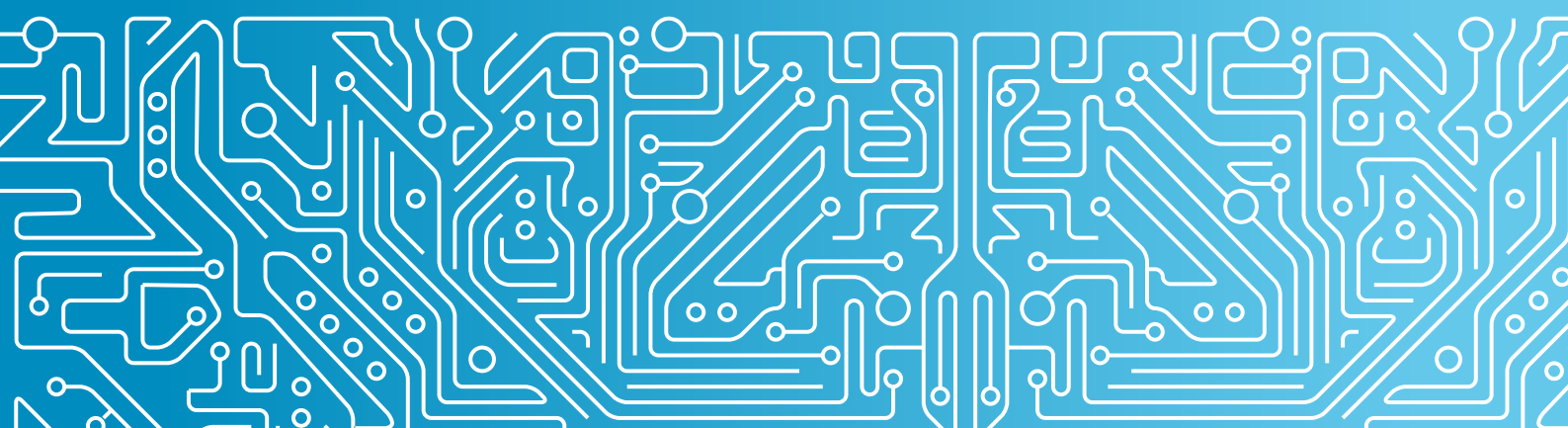
INESC TEC

Shaping Europe's future with FP10

POSITION PAPER ON THE 10TH EUROPEAN FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (FP10)



EXECUTIVE SUMMARY:
SHAPING EUROPE'S FUTURE WITH FP10

As we collaboratively prepare and contribute to the design of the 10th Framework Programme for Research and Innovation (FP10), covering the period 2028-2034, INESC TEC, the leading Research and Technology Organisation in Portugal, offers key viewpoints and recommendations to support Europe's ambition to become a global leader in innovation and technology. Emphasising the importance of addressing critical societal challenges, enhancing economic competitiveness, and fostering sustainable growth, INESC TEC advocates for strategic investments in science and technology. Achieving Europe's technological sovereignty and economic resilience requires a well-coordinated, forward-looking research and innovation agenda.

Central to these contributions is a strategic vision to tackle major societal issues such as climate change, digital transformation, and public health. Innovation and technological advancement are highlighted as vital for economic competitiveness and the well-being and prosperity of European citizens. Our position calls for a concerted effort across member states, leveraging Europe's diverse strengths and resources to create a more integrated and cohesive innovation landscape.

The focus is on four critical dimensions deemed crucial for the successful design and implementation of FP10:

1. Strategic Global Leadership

- **Proactive and Strategic Approach:** Europe must adopt a proactive and strategic stance on global leadership in science, technology, and innovation. This requires a comprehensive understanding and anticipation of global trends and challenges to ensure our strategies remain competitive and relevant on a global scale. A coherent and sustained strategy that builds and leverages Europe's capabilities is crucial for achieving high-impact outcomes.

- **Leadership in Key Areas**: Europe should focus on establishing leadership in critical sectors such as digital technologies, green energy, advanced manufacturing, and biotechnology. This involves developing long-term strategies, effective resource allocation, consistent policy support, and stable funding mechanisms. Sustained efforts will enable Europe to set global standards, drive innovation, and maintain resilient and adaptable ecosystems that can seize new opportunities and address emerging challenges.

