementation is vital for maintaining a cycle of feedback that informs future project decisions, thereby solidifying the foundation of continuous enhancement and effective quality assurance.
- Reporting design - in Quality Assurance (QA), documentation and reporting play a truly pivotal role, especially in EU projects. In these projects, adhering to established standards is crucial to ensuring everything works well and aligns with our objectives. It's how we formally keep track of project plans, evaluations, and results. It helps create a QA process that's open, accountable, and involves everyone who needs to be. Good reporting helps us spot problems that arise during implementation, allowing us to make constant improvements because it provides important feedback to everyone involved. Comprehensive documentation and accurate reporting are essential in avoiding issues with determining costs and ensuring that things are strategically aligned. It strongly emphasizes the importance of solid documentation in colleges and universities,

highlighting the crucial role it plays in enhancing quality and efficiency when implementing programs (Becker, 2017). Once reporting is complete, it is important to refer to the Key Performance Indicators (KPIs): Metrics used to assess whether the project achieved its goals are crucial for measuring success and ensuring alignment with the intended objectives. This includes the number of participants reached, publications disseminated, or partnerships established, which collectively form a comprehensive view of the project's impact (Domínguez et al., 2019; Grigore & Ionescu, 2019).

For European Union (EU) projects, quality assurance (QA) is crucial, ensuring that everything proceeds according to plan, resources are utilized effectively, and all parties involved are satisfied. A systematic process for tracking and managing project activities for QA enhances transparency and accountability, while also facilitating improvement over time through feedback loops.

4. Challenges in Quality Assurance for European projects

The implementation of Quality Assurance in European projects is inherently complex due to their transnational and multidisciplinary nature. Multinational collaborations often involve diverse linguistic, cognitive, and organizational backgrounds, which can lead to conflicts and negatively impact the quality of outputs (Fishberg, 2022; Helm et al., 2023; Pößneck et al., 2024; Sørensen et al., 2021). Cultural differences, for instance, can affect project quality and collaboration, underscoring the need for awareness and knowledge to prevent and mitigate problems (El-Komboz & Goldbeck, 2024; Siakas et al., 2024).

This complexity is further compounded by external pressures such as contractual compliance and stringent fund management. The risk of cost ineligibility in EU-funded projects is significant, often leading to a focus on mere adherence to contractual obligations rather than broader quality considerations (Szczepaniak, 2020; Fishberg, 2022). This necessitates effective cost planning and management within the framework of project funding (Szczepaniak, 2021). Project governance frameworks are crucial for navigating these complexities, influencing decision-making, and are associated with improved project performance (Turner, 2020; Roehrich et al., 2023).

Methodologically, challenges arise from sample heterogeneity and non-harmonized protocols, which compromise data quality and interoperability. This requires rigorous corrections for batch effects and a greater degree of regulatory consistency (Yu et al., 2023, 2024). The absence of common standards or reference values for complex data, especially in multi-omics research, can reduce the reliability of analytical results and hinder reproducibility (Tarazona et al., 2020; Oldoni et al., 2022). Data harmonization efforts are vital for integrating diverse datasets and ensuring their quality and usability across different research environments (Muenzen et al., 2022; Cheng et al., 2024). Despite mandatory risk management practices, they do not always meet adequate standards, leading to repercussions on project execution (Alsaadi & Norhayatizakuan, 2021; Rodríguez-Rivero et al., 2020;

Taherdoost, 2024). The inherent uncertainty and complexity of academic research projects mean that top risks often relate to funding, team instability, and data access, requiring system-level responses beyond individual teams (Paprica, 2021). Furthermore, many universities struggle with limited administrative capacity in managing complex projects, often due to a lack of staff and adequate tools, which can impede effective quality assurance processes (Sprague Martínez et al., 2023; Woelert, 2023).

