



NESSI Position Paper
May 2012

NESSI Position on
The European Research and
Innovation Framework Programme
2014 - 2020
-
Horizon 2020

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1. Preamble

NESSI, the European Technology Platform dedicated to Software and Service, welcomes the European Commission proposal for the new European Research and Innovation Framework Programme 2014-2020. The approaches outlined in Horizon 2020 have a high potential to make considerable contributions to strengthening the European research area and will facilitate the enhanced participation of the research community in European research activities.

An important step forward is the introduction of a common framework within Horizon 2020 that covers the full range of research, development and innovation (RDI) instruments at EU-level, covering from basic research to activities to support market take up. NESSI considers an appropriate implementation of this new approach of Horizon 2020 as essential to considerably raise the EU's future R&I impact on society and economy. By covering the full technology innovation cycle by one single framework the currently existing bottlenecks can be eliminated.

NESSI welcomes the intention to streamline the administrative processes. The introduction of a new set of rules and a rationalised set of instruments with appropriate flexibility attached can truly lower administrative burdens will facilitate participation in research and innovation projects. The new EU approach will provide for a more efficient and effective use of EU funds.

Horizon 2020 is set out to strengthen Europe's global position in research and innovation. Therefore, NESSI welcomes the European Commission's proposal to start a fully integrated research to innovation programme, build on three mutually reinforcing blocks for scientific excellence, industrial competitiveness and for dealing with the societal challenges. This approach will efficiently work when the necessary coordination effort to keep the innovation cycle intact is catered for.

Furthermore, NESSI supports the aim of the European Commission to maintain and build global leadership in enabling technologies that underpin industrial competitiveness across a range of existing and emerging industries and sectors. Europe needs a strong industrial research basis as well as greater efficiency in areas like innovation, knowledge transfer and market entry. Therefore, NESSI supports the idea in Horizon 2020 to increase strategic investments in research, development, validation and pilot activities with a focus on enabling technologies, including ICT.

NESSI fully shares the view of the European Commission that ICT is a technology which underpins innovation and competitiveness across a broad range of private and public markets and sectors. EU support to ICT research and innovation is a significant component to prepare the next generation technologies and applications.

2. European Software & Services

Within the Europe 2020 Strategy the “Digital Agenda for Europe”- flagship initiative highlights the fundamental enabling role that ICT plays already today in many daily life, public sector and business areas [1]. This role will further develop to a ubiquitous technology indispensable in almost all segments and sectors of Europe’s future economy. ICT represents 6% of total employment in OECD countries [2, p. 4] and the compound annual growth rate of the overall sector over the last 20 years amounts to 4,8% [2, p. 2], rendering it a driving force of Europe’s economy. Due to its horizontal characteristic, ICT boosts a number of other sectors that intensively use ICT in their production or functioning. It has been found that between 1995 and 2010, around 20% of economic activity in the OECD was ICT-intensive [3].

The contribution of ICT to productivity growth is evident from many national and international statistics. The ICT industry is the sector with the highest Business Expenditure on Research and Development (BERD) with a 25% share of total European BERD [4]. The software and service sector is beside the microelectronic one the domain in ICT with the highest research intensity [5, p. 37].

Estimates say that 50% of productivity gains are due to software-based processes [6] making software a strategic asset for the European industry. The traditional strong industrial sectors in Europe (machinery, automotive, chemicals, and pharmacy) are depending on software to gain productivity enhancing effects to stay competitive and innovative.

Software and Services is one of the sectors with the highest research intensity. 12% of top ICT firms R&D revenue goes into research expenditure [5, p. 36]. The R&D employment rose by 50% between 2005 and 2010 [7, p. 5]. The Truffle 100 analysis shows that R&D in the Services sector is a driver for growth and profitability, contributing to 21% of the ICT sector’s profitability [5, p. 36] and a 14% growth rate in 2009 [7, p. 4].

On the other hand, over the last decade, the service sector has become one of the biggest and fastest-growing ICT business sectors [5, p. 34]. In the Internet of Services, innovative technological developments drive the creation of new delivery channels for services and entirely new business models.

Software and Services also foster a considerable amount of innovation activities aligned to the quick evolution of the market. These activities are often carried out in ever more complex business ecosystems composed of enterprises of all sizes. Among these, SMEs often play a crucial role in identifying market needs and providing efficient responses in rather short innovation cycles.

3. Recommendations specific to Software and Services

ICT, including Software and Services, is indeed a sector that has considerable impact on the economy through its research intensity, through its role as enabling technology for enhancing productivity as well as in terms of growth and employment. Although it is NESSI's view that the proposed regulations bring about many improvements compared to previous framework programmes, some areas might still need second consideration.

The proposed improvements outlined in the following sections would help leverage RDI in the Software and Services sector so that it fully achieves its enabling effects on Europe and its citizens.

3.1. ICT for societal challenges to be addressed in an integrated way

Context

The Societal Challenges priority is the most complex priority in the Horizon 2020 framework. Most areas cannot be allocated to only one single technology sector but include many industrial, business and public sector stakeholders. Many different technologies such as Transport, Energy, etc. will be involved in virtually all areas such as eHealth, Secure Societies, etc. Yet ICT will inevitably play the most vital horizontal role enabling more efficient use of resources, new business and service models.

Defining work programmes and the subsequent implementation (managing the proposal and project cycle of individual actions) in this priority certainly represents a huge challenge that will affect the DGs responsible for the respective areas. Furthermore ICT based solutions can be found in almost all the applied areas described under the "Societal Challenges" priority, making it necessary to install a mechanism that avoids redundancy, use of obsolete technology, etc. This "mechanism" also needs to address the horizontal support that ICT can provide through innovative solutions