2. Development and Sustainability of Ecosystems

- **Reinforced Value Chains and Research and Innovation Infrastructures:** FP10 should prioritise the development of cross-border research and innovation value chains that harness the unique strengths of various regions, thereby enhancing collaboration and fostering vibrant ecosystems crucial for sustainable growth. Recognising R&I infrastructures as critical, transversal pillars of the European research landscape, FP10 must ensure these infrastructures possess broad functionality, accessibility, and sustainable funding to support high-quality

research, advanced training, and the translation of research into marketable innovations.

- **Public-Private Partnerships and Adaptable Institutional Cultures**: Strengthening public-private partnerships is essential for driving innovation and economic growth, aligning EU RD&I policy with industrial strategies to foster cross-sector collaboration and enhance the European Union's global competitiveness. Access to diverse funding sources, including venture capital and private investment, is vital for the sustainability and growth of research and innovation ecosystems. Additionally, FP10 should promote adaptable institutional cultures that encourage innovation, risk-taking, and the adoption of new practices and technologies, thereby building resilient ecosystems responsive to evolving challenges and opportunities.

3. Forward-Looking Funding

- **Future-Focused Funding and Strategic Investment:** FP10's funding strategies must prioritise investments in emerging technologies and research areas with transformative potential. Emphasising fields such as quantum computing, artificial intelligence, biotechnology, and advanced materials will strengthen Europe's competitive edge. Strategic investments should focus on critical technologies and sectors where Europe can lead, ensuring that resources are directed to enhance long-term competitiveness and foster diversified, resilient ecosystems.

- **Innovation Pipeline Development**: A robust innovation pipeline is essential for transitioning ideas from the laboratory to the market. FP10 should support fundamental research, facilitate the commercialisation of new technologies, and create an environment conducive to innovation. This pipeline should aim for substantial advancements in technical capability, bridging research to future needs and ensuring continuous and significant value creation and capture.

4. Excellence in Implementation

- **Dynamic and Results-Oriented Framework:** To ensure FP10 is genuinely transformative, significant changes in funding mechanisms and a focus on results are essential. Implementing Objectives and Key Results (OKR)-based approaches tailored to specific phases of the innovation cycle – emphasising capacity building in the early stages and market readiness in the later stages – can reshape project funding and management, prioritising accountability, reducing bureaucratic processes and driving meaningful progress and impactful outcomes.

- **Leveraging Strengths and Robust Risk Management**: FP10 should capitalise on Europe's existing strengths in knowledge creation and innovation by funding excellence across companies, universities, state laboratories, and Research and Technology Organisations (RTOs). Effective risk management and impact assessment are crucial for the program's success. Establishing clear frameworks for risk management, defining impact metrics, and ensuring flexibility to address unexpected developments will guarantee FP10's resilience and adaptability,

enabling it to navigate the complexities of the global innovation landscape effectively.

INESC TEC's contribution to the design and successful implementation of FP10 offers strategic viewpoints and recommendations along a core set of essential dimensions, aiming to contribute to shaping a robust and forward-looking FP10, harnessing Europe's collective capabilities to address the pressing challenges of our time and secure a prosperous future for all our citizens.

INTRODUCTION

The upcoming 10th European Framework Programme for Research and Innovation (FP10), scheduled for 2028-2034, represents a significant opportunity for Europe to strengthen its position as a global leader in innovation and technology. To realize such an ambition, FP10 should tackle significant societal challenges, enhance competitiveness, and foster sustainable economic growth through strategic investments in science and technology. It is crucial to politically valorise investment in research and innovation (R&I) and ensure long-term stability. Historically, the Framework Programmes have served as guiding lights, steering the direction of R&I development across Europe. This impact is further amplified by the alignment and support of national and regional public policy instruments dedicated to R&I.

Understanding the factors contributing to the varying levels of success among EU member states is essential, particularly in light of the evolving EU landscape and the rapidly changing global context. The consistent success of countries like Denmark and Sweden, as highlighted in the European Innovation Scoreboard (EIS) 2024, underscores the importance of stable, impactful EU funding instruments that align well with national Science, Technology, and Innovation (ST&I) policies. These nations excel in crucial innovation indicators, such as the sales of new-to-market and new-to-enterprise innovations, non-R&D innovation expenditures, and ICT skills development.

To maximise the effectiveness of EU funding, it is imperative to assess the impact of the various instruments employed in previous frameworks, such as Horizon 2020 and Horizon Europe. This evaluation should ensure these tools are aligned with and supportive of national and regional research and innovation strategies, which are tailored to the specific needs and capacities of each member state. Moreover, there is a call for all EU member states to renew their commitment to increasing R&D investments to at least 3% of GDP – a target set two decades ago that is still not fully realised. Achieving this goal is as crucial as the recently established 2% GDP commitment for defence spending, both being critical for Europe's competitiveness and global research and innovation leadership.

