Recommendations for the Next Framework Programme (FP10)

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Technology Industries of Sweden has 4500 member companies, accounting for one-third of Sweden's exports and over one million jobs. Our mission is to enhance our members' competitiveness and drive sustainable development.

Key Recommendations

- FP10's overarching goal must be to strengthen Europe's competitiveness.

- An increased budget for FP10, if focused on enhancing industrial competitiveness is needed.

- FP10 needs to be designed to attract private R&D investments to Europe. This can be achieved by increasing industrial influence within the programme to ensure relevance in projects and calls. A good tool is the Public-Private Partnership model, if it is updated to give a clearer mandate for industry to set the agenda.

- A renewed focus on pre-competitive collaborative research.

- A clear focus on reducing time to market in the innovation pillar, expanding beyond start-ups and scale-ups by including existing companies and society. Additionally, the toolkit should be broadened to include regulatory sandboxes, technology infrastructure usage, and innovation procurement.

1. FP10's goal must be to strengthen European competitiveness

Promoting industrial competitiveness is the framework program's original purpose and this focus needs to be re-established in the upcoming programme. It is required to ensure Europe has the right prerequisites to address the urgent and complex challenges we face, especially to pave the way for the green and digital transition, increase growth, and enhance the overall defense capabilities of the union. EU's current growth crisis must be addressed through strategic investments in research and innovation. We can only ensure that future solutions can be developed and manufactured in Europe by placing Europe at the forefront of research and innovation.

2. Increased investments and attracting industrial investments

The scope of the framework programme has significantly expanded over time but without a corresponding increase in budget. This needs to be addressed moving forward. The EU must reach the target of spending 3 percent of GDP on research and innovation to compete with China and the US. The largest

increase should go to industrial competitiveness and pillar 2 to attract more private investments in RnD.

In times of geopolitical uncertainty, increased investments in R&D are an effective way to secure the EU's technological sovereignty and create reverse technological dependencies. FP10 therefore plays an important role in fulfilling the EU's overarching agenda of open strategic autonomy and economic security, but it requires a clear focus on developing new industrial strengths.

The ultimate goal should be to design a framework programme that attracts business investments in RnD to Europe. Without creating incentives for private investments, as a complement to public investments, the EU will not be able to compete globally in the global race of new technologies. It is also vital to ensure that the value created from investments in research and innovation stays in Europe. This requires a holistic approach so the knowledge generated can be transformed into new products, processes, and services. A strong innovation landscape and a developed and stronger innovation pillar need to contribute to maintaining and expanding industrial production and value creation in Europe.

FP10 must primarily be financed and organized as a research and innovation programme, with open programs and calls where research institutes, academia, and companies compete based on objective criteria and excellence in all pillars. The budget needs to be long-term and protected from financing other short-term political needs or being used to contribute to the EU's cohesion policy objectives.

3. Establish strong industrial engagement by developing the Public-Private Partnership model

To ensure that pillar 2 primarily addresses industrial challenges, and therefore attracts industrial investments, the forms of industrial influence in the programme need to be developed. There must be a significant cluster where the industry has a clear mandate to set the agenda. The model for public-private partnerships (PPPs), and specifically co-programmed partnerships, has proven effective in achieving this objective and should therefore be strengthened and further developed going forward. The goal of strengthening Europe's competitiveness can only be achieved through better industrial involvement, as it guarantees that the right investments will be made. The effectiveness of the Public Private Partnerships to accelerate innovation and bolster European competitiveness are also highlighted in Enrico Letta's report on the single market.

Co-programmed Public-Private Partnerships (PPPs) are an excellent model for the public sector to identify priorities together with the industry. This leads to work programmes that are better suited to meet industrial needs, increasing the likelihood of effective resource utilization and the application of knowledge. The Made in Europe Partnership and its predecessor, Factory of the Future, are good examples.

This type of partnership is the easiest to operationalize because it is solely based on Memoranda of Understanding (MoUs) regarding public-private cooperation between the Commission and other members organized in European industry associations. These MoUs are explicitly not legally binding but establish a division of labor, where the industry assists the Commission with input and advice regarding R&D priorities and topics for upcoming calls. In return, the industry commits to co-financing the approved projects at — for most partnerships—the same level as the Commission's funding, but in several partnerships, at a higher level.

Co-programmed partnerships also develop strategic R&D agendas whose overarching goals are specified in the MoUs. Co-programmed partnerships require that the industry, as part of its co-financing, undertakes several additional activities (In-Kind Additional Activities) beyond participating in R&D projects. Additional activities can, for example, involve contributing to the implementation and exploitation of R&D results, as well as engaging in program administrative activities and engaging actors outside the partnership.