Further critical issues emerge in the scenario outlined by FP10 (the next Framework Programme). The relationship between Horizon Europe and the European Competitiveness Fund presents ambiguities that may lead to friction, delays, legal uncertainties, and risks to the program's autonomy and integrity (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). Unclear boundaries and governance arrangements threaten to dilute Horizon Europe's research-driven mission and potentially divert it towards industrial or short-term political objectives (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). The inclusion of dual-use research, resulting from the removal of the civil clause in FP10, broadens the scope but raises complex ethical issues, potential limitations to international cooperation, and the need for new transparency and traceability mechanisms, strengthening the ethical-governmental dimension of QA (Yoshizawa et al., 2023; Badea & Feeney, 2024; Hähnel, 2024; Flores-Coronado et al., 2025). This shift necessitates a clear distinction between civilian, dual, and military uses of research, explicitly flagged in calls (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). Finally, adopting lump-sum funding as the default setting, while simplifying reporting, is a concern as it may reduce the flexibility and adaptability required in complex, long-term, and high-risk research initiatives, potentially impacting process quality and scientific creativity (O'Kane et al., 2022; Jacob & Hellström, 2023; Li et al., 2024). This model may be more suited to short-term, task-specific projects, but creates challenges for diverse research activities and institutional contexts (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025).

5. Best practices and solutions

The most effective responses identified in the literature and in practice converge on a coherent set of actions. First, risk management must be proactive, based on early warning mechanisms and prevention procedures that reduce the likelihood and impact of adverse events (Jędrusik, 2024; Taherdoost, 2024). This proactive approach is essential given the inherent uncertainty and complexity of academic research projects, where top risks often relate to funding and team instability (Paprica, 2021).

Secondly, Quality Assurance should be conceived as a pervasive function throughout the entire project life cycle, favouring prevention over correction and strengthening quality planning from the early stages (Ouabira & Fakhravar, 2021;

Gade & Opoku, 2020; Reaiche et al., 2022). This continuous QA process helps in reducing errors and challenges during project development (Fakhravar & Ouabira, 2021). It's more cost-effective to prevent errors than to correct them, making quality planning a critical priority (Reaiche et al., 2022). Monitoring of funded applications also requires flexibility due to the unpredictable nature of research avenues (Sørensen et al., 2021).

A third element concerns communication and stakeholder involvement: planning, systematic feedback, and transparency constitute an indispensable relational infrastructure (Hollmann et al., 2022; Pellegrini & Lovati, 2025). This is also in line with the consultation requirements accompanying the setting of Pillar II in the FP10 debate (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025). Effective stakeholder engagement is fundamental for project success and achieving expected impact, often being a mandatory aspect in funding contexts (Bruzzone & Nocera, 2020; Hollmann et al., 2022). Challenges in communication and collaboration, especially in multicultural settings, emphasize the need for clear management plans and robust institutional support (Sørensen et al., 2021).

Alongside this, the adoption of contextualized quality models allows standards to be calibrated to specific operational requirements (Santokhee et al., 2024; Serra et al., 2024). The relevance of these models lies in their ability to adapt established metrics to diverse contexts, ensuring that quality assessment is fit for purpose rather than universally applied (Garousi et al., 2020; Leszczyna, 2021). Quality models for machine learning systems, for instance, reinterpret existing qualities and add new ones due to the unique nature of machine learning (Siebert et al., 2021).

The development of skills is also crucial, in particular the role of the project manager as a flow-keeper capable of orchestrating processes in multicultural contexts (Münch, 2020; Anglani et al., 2023). Project managers in international and multicultural teams require digital skills, open-mindedness, cultural awareness, interculturalism, and emotional intelligence to manage diverse teams and resolve cross-cultural conflicts effectively (Anglani et al., 2023; Bartel-Radic & Münch, 2023). Proper training and institutional backing for project managers are vital for addressing collaboration issues within funded projects (Sørensen et al., 2021).

Finally, the protection of bottom-up mechanisms (ERC, MSCA, EIC Pathfinder/Transition) acts as a guarantee of systemic quality and independence, preserving spaces for high-risk, high-potential exploration (Aagaard et al., 2021; Fishberg, 2022). These schemes are crucial for advancing frontier science, nurturing talent, and fostering high-risk, high-reward innovation, contributing to the overall quality and autonomy of research (Nagar et al., 2024; Gigerenzer et al., 2025). Efforts to ensure continuous support for these components are essential for long-term competitiveness and breakthrough innovation (Horizon Europe 2028-2034 EUA Analysis of the European Commission's Proposal, 2025).