INESC TEC has structured this Position Paper to support an in-depth reflection on and reshaping of the future of European R&I under FP10. Our viewpoints and recommendations are organised around four key dimensions critical for its success:

1. **Strategic Global Leadership**

   This aspect outlines the need for Europe to take a proactive and strategic stance in global innovation, emphasising leadership in areas such as digital technologies, green energy, and biotechnology. It discusses the importance of sustained efforts and stable policy environments to maintain leadership and resilience.

2. **Development and Sustainability of Ecosystems**

   This dimension focuses on creating integrated research and innovation ecosystems across Europe, emphasising cross-border collaboration, sustainable funding for R&I infrastructures, and enhancing public-private partnerships.

3. **Forward-Looking Funding**

Highlighting the necessity of future-oriented investments, this point calls for prioritising funding in cutting-edge areas like quantum computing and artificial intelligence, and developing a robust innovation pipeline from research to market.

4. Excellence in Implementation

The final dimension addresses the significant changes in funding mechanisms, the leveraging of existing strengths, and the robust risk management that are essential to transform FP10. Achieving implementation excellence requires a dynamic, results-oriented framework focusing on accountability and adaptability.

These four dimensions collectively aim to position FP10 as a robust and resilient keystone of Europe's R&I capacity, ensuring it remains at the forefront of addressing global challenges and opportunities. Through strategic leadership, sustainable ecosystem development, forward-looking funding, and excellence in implementation, FP10 is envisioned to significantly impact Europe's future R&I landscape.

KEY IDEAS

STRATEGIC GLOBAL LEADERSHIP

Europe must adopt a proactive and strategic approach to global leadership in science, technology and innovation. This involves both opening to the world and visioning and executing strategically in high-impact areas. A coherent and sustained strategy that sets and aligns with global trends and builds and leverages Europe's capabilities is essential.

- **Global Perspective:** A global perspective is crucial for planning and implementation, requiring an understanding and anticipation of global trends and challenges. Europe's strategies must be competitive and relevant on a global scale. This approach must combine the opening of the framework programme to third countries with a deliberate focus on global leadership in specific areas.
- **Leadership Goals:** Europe must identify and commit to key areas for global leadership, pushing the frontiers of digital technologies, green energy, advanced manufacturing, and biotechnology. Developing long-term strategies and effectively allocating the required resources will be key to establishing Europe as a leading pioneer in these fields, setting global standards and driving innovation.
- **Sustained Effort:** Leadership is only possible with long-term, sustained efforts, including consistent policy support, stable funding mechanisms, and continuous innovation, enabling resilient and adaptable ecosystems capable of exploiting new opportunities and responding to emerging challenges.

DEVELOPMENT AND SUSTAINABILITY OF ECOSYSTEMS

FP10 should prioritise the development and sustainability of robust research and innovation ecosystems across Europe to foster innovation, support economic growth, and address societal challenges. This includes focusing on cross-border value chains, R&I infrastructures, public-private partnerships, diverse funding sources, and adaptable institutional cultures.

- **Cross-Border Value Chains:** FP10 should strategically invest in research and innovation value chains that transcend administrative borders, leveraging the unique strengths of different regions. This comprehensive approach aims to integrate capacities across Europe, enhancing the efficacy of collaborative projects and fostering vibrant ecosystems crucial for sustainable growth and resilience.
- **Valorising and Strategically Positioning R&I Infrastructures:** FP10 must acknowledge R&I infrastructures as critical, transversal pillars of the European research landscape. Ensuring these infrastructures have broad functionality, accessibility, and sustainable funding is imperative to support high-quality research, advanced training, and the translation of research into marketable innovations.
- **Enhancing Public-Private Partnerships:** Strengthening public-private partnerships is essential for driving innovation and economic growth. FP10 should

expand co-programmed and institutionalised partnerships to align EU RD&I policy with industrial strategies, fostering cross-sector collaboration and enhancing the European Union's global competitiveness.