Proposals for Further Developing the Partnership Model:

- **Simplify and strategically cluster partnership programmes**

In today's Horizon Europe, there are 49 different partnership programmes, where those of industrial interest are in pillar 2 and clusters 4 and 5. Currently, about 25 percent of the entire Horizon budget goes to partnership programmes. The current partnership structure is too fragmented to adequately reflect and address industrial challenges. Instead, a review in dialogue with the industry, should be conducted to better cluster the partnerships according to overarching industrial needs. This way, sub-optimization can be avoided, and it will be easier for companies to participate and find their place in the partnership landscape. The partnership programmes must also become less bureaucratic and simplified to increase industrial participation.

- **Remove the requirement to visualize funding**

To facilitate industry participation in European partnerships, the requirement to publicly report what is being financed should be removed. Reporting on In-Kind Additional Activities (IKAA) is difficult for companies due to competition laws, especially when very detailed reporting is requested.

- **Improve the role of industry in partnerships**

In co-programmed partnerships where industrial needs are central, the representation of industry in decision-making processes must be improved. The industry's voice must carry more weight in the decision-making processes. Currently, all votes within the (P) private and (P) public sides of the partnerships are weighted equally, which hampers the industry's ability to shape the agenda and ensure relevant calls. It is also important to improve

representation in PPP models, with a good mix of large and small to medium-sized enterprises, to avoid single companies controlling the entire programme.

- **Allow partnerships to be a dialogue platform for identifying and funding test environments in Europe**

European partnerships led by industry, along with other types of collaborative research projects in pillar 2, could play a central role in prioritizing and funding technology infrastructures. This would secure both a reflection of industrial needs and cross-sectoral disruptive technological development, by thinking beyond the type of infrastructure/capacities that exist today. Industry-driven partnerships focus on important sectors in Europe and receive long-term funding in competition. The programmes focus on challenges, develop competencies and innovations, and are built on cooperation between industry, academia, and the public sector. Thus, partnerships are well-suited to define and prioritize the need for technology infrastructure in their respective areas. This can then form the basis for a European strategic roadmap for technology infrastructure (similar to ESFRI). Current partnerships, as well as the next generation of partnerships, should also have the opportunity to finance projects within a technology infrastructure.

- **Proposal for a developed governance model for industrially attractive partnerships**

Below is a concrete proposal on how the next generation of co-programmed public-private partnerships can be organized to increase industrial influence and participation.

A partnership can be structured as follows: a board, a program forum, a program arena, and a program office. The program board decides on all matters related to policy, strategies, and priorities such as the research and innovation strategy, impact plan, logic effect, and continuous monitoring. The board must approve before the program office submits applications to the funding authority for strategic projects not related to open calls. The board also leads the program office and makes decisions about the program's working processes.

The program board consists of members from industry associations and companies. The board should be balanced in terms of gender and relevant expertise.

The program forum (PF) gathers strategically selected stakeholders from industry, academia, research institutes, and other relevant actors. An important task is to have a clear arena where academia can present the state of research in the area, to ensure that projects have potential and are feasible.

It provides resources to the program office and acts as an advisory board to the program board. The program forum advises on strategic projects, international collaborations, calls, and intervention instruments, and provides

the program with continuous dialogue with broader groups of authorities and with national/international programmes.

Program Arena (PA) is a large network for all relevant organizations and is open to broad participation. The PA is important for disseminating results, absorbing innovative ideas and talents, and adapting to ongoing national and international actions. The Program Arena could be organized as an annual conference, as its purpose is more communicative in nature.

Program Office (PO) is responsible for the daily operations and oversight of daily activities, developing networks, engaging stakeholders, strengthening the international network, and initiating collaborations. The PO manages the project portfolio, including coordination of project dissemination, analyzing results, and handling reporting in dialogue with other relevant actors. Additionally, it includes a system perspective, such as policy and infrastructure development, procurement, and cooperation with other programs, testbeds, and platforms. The PO will consist of relevant expertise for the purpose and needs to be a neutral entity that cannot apply for funds.

4. Renew the focus on collaborative research and technological development

The EU's framework programme has gradually shifted from focusing on pre-competitive research to moving higher up the TRL scale, with an increased emphasis on innovation. While innovation is central, this shift has come at the expense of collaboration before the competitive stage in the research process, which is the foundation for innovation at a later stage. Therefore, FP10 needs to renew its focus on pre-competitive collaborative research and technological development. FP10 should also strengthen the link between basic research and applied research. This will ensure better utilization of the scientific excellence and results of basic research for the development of industrial applications at a later stage.