All this must be embedded in cycles of continuous improvement, in which moments of review feed organizational learning and progressive raising of standards (Cheng

et al., 2023; Samuel & Farrer, 2025). The Plan-Do-Check-Act cycle is a recognized framework for continuous improvement, particularly in education and organizational learning contexts, enabling systematic data collection, analysis, and enhancement of processes (Samuel & Farrer, 2025). Continuous improvement represents a comprehensive process involving all organizational levels to drive improvements (Sesar & Hunjet, 2021).

6. Case studies

Evidence from various sectors confirms the pervasive role of QA. In higher education, the introduction and consolidation of internal quality assurance systems in response to audit policies has led universities towards more mature self-assessment practices and progressive alignment with the ESG. In multi-country research, the RN4CAST project shows how procedural consensus, linguistic and organizational harmonization, and shared procedures constitute effective QA safeguards, with positive repercussions on data comparability and process fairness. In the field of software for R&I, the GÉANT case highlights the usefulness of a quality framework that combines established models and the funder's perspective, resulting in assessments that are more in line with the project's mission. For collaborative RTD research, the adoption of simple but rigorous risk management methodologies has mitigated socio-cultural differences and intellectual property disputes in several EU-co-funded projects, improving the overall resilience of partnerships. Finally, experiments conducted under Erasmus+ KA3 show that a bottom-up approach and the valorisation of the "voice of stakeholders" reduce tensions between the decision-making and implementation levels in inter-university digital collaborations, with positive effects on the quality of processes. Looking ahead, the debate on FP10 can be read as a real *institutional case study*, in which the EUA exercises a 'macro' QA function by monitoring transparency, scientific autonomy, and the integrity of decision-making processes.

7. Conclusions and future prospects

Despite different significant contributions to the understanding of quality assurance within international projects, notable gaps remain. Areas where empirical research is lacking include the long-term implications of quality assurance on project sustainability and performance in multinational settings, as well as the effectiveness of various quality assurance frameworks in rapidly changing environments. Additionally, much of the existing research tends to concentrate on specific industries, such as construction or IT, leaving a gap in understanding how quality assurance principles can be universally applied across diverse sectors. There is also a limited exploration of the interplay between quality assurance and organizational culture, particularly in multinational teams where diverse values and practices can lead to inconsistencies in project quality As organizations continue to navigate the complexities of globalization, it becomes imperative to understand these interactions fully. There are still gaps in our understanding of applying new quality

assurance methods in international settings, particularly as emerging technologies like AI and blockchain gain popularity. (Bento et al., 2022). Few studies have examined the long-term impact of these technologies on quality assurance, and we require robust frameworks to integrate them into our quality assurance plans effectively.

QA remains an essential pillar for the success and sustainability of European projects: not a mere formal requirement, but a dynamic and integrated process that runs through all project phases, with implications for trust, ethics, and governance. The established challenges—intercultural collaboration, cost compliance and eligibility, data quality, administrative capacity, and risk management—are now intertwined with emerging challenges related to FP10, including the need to preserve the program's autonomy from the European Competitiveness Fund, to manage dual-use research transparently, and to ensure the sustainability of the EU's research and innovation ecosystem. — are now intertwined with emerging critical issues related to FP10, including the need to preserve the program's autonomy from the European Competitiveness Fund, to manage dual-use research transparently, and to assess the adequacy of lump-sum funding in relation to the exploratory nature of complex projects. This highlights the urgent need for QA that can also operate at the system level, protecting the independence of the ERC, the bottom-up nature of the MSCA, regulatory clarity, and the consistency of financial instruments. In this context, the Commission's gradual transition towards a policy-maker role reinforces the centrality of QA as a mechanism for safeguarding scientific excellence and public trust.