- **Access to Diverse Funding Sources:** Ensuring access to diverse funding sources, including venture capital and private investment, is vital for the sustainability and growth of research and innovation ecosystems. FP10 should facilitate stronger connections between researchers and investors, promoting a dynamic and risk-embracing investment landscape that supports groundbreaking innovations.
- **Adapting Institutional Cultures:** Building resilient ecosystems necessitates adaptable institutional cultures that are responsive to new technologies, funding mechanisms, and policy changes. FP10 should support programs that promote innovation-friendly cultures within institutions, encouraging experimentation, risk-taking, and the adoption of new practices and technologies.

FORWARD-LOOKING FUNDING

FP10's funding strategies should prioritise future frontier technologies and innovations over addressing immediate needs. This forward-looking approach is crucial for building Europe's competitive edge and preparing for future opportunities and challenges.

- **Future-Focused Funding:** Prioritize investments in emerging technologies and research areas with the potential for a scale jump in technical capability and addressing major future societal and economic challenges. Key areas include the next waves of technological advancements in quantum computing, artificial intelligence, biotechnology, and advanced materials, among others.
- **Innovation Pipeline:** Developing a robust innovation pipeline is essential for transitioning ideas from the lab to the market. This involves supporting basic research, facilitating the commercialisation of new technologies, and fostering an environment conducive to innovation. The pipeline should be designed to foster major leaps in technical capability and seek their bridging to anticipated future needs, ensuring steady and significant value creation and capture.
- **Strategic Investment:** Make strategic investments that enhance long-term competitiveness and innovation. This includes identifying critical technologies and sectors where Europe can lead and ensuring that funding and resources are directed toward these areas. Such an approach helps create diversified and resilient ecosystems that can influence and adapt to changing global dynamics.

EXCELLENCE IN IMPLEMENTATION

To make FP10 truly transformative, considerable changes in funding mechanisms, the leveraging of existing strengths, and robust risk management are necessary. The focus should be on achieving excellence also in the implementation of FP10, through a dynamic, responsive, and results-oriented framework.

- **Focusing on What Matters:** Implement Objectives and Key Results (OKR)-based approaches to transform project funding and management, emphasising accountability and results, and moving away from bureaucratic, process-heavy models. OKRs should be tailored to specific phases of the innovation cycle,

emphasising capacity building and foundational knowledge in early stages, and market readiness and commercialisation in later stages. This ensures that goals are appropriate for each stage, driving meaningful progress toward impact.

- **Leveraging Existing Strengths:** Europe has numerous entities and infrastructures excelling in knowledge creation, circulation and valorisation, including companies, universities, state laboratories, and Research and Technology Organisations (RTOs). FP10 should recognise and build on these strengths, funding excellence wherever it is found. This approach ensures efficient and effective resource use, supporting entities that can deliver the best results.
- **Risk Management and Impact Assessment:** Effective risk management and impact assessment are critical for FP10's success. Clear frameworks should be established from the outset to manage risks and assess program impact. This includes defining impact metrics tailored to different goals and instruments and having contingency plans and flexibility to address unexpected developments. This proactive approach ensures a smart, flexible and adaptive FP10, capable of thriving in the complexities of global innovation landscapes.

DETAILED RECOMMENDATIONS

STRATEGIC GLOBAL LEADERSHIP

- **Global Perspective:** Ensure FP10 maintains a global perspective, considering the diverse capacities, opportunities and needs within and beyond Europe. Leveraging regional strengths is crucial for addressing global challenges collectively.
- **Competitiveness and Societal Challenges:** FP10 must build the foundations for Europe's future, integrating a dual focus on international competitiveness and the ability to meet increasingly pressing societal issues in areas such as climate change, health, and digital transformation. This alignment ensures that Europe remains at the forefront of global innovation and will effectively be able to meet the needs of its citizens.
- **Investment in Emerging Technologies:** Proactively invest in critical and frontier areas of digital technologies, life sciences, artificial intelligence, quantum computing, biotechnology, and sustainable energy solutions. These investments are crucial for positioning Europe as a leading pioneer in the next waves of technological revolutions.
- **Cultivate Values:** Clearly define and promote the cultural values necessary for FP10's success, including embracing risk, emphasising multidisciplinary collaborations, and committing to excellence. Such values are essential for fostering an innovative and dynamic research and innovation environment.
- **Leverage European Instruments:** Utilize European instruments to reduce regional disparities and fully harness the potential of individual countries. This approach ensures a holistic and inclusive strategy for innovation and research, maximising FP10's impact across Europe and globally.