5. Maintain the three pillars moving forward

The current system with three pillars in Horizon Europe should be maintained. The three pillars represent different logics that complement each other in a well-functioning research and innovation system. However, all pillars should be designed to include elements of industrial participation. This is needed to better reflect the fact that industry is key to finding the solutions needed in the short and long term and that industry accounts for the largest share of total R&D expenditures in Europe.

- Pillar I – Include industry in defining strategic areas

The first pillar is based on academically driven research. The ambition must be to maintain the highest international quality, combined with achieving results in areas that strengthen Europe's competitiveness. Both academia and industry should be involved in defining these areas. Pillar I should include basic research

as well as more applied research, focusing on excellence in strategically important areas. This should continue to include support for excellent researchers and doctoral students and the infrastructure needed to attract the best international researchers.

- Pillar II – Include industry-driven innovation programs

The second pillar in FP10 encompasses needs-driven research and development. The focus should be on the needs of companies and their innovation capabilities. FP10 should include industry-driven research and innovation programs that are oriented towards areas that are strategically important for European industry and its competitiveness. See recommendation 3 for more developed suggestions. It is crucial for both industry and other research actors that research driven by industrial needs in pillar II receives adequate funding. This enables cooperation between academia and industry, which is a key going forward.

- Pillar III - Scale up innovations across the industrial system

In the third pillar for innovation, the focus should be on scaling up new solutions and facilitating market introduction. A major challenge for European industries lies in small and medium-sized enterprises (SMEs) and their access to financing for scaling up. Therefore, it is important that pillar 3 supports SMEs with a focus on scaling up innovations. Currently, pillar 3 and the EIC consist of three different parts: EIC Pathfinder, aimed at supporting high-risk deep tech projects; EIC Transition, aimed at validating ideas and bridging the gap between research and application development; and EIC Accelerator, aimed at supporting start-ups and SMEs to scale up to new markets.

Pillar 3 needs to be developed to ensure that value creation stays in Europe. Among other things, by:

- Expand to include established companies and the surrounding society

Currently, the EIC is mainly focused on universities and start-ups and scale-ups related to research institutes. To increase the EU's competitiveness, the scope must be broadened and more clearly include cooperation with already existing companies and with society at large. The EIC must particularly improve its ability to handle projects with a high TRL level but a low market readiness level to ensure that products and services can reach the market faster. It is generally important that pillar 3 is developed to be able to manage and improve the conditions for scaling up technologies in a satisfactory manner. Otherwise, there is a risk that the industrial policy area will go further down the TRL levels, which in turn risks distorting and reducing transparency in selection criteria and selection processes. It is more appropriate that this is based on the logic of research and innovation policy, before industrial policy takes over.

- Ensure that the entire innovation pillar has the overarching goal of shortening time to market

Today, it takes too long for new products and services to reach the market, and time to market must therefore become a clearer KPI for the EIC going forward.

The conditions for this can be improved by for example clearly require - in other parts of the framework programme - that researchers and projects that is funded early on have an idea of how scaling up might look at a later stage.

- Include more tools to ensure European innovation capability

To ensure effective innovation at the European level, pillar III should include and coordinate other forms of tools such as innovation procurement, regulatory sandboxes, and financing the use of test environments. However, the primary focus and funding for the framework programme should generally be related to pillar 2. Therefore, the EIC and pillar 3 should not be developed and financed if it comes at the expense of the industrial parts of the programme.

6. Create synergies between existing research programs and open up for applications with dual-use potential

The next framework programme needs to ensure that there are sufficient synergies with already existing research and innovation programs, both civilian and within the defense area. This includes programs such as the Digital Europe programme and programs within the European Defence Fund.

The civil technology industry has taken over much of the technological development that previously took place in the defense sector, which requires good structures to ensure adequate knowledge transfer between the sectors. Therefore, part of the next framework programme should be open for applications with dual-use potential. By opening up a small part of the framework programme for civilian research project applications, but with an articulated dual-use potential, the next framework programme can accept more excellent proposals and become an important bridge between civilian and defense research which is largely builds on the same technologies. The current structure, with a strict separation between civilian and defense research, is not considered to promote an effective utilization of resources and competence. In general, the programme should continue to be primarily designed as a civilian research programme based on openness. Strictly military research should still be handled within the European Defence Fund. It is important that European civilian research programs and defense research programs do not have to compete for funding. Both the upcoming civil framework programme and the European Defence Fund require significantly increased budgets to be internationally competitive.