The priorities for research and organizational development are arranged along five complementary lines. Firstly, the use of artificial intelligence, machine learning, and blockchain technologies can automate quality controls, enhance traceability, and improve document and procedural compliance. Secondly, the integration of sustainability—both environmental and social—as a constitutive dimension of project quality allows for the evaluation to be extended beyond immediate outcomes to include systemic impacts and ethical responsibility. A third approach concerns the development of intercultural skills in teams, with the aim of reducing communication friction and cognitive misalignments typical of transnational consortia. Fourthly, the development of robust and validated indicators to measure the long-term effectiveness of QA systems will enable the achievement of goals beyond mere compliance, including socio-economic outcomes and innovation capacity. Finally, a focus on small-scale consortia—often characterized by limited resources but high flexibility—can bring out specificities and replicable fit-for-purpose solutions, contributing to the overall resilience of the European research ecosystem.

References

Abou El-Komboz, L., & Goldbeck, M. (2024). Virtually borderless? Cultural proximity and international collaboration of developers. *Economics Letters, 244*, Article 111951.https://doi.org/10.1016/j.econlet.2024.111951

Aagaard, K., Mongeon, P., Ramos-Vielba, I., & Thomas, D. A. (2021). Getting to the bottom of research funding: Acknowledging the complexity of funding dynamics. *PLOS ONE, 16*(5), e0251488. https://doi.org/10.1371/journal.pone.0251488

Akkerman, S., Admiraal, W., Brekelmans, M., & et al. (2008). Auditing quality of research in social sciences. *Quality & Quantity, 42*, 257–274. https://doi.org/10.1007/s11135-006-9044-4

Alsadi, N., & Norhayatizakuan, N. (2021). The impact of risk management practices on the performance of construction projects. *Studies of Applied Economics, 39*(4). https://doi.org/10.25115/eea.v39i4.4164

Anglani, F., Pennetta, S., Reaiche, C., & Boyle, S. (2023). Crossing digital frontiers with cultural intelligence – a new paradigm for project managers. *International Journal of Project Management, 41*(8), 102543.https://doi.org/10.1016/j.ijproman.2023.102543

Badea, A. R., & Feeney, O. (2025). Genome editing dilemma: Navigating dual-use potential and charting the path forward. *Bioethical Inquiry, 22*, 101–110. https://doi.org/10.1007/s11673-024-10358-8

Bartel-Radic, A., & Munch, F. (2023). Cross-cultural boundary spanning activities in a global team: Insights from an ethnographic case study. *International Journal of Cross Cultural Management.*https://doi.org/10.1177/14705958231185432

Becker, R. (2017). "The European Approach for Quality Assurance of Joint Programmes" 2017https://ehea.info/media.ehea.info/file/20171109-10 Tartu/16/9/PLA_JointProgrammes_Report31102017_849169.pdf

Bento, S., Pereira, L., Gonçalves, R., Dias, Á., & Costa, R. L. D. (2022). Artificial intelligence in project management: systematic literature review. *International Journal of Technology Intelligence and Planning*, *13*(2), 143-163

Brits, H., & du Plessis, L. (2007). Application of focus group interviews for quality management: An action research project. *Systemic Practice and Action Research*, *20*(2), 117-126.

Bruzzone, F., & Nocera, S. (2020). Some considerations on the role of universities and research centers in EU-funded sustainable mobility projects. In O. Gervasi et al. (Eds.), *Computational science and its applications–ICCSA 2020. Lecture notes in computer science* (Vol. 12250). Springer. https://doi.org/10.1007/978-3-030-58802-1_15

Cheng, C.-C., Huang, K.-H., & Lin, Y.-K. (2023). Facilitating sustainable development of preschools: A system thinking training project in Taiwan. *Problems of Education in the 21st Century, 81*(5), 598–610.

Cheng, C., Messerschmidt, L., Bravo, I., & et al. (2024). A general primer for data harmonization. *Scientific Data, 11*, 152. https://doi.org/10.1038/s41597-024-02956-3

Churchill, N. (1988). Quality assurance—An effective project management technique. *International Journal of Project Management, 6*(4), 241–244. https://doi.org/10.1016/0263-7863(88)90009-9

Díez, F., Villa, A., López Vélez, A. L., & Iraurgi, I. (2020). Impact of quality management systems in the performance of educational centers: Educational policies and management processes. *Heliyon, 6*(4), e03824. https://doi.org/10.1016/j.heliyon.2020.e03824

Domínguez, E., Pérez, B., Rubio, Á. L., & Zapata, M. A. (2019). A taxonomy for key performance indicators management. *Computer Standards & Interfaces*, *64*, 24-40.