DEVELOPMENT AND SUSTAINABILITY OF ECOSYSTEMS

- **Integration of Capacities:** Promote the integration of research, development, and innovation capacities across regions. Support collaborative projects that span multiple countries and sectors, enhancing the overall effectiveness and efficiency of ecosystems. The ERA Policy Agenda for 2022-2024 includes a specific action focused on 'building up R&I ecosystems to improve regional/national excellence and competitiveness.' A key outcome of this action is the definition and piloting of ERA Hubs, designed to ensure the flow of talent and investments across territories, promoting vibrant ecosystems crucial for sustaining growth and resilience at local and regional levels.
- **Cross-Border Collaboration:** Provide incentives for projects involving partners from various regions, fostering a more interconnected and resilient research and innovation landscape. Initiatives like the Horizon Europe Missions and Partnerships exemplify this collaborative approach, bridging gaps between different sectors and regions, and encouraging a seamless integration of capacities across the ERA.

- **Transversal Support to Infrastructures Across All Pillars:** R&I infrastructures should be strategically integrated across all FP10 pillars, not constrained to a single function or area. Such integration will ensure that infrastructures can support a diverse range of projects, from ERC-type frontier research to collaborative and applied research initiatives and entrepreneurial activities.
- **Broad Infrastructure Functionality and Accessibility:** Ensure that R&I infrastructures are equipped and funded to support various roles, including conducting cutting-edge research, providing specialised training, facilitating knowledge transfer, and aiding market uptake of innovations. This includes extending their use to support entrepreneurial ventures and startups, fostering a more innovative and dynamic economic environment.
- **Adequate and Sustainable Infrastructure Funding:** Allocate appropriate and sustainable budgets to maintain and upgrade R&I infrastructures. This funding should cover operational costs, equipment upgrades, and expansion to accommodate growing and diverse research needs. Explicit incentives should be provided to encourage the use of these infrastructures across different types of projects, ensuring that all researchers and innovators have access to the tools they need to succeed.
- **Co-programmed and Institutionalised Partnerships:** These partnerships are vital for linking EU RD&I policy with industrial strategy, offering a platform where public and private stakeholders can co-create research agendas and implement large-scale impactful projects. The significant contributions from private partners often exceed EU funding, reflecting the high level of industry commitment and investment. Such partnership model pools important financial resources and integrates in-kind contributions such as expertise, equipment, and operational costs.
- **Strategic Partnership Integration and Coordination:** To maximise their impact, these partnerships should adopt a more integrated approach, aligning with broader EU policy goals and ensuring cross-sectoral synergies. This involves developing a strategic portfolio approach that reduces duplication and fosters collaboration across different partnerships and EU instruments. Such coordination is crucial for addressing complex challenges that span multiple sectors, such as digital transformation, green energy, and health technologies.
- **Accelerating Innovation and Scaling through Partnerships:** PPPs are essential for bridging the "valley of death" by supporting the transformation from research to market-ready solutions. They facilitate the scaling up of new technologies and innovations, ensuring that research outputs lead to practical applications and economic benefits. By fostering a collaborative RD&I environment, these partnerships help mitigate risks, share knowledge, and optimise resource utilisation across the EU.
- **Inclusive and Transparent Partnership Governance:** Ensuring broad participation in these partnerships is key to their success. This includes simplifying rules for participation to reduce administrative burdens and making the partnerships accessible to a wider range of stakeholders, including small and medium-sized enterprises (SMEs) and non-traditional partners. Additionally,

enhancing transparency through clear reporting and alignment with national and EU strategic priorities will strengthen the governance and impact of these partnerships.

- **Venture Capital Networks:** Establish robust networks and platforms that connect researchers and innovators with venture capital and other private investors. This includes organising investment forums, pitch events, and matchmaking services. Recent studies highlight the significant disparity in corporate sector patenting between the US and EU, driven largely by the presence of startups in the US. This underscores the need for a dynamic startup ecosystem in Europe to enhance the commercialisation of frontier science. FP10 should aim to create a more dynamic and risk-embracing investment environment that significantly boosts the entrepreneurial capacity across the continent.
- **Diverse Investment Instruments:** Encourage the use of a wide array of investment instruments, such as equity investments, convertible loans, and grants, to support various stages of the innovation lifecycle. While instruments like the European Investment Fund (EIF) have provided a foundation, there is a pressing need to streamline these instruments to make them more accessible and effective. Programs such as the European Innovation Council (EIC) should be expanded and refined to reduce bureaucratic barriers and increase their availability to a broader range of innovators and startups. The goal is to create a financial ecosystem that is not only inclusive but also daring in its support for high-risk, high-reward ventures.
- **Cultural Transformation Programs:** Implement programs that promote cultural change within research institutions, focusing on agility, openness to innovation, and entrepreneurial thinking. This includes leadership training, workshops on innovation management, and change management initiatives.
- **Encouraging Experimentation:** Create environments where experimentation and risk-taking are encouraged. This involves supporting pilot projects, innovation labs, and incubators that allow researchers and innovators to test new ideas in a supportive setting.