7. Include technology infrastructures in FP10

A well-functioning technology infrastructure can support and facilitate industrial innovation and transition processes, and make it easier for new technologies, materials, and solutions to move from the lab to the market. Within these infrastructures, new technologies and processes can be tested and verified, and new prototypes can be developed and scaled up for market introduction. As the industry moves towards increasingly technically advanced

goods, services, and systems, test environments are important for quickly determining what works and what doesn't. The Commission's ongoing work to find a European approach to increasing the visibility, use, and funding of technology infrastructures should be promoted. A comprehensive European policy and governance model for technology infrastructure to increase industrial use is needed. Specifically requested are:

- Broaden the concept to include a variety of test environments

Technology infrastructures can have different characteristics. They can include both physical facilities and virtual environments. It is becoming increasingly common to have "real user environments" where technology and new solutions are tested in the actual environment where they will be used. This happens, for example, through tests in companies' own laboratories or in societal environments. A prerequisite for testing in a public environment is that there are agreements with public actors. In addition, existing regulations often need to be modernized. Today's regulations are inefficient and force companies to build new testbeds outside their own environment. This is because existing rules do not equate testbeds in companies' laboratories with external testbeds. It is counterproductive and must be addressed to increase the efficiency and range of test environments in Europe. While new relevant test environments are being developed, regulations that affect new technology use need to be adapted and new standards need to be established. There is a need for investments in regulatory testbeds to develop regulations that support innovation. To ensure that both current and future technology infrastructures are relevant to industry and can handle major transformative technological shifts, technology infrastructures must extend to the industrial use of research infrastructure and test environments in a public setting.

- Early dialogue with stakeholders

The industry's needs for technology infrastructure are changing rapidly. Therefore, it is important with a structured governance model and dialogue forms to ensure that the right supply is continuously available. Dialogue forms should be designed to handle various aspects such as long-term funding, construction, and operation of technology infrastructure, as well as project financing for the use of test and demonstration environments. This can be achieved through:

- The European Partnerships (PPP) could be given role as a dialogue platform between industry, RTO:s, academia, and the Commission, particularly regarding the relevance of existing technology infrastructure and future needs. Other forms of industry-led collaborative research projects in pillar 2 can also take on this role.

- Agreements concerning long-term funding, construction, and operation of technology infrastructure. Models used in the establishment of Astra Zero and SEEL can be used as a starting point.

- Regarding project financing for the use of technology infrastructure by one or more actors, different models can be used. One model is that the European partnerships have resources for project financing of tests, which should primarily go to projects where several actors (companies, RTO:s, and academia) collaborate on a project linked to a technology infrastructure. For individual companies, primarily SMEs,

special vouchers to cover part of the usage cost can be a suitable financing form.

- Need for European funding of technology infrastructure

As there is a European structure and funding directly related to test and demonstration environments for the needs of academia (i.e., research infrastructures), there is a need for a European structure and funding for test and demonstration environments that meet the needs of industry. To ensure that industry needs permeate policy and funding for technology infrastructures, a governance mechanism like that for research infrastructure – through ESFRI – is proposed. For a European strategy on technology infrastructure to be effective, testbeds need to be prioritized and funded. Public-private partnerships (PPP) should play a central role in the prioritization and funding of testbeds. Industry-led partnerships focus on important sectors in Europe and receive long-term funding in competition. The programmes focus on challenges, develop competencies and innovations, and are based on cooperation between industry, society, and research actors. The partnerships are therefore well-suited to define and prioritize the needs for technology infrastructure. This can then form the basis for a European strategic roadmap for technology infrastructure (comparable to ESFRI). Proposed criteria for funding technology infrastructures prioritized by European partnerships:

- Cross value chain

- Clear offerings/specified technologies

- Accessibility and openness

- Resources that extend beyond a single project

- Open technologies/applications and IT infrastructure that are not limited to specific products/processes/users

- The technology infrastructure can be adapted to test new products, services, and processes

- Cooperation between industry, educational institutions, research, RTO:s, and the public sector

- A business model that clarifies the costs in the technology infrastructure and contributes to the long-term financing of the technology infrastructure

- Industry's need for technology infrastructure services at the European Level

Three different types of test environments correspond to different levels on the TRL scale. At a European level, it is most appropriate and effective to focus on test environments in the middle TRL scale, which can broadly benefit the industry within a subject. This type of technology infrastructure needs to include everything from materials to production systems and business models. Technology infrastructures at a higher TRL level are more complicated from a competition perspective because they can promote "intra-competitor protection". If technology infrastructures at a higher TRL level are to be relevant at a European level, it need to focus on solutions that are very "close

to the market" and where tests need to be conducted at a European level to reduce the risk of ending up with 27 different solutions. Overall, access to technology infrastructure in Europe should be guided by where individual actors cannot create a satisfactory test environment on their own with reasonable means.

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