European University Association (EUA). (2025). *Horizon Europe 2028–2034: EUA analysis of the European Commission's proposal.* EUA.

Fishberg, R. (2022). *EU social science collaborations as unequal Europeanisation: An ethnographic study of people and practices in EU-funded research* (Doctoral dissertation). Roskilde University. Forskning.RUC.https://rucforsk.ruc.dk/ws/portalfiles/portal/89342001/Rachel_Fishberg_PhD_Dissertation_Bortredigeret.pdf

Famularo, J.(2023). Corporate social responsibility communication in the ICT sector: digital issues, greenwashing, and materiality. *Int J Corporate Soc Responsibility* 8, 8 https://doi.org/10.1186/s40991-023-00082-8

Garousi, V., Borg, M., & Oivo, M. (2020). Practical relevance of software engineering research: Synthesizing the community's voice. *Empirical Software Engineering, 25*, 1687–1754.https://doi.org/10.1007/s10664-020-09803-0

Gigerenzer, G., Allen, C., Gaillard, S., Goldstone, R. L., Haaf, J., Holmes, W. R., Kashima, Y., Motz, B., Musslick, S., & Stefan, A. (2025). Alternative models of funding curiosity-driven research. *Proceedings of the National Academy of Sciences, 122*(5), e2401237121. https://doi.org/10.1073/pnas.2401237121

Gordieiev, O., Kharchenko, V., Fominykh, N., & Sklyar, V. (2014). Evolution of software quality models in context of the standard ISO 25010. In W. Zamojski, J. Mazurkiewicz, J. Sugier, T. Walkowiak, & J. Kacprzyk (Eds.), *Proceedings of the Ninth International Conference on Dependability and Complex Systems (DepCoS-RELCOMEX 2014). Advances in Intelligent Systems and Computing* (Vol. 286). Springer. https://doi.org/10.1007/978-3-319-07013-1_21

Grigore, M. C., & Ionescu, S. (2019). Key Performance Indicators for Project Monitoring and controlling with focus on resource allocation and Quality Assurance – research Study. In *International Conference on Management and Industrial Engineering* (No. 9, pp. 512-526). Niculescu Publishing House.

Gronbaek, D. J. V. H. (2003). A European Research Council: An idea whose time has come? *Science and Public Policy, 30*(6), 391–404. https://doi.org/10.3152/147154303781780263

Hähnel, M. (2024). Conceptualizing dual use: A multidimensional approach. *Research Ethics, 21*(2), 205–227. https://doi.org/10.1177/17470161241261466

Helm, P., de Götzen, A., Cernuzzi, L., Hume, A., Diwakar, S., Ruiz Correa, S., & Gatica-Perez, D. (2023). Diversity and neocolonialism in Big Data research: Avoiding extractivism while struggling with paternalism. *Big Data & Society, 10*(2). https://doi.org/10.1177/20539517231206802

Hollmann, S., Regierer, B., Bechis, J., Tobin, L., & D'Elia, D. (2022). Ten simple rules on how to develop a stakeholder engagement plan. *PLOS Computational Biology, 18*(10), e1010520. https://doi.org/10.1371/journal.pcbi.1010520

Høyland, S. A., Hagen, J. M., & Engelbach, W. (2017). Developing and applying a framework for assessing the research quality of qualitative project methods in the EU project SECUR-ED. *SAGE Open, 7*(2). https://doi.org/10.1177/2158244017710291

Huang. Y., *et al*., (2024). ISCom: Interest-Aware Semantic Communication Scheme for Point Cloud Video Streaming on Metaverse XR Devices, *IEEE Journal on Selected Areas in Communications*, 42 (4) 1003-1021, doi: https://doi.org/10.1109/JSAC.2023.3345430

Imran, M., & Almusharraf, N. (2024). Digital learning demand and applicability of Quality 4.0 for future education: A systematic review. *International Journal of Engineering Pedagogy (iJEP), 14*(4), 38–53. https://doi.org/10.3991/ijep.v14i4.48847

Jaber, H., Marle, F., Vidal, L. A., & Didiez, L. (2018). Criticality and propagation analysis of impacts between project deliverables. *Research in Engineering Design*, *29*(1), 87-106.