FORWARD-LOOKING FUNDING

- **Realistic Budget Allocation:** There is a notable discrepancy between the ambitious goals set for major societal and technological transitions and the current budget allocations. This mismatch poses a significant threat to the feasibility and effectiveness of FP10's objectives. Increasing the EU budget to at least 200 billion euros and encouraging national R&I investments to reach 3% of GDP is essential. This is not merely a financial target but a critical requirement for the EU's R&I competitiveness, social model, and global intervention.
- **Strategic Focus:** Prioritize investments in areas that will drive societal and technological transitions. This strategic focus is crucial for ensuring Europe's leadership in critical sectors and maintaining global competitiveness.
- **Strengthening Connections:** While the foundational pillars of FP10 are well-conceived, there needs to be better balance and stronger integration between

them. This includes supporting the flows and connections that link different pillars. Enhance connections and support flows between the pillars to create a cohesive and integrated framework. This integration ensures that various initiatives complement each other, fostering a holistic approach to addressing Europe's challenges.

EXCELLENCE IN IMPLEMENTATION

- **Risk Management:** Develop a realistic execution approach incorporating robust risk management. European programmes have historically faced challenges in execution, impacting their competitiveness, especially in rapidly evolving fields. Proactively identify potential risks and strategies for mitigation, ensuring the programme's resilience and adaptability, and prepare contingency plans for critical initiatives, as in the case of Missions and the European Innovation Council (EIC) in Horizon Europe. The programme should be adaptable, enabling quick responses to unforeseen challenges and opportunities in the global landscape.
- **Flexible Pillar Strengthening:** Be prepared to adjust the emphasis on specific pillars as needed, based on ongoing assessments and emerging needs. This flexibility will enable FP10 to adapt to changing circumstances and priorities.
- **Enhancing Synergies:** Additionally, there is a disconnect between cohesion funds and FP programming, which hampers the effectiveness of these initiatives. Improve synergies between cohesion funds and FP programming. This includes conducting thorough benchmarking with other global regions to understand best practices and integrating these insights into FP10.
- **Realignment of EIT:** The European Institute of Innovation and Technology (EIT) currently faces a misalignment between its structure and goals. Reassess and realign the EIT's structure to better match its goals. This realignment will ensure that the EIT effectively contributes to FP10's objectives, particularly in fostering innovation and supporting start-ups, scale-ups and SMEs in effective ways that are appropriate to each of these starkly different categories of companies.
- **Effective implementation and execution:** The table below addresses key practical challenges that may arise during the implementation phase and proposes measures to enhance the overall execution of FP10. A successful implementation strategy requires streamlined processes, robust risk management, and a strong focus on stakeholder engagement and accountability.

AREA OF FOCUS	DETAILS	KEY OUTCOMES
Stakeholder feedback mechanisms	Regular surveys and consultations, stakeholder advisory boards	Responsiveness, adaptability, cultural transformation, co-creation
Transparent evaluation and impact assessment	Clear metrics and indicators, enhanced monitoring and reporting mechanisms	Accountability, informed decision-making, excellence in implementation, strategic investment
Enhanced risk management	Adoption of risk management framework, regular risk assessments, contingency plans	Resilience, adaptability, forward-looking funding, strategic global leadership
Improved coordination and synergy	Integrated funding strategies, joint initiatives	Global leadership, benchmarking, cross-border value chains, avoid duplication, maximize impact
Tailored confidence-based funding	Flexible funding models, accountability and oversight mechanisms	High-risk, high-reward encouragement, experimentation culture, excellence in implementation
Timely funding and support	Streamlined financial processes, technical assistance and capacity-building programs	Accelerated innovation and market readiness, reduced administrative bottlenecks, institutional agility
Streamlined administrative processes	User-friendly digital platforms, standardized documentation, digital tools	Efficiency, transparency, strategic global leadership, stakeholder engagement

Table 1: Effective implementation and execution of FP10