Jacob, M., & Hellström, T. (2023). Affording excellence: What does excellence funding do for researchers? *Policy Studies, 46*(1), 83–101. https://doi.org/10.1080/01442872.2023.2267458

Jędrusik, A. (2024). Project risk management based on known project management methodologies. *European Research Studies Journal, 27*(4), 14–24.

Jolivet, R. B. (2024). Lessons from a first decade in European science policy. *European Review, 32*(4), 446–452. https://doi.org/10.1017/S1062798724000279

Komsiyah, I. (2023). Control quality of e-learning implementation management. *Al-Ishlah: Jurnal Pendidikan, 15*(2), 1881–1887. https://doi.org/10.35445/alishlah.v15i2.2972

Kozień, E. (2018). Quality of project financed by the European Union structural funds. *MATEC Web of Conferences, 183*, Article 04006. https://doi.org/10.1051/matecconf/201818304006

Laurett, R., & Mendes, L. (2019). EFQM model's application in the context of higher education: A systematic review of the literature and agenda for future research. *International Journal of Quality & Reliability Management, 36*(2), 257–285. https://doi.org/10.1108/IJQRM-12-2017-0282

Lengyelová, K., Dimopoulou, N., (2023) Benchmarking of the e-Learning Quality Assurance in Vocational Education and Training: Project Results. *Quality Innovation Prosperity. 27*(2), 1–15. https://doi.org/10.12776/qip.v27i2.1855

Leszczyna, R. (2021). Aiming at methods' wider adoption: Applicability determinants and metrics. *Computer Science Review, 40*, 100387. https://doi.org/10.1016/j.cosrev.2021.100387

Lu, C. (2024). Professional Education in China. In: Liu, N., Feng, Z., Wang, Q. (eds) Education in China and the World. Springer, Singapore. https://doi.org/10.1007/978-981-99-5861-0_7
Münch, F. (2020). *Le design-en-action: Catalyst for the success of multicultural team management* [Doctoral dissertation, CERAG - Centre d'études et de recherches appliquées à la gestion].
Muenzen, K. D., Amendola, L. M., Kauffman, T. L., Mittendorf, K. F., Bensen, J. T., Chen, F., Green, R., Powell, B. C., Kvale, M., Angelo, F., Farnan, L., Fullerton, S. M., Robinson, J. O., Li, T., Murali, P., Lawlor, J. M. J., Ou, J., Hindorff, L. A., Jarvik, G. P., & Crosslin, D. R. (2022). Lessons learned and recommendations for data coordination in collaborative research: The CSER consortium experience. *HGG Advances, 3*(3), 100120. https://doi.org/10.1016/j.xhgg.2022.100120
Nagar, J. P., Breschi, S., & Fosfuri, A. (2024). ERC science and invention: Does ERC break free from the EU Paradox? *Research Policy, 53*(8), 105038. https://doi.org/10.1016/j.respol.2024.105038
Newton, V., Greenberg, A., & See, J. (2017). Project management implications and implementation roadmap of human readiness levels. In *International Conference on HCI in Business, Government, and Organizations* (pp. 99-111). Cham: Springer International Publishing.
O'Kane, C., Zhang, J. A., Haar, J., & et al. (2023). How scientists interpret and address funding criteria: Value creation and undesirable side effects. *Small Business Economics, 61*, 799–826. https://doi.org/10.1007/s11187-022-00697-4
OECD. (2008). *Higher Education Management and Policy, 20*(3). OECD Publishing. https://doi.org/10.1787/hemp-v20-3-en
Oldoni, E., Saunders, G., Bietrix, F., Garcia Bermejo, M. L., Niehues, A., 't Hoen, P. A. C., Nordlund, J., Hajduch, M., Scherer, A., Kivinen, K., Pitkänen, E., Mäkela, T. P., Gut, I., Scollen, S., Kozera, Ł., Esteller, M., Shi, L., Ussi, A., Andreu, A. L., & van Gool, A. J. (2022). Tackling the translational challenges of multi-omics research in the realm of European personalised medicine: A workshop report. *Frontiers in Molecular Biosciences, 9*, 974799. https://doi.org/10.3389/fmolb.2022.974799
Olsson, N. O. E., Nyström, J., & Pyddoke, R. (2019). Governance regimes for large transport infrastructure investment projects: Comparative analysis of Norway and Sweden. *Case Studies on Transport Policy, 7*(4), 837–848. https://doi.org/10.1016/j.cstp.2019.07.011
Ouabira, M. M., & Fakhravar, H. (2021). Effective project management and the role of quality assurance throughout the project life cycle. *European Journal of Engineering and Technology Research, 6*(5), 84–88. https://doi.org/10.24018/ejeng.2021.6.5.2345
Parekh, K., & Na, P. (2025). Managing Onshore-Offshore QA Teams: Effective Communication and Collaboration Strategies for Global Projects. *International Journal of Research in Modern Engineering & Emerging Technology,* 13(3), 413–423. https://doi.org/10.63345/ijrmeet.org.v13.i3.27
Paprica, P. A. (2021). Risks for academic research projects: An empirical study of perceived negative risks and possible responses. *arXiv*. https://doi.org/10.48550/arXiv.2103.08048
Pößneck, J., Kabisch, S., Kowaltowski, D. C. C. K., & et al. (2024). Knowledge sharing through scenario development: Experiences of an interdisciplinary and international research project. *Interdisciplinary Science Reviews, 49*(5), 532–549. https://doi.org/10.1177/03080188241291828
Prisacariu, A. (2015). New perspectives of quality assurance in European higher education. *Procedia – Social and Behavioral Sciences, 180*, 119–126. https://doi.org/10.1016/j.sbspro.2015.02.094
Reaiche, C., & Papavasiliou, S. (2022). *Management methods for complex projects*. James Cook University. https://doi.org/10.25120/p4yc-gksq
Reaiche, C., Papavasiliou, S., & Anglani, N. (2022). *Risk assessment and quality project management*. James Cook University eBooks. https://jcu.pressbooks.pub/pmriskquality
Rodríguez-Rivero, R., Ortiz-Marcos, I., Romero, J., & Ballesteros-Sánchez, L. (2020). Finding the links between risk management and project success: Evidence from international development projects in Colombia. *Sustainability, 12*(21), 9294. https://doi.org/10.3390/su12219294
Roehrich, J. K., Kalra, J., Squire, B., & Davies, A. (2023). Network orchestration in a large inter-organizational project. *Journal of Operations Management, 69*(7), 1078–1099. https://doi.org/10.1002/joom.1237

Samuel, S., & Farrer, H. (2025). Integrating the PDCA cycle for continuous improvement and academic quality enhancement in higher education. *Journal of Comparative & International Higher Education, 17*(2), Article 12. https://doi.org/10.64899/2151-0407.1594

Santos, R., & Abreu, A. (2019). EFQM model implementation in a Portuguese higher education institution. *Open Engineering, 9*(1), 99–108. https://doi.org/10.1515/eng-2019-0012

Santokhee, A., Augusto, J. C., & Brodie, L. (2024). Towards engineering higher quality intelligent environments: A multi case study approach. *Software Quality Journal, 32*, 1075–1135. https://doi.org/10.1007/s11219-024-09678-0

Serra, F., Peralta, V., Marotta, A., & Marcel, P. (2022). Use of context in data quality management: A systematic literature review. *arXiv*. https://doi.org/10.48550/arXiv.2204.10655

Sesar, V., & Hunjet, A. (2021). The practice of continuous improvement behaviours in manufacturing companies with ISO 9001. *DIEM: Dubrovnik International Economic Meeting, 6*(1), 147–155. https://doi.org/10.17818/DIEM/2021/1.15

Siakas, K., Georgiadou, E., Rahanu, H., Siakas, E., Meggoudis, N., & Siakas, D. (2024). Overcoming obstacles in global requirements elicitation: A multicultural perspective. *Journal of Software Engineering Research and Development, 12*(1), 6:1–6:27. https://doi.org/10.5753/jserd.2024.2552

Sørensen, M. P., Ravn, T., Bendtsen, A. K., & et al. (2021). *D5.2: Report on the results of the focus group interviews*. EU Horizon 2020 Project SUPER_MoRRI. https://www.sops4ri.eu/wp-content/uploads/D5.2_Report-on-the-Results-of-the-Focus-Group-Interviews.pdf

Sprague Martinez, L., Howard, R. C., Schotland, M., & colleagues. (2023). Community engagement and financial arrangements: Navigating institutional change. *Journal of Clinical and Translational Science, 7*(1), e261. https://doi.org/10.1017/cts.2023.683

Stenfors, T., Kajamaa, A., & Bennett, D. (2020). How to … assess the quality of qualitative research. *The Clinical Teacher, 17*(6), 596–599. https://doi.org/10.1111/tct.13242

Szczepaniak, W. (2020). Safety of the EU project management system in public universities. *System Safety: Human – Technical Facility – Environment, 2*(1), 39–46. https://doi.org/10.2478/czoto-2020-0006

Szczepaniak, W. (2021). Planning the costs of EU projects at state universities [Planowanie kosztów w projektach unijnych na uczelniach publicznych]. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu = Research Papers of Wrocław University of Economics, 65*(2), 150–158.

Szczepaniak, W. (2020). Safety of the EU project management system in public universities. *System Safety: Human – Technical Facility – Environment, 2*(1), 39–46. https://doi.org/10.2478/czoto-2020-0006

Taherdoost, H. (2024). Risk management in R&D projects. In *Innovation through research and development*; 247–269. Springer. https://doi.org/10.1007/978-3-031-52565-0_12

Tarazona, S., Balzano-Nogueira, L., Gómez-Cabrero, D., & et al. (2020). Harmonization of quality metrics and power calculation in multi-omic studies. *Nature Communications, 11*, 3092. https://doi.org/10.1038/s41467-020-16937-8

Turner, R. (2020). How does governance influence decision making on projects and in project-based organizations? *Project Management Journal, 51*(6), 670–684. https://doi.org/10.1177/8756972820939769

Unterhitzenberger, C., & Moeller, D. (2021). Fair project governance: An organisational justice approach to project governance. *International Journal of Project Management, 39*(6), 683–696. https://doi.org/10.1016/j.ijproman.2021.06.003

Vukomanovic, M., Radujkovic, M., & Nahod, M. M. (2014). EFQM excellence model as the TQM model of the construction industry of southeastern Europe. *Journal of Civil Engineering and Management, 20*(1), 70–81. https://doi.org/10.3846/13923730.2013.843582

Wilsdon, J., & de Rijcke, S. (2019). Europe the rule-maker. *Nature, 569*(7757), 479–481.https://doi.org/10.1038/d41586-019-01568-x

Woelert, P. (2023). Administrative burden in higher education institutions: A conceptualisation and a research agenda. *Tertiary Education and Management, 29*(4), 409–422. https://doi.org/10.1080/1360080X.2023.2190967

Wolski, M., Walter, B., Kupiński, S., & Chojnacki, J. (2017). Software quality model for a research-driven organization—An experience report. *Journal of Software: Evolution and Process, 29*(11), e1911. https://doi.org/10.1002/smr.1911

Yadav, D. (2022). Criteria for good qualitative research: A comprehensive review. *Asia-Pacific Education Researcher, 31*, 679–689. https://doi.org/10.1007/s40299-021-00619-0

Yoshizawa, G., Shinomiya, N., Kawamoto, S., Kawahara, N., Kiga, D., Hanaki, K. I., & Minari, J. (2024). Limiting open science? Three approaches to bottom-up governance of dual-use research of concern. *Pathogens and Global Health, 118*(4), 285–294. https://doi.org/10.1080/20477724.2023.2265626

Yu, Y., Mai, Y., Zheng, Y., & et al. (2024). Assessing and mitigating batch effects in large-scale omics studies. *Genome Biology, 25*, 254. https://doi.org/10.1186/s13059-024-03401-9

Yu, Y., Zhang, N., Mai, Y., & et al. (2023). Correcting batch effects in large-scale multiomics studies using a reference-material-based ratio method. *Genome Biology, 24*, 201. https://doi.org/10.1186/s13059-023-03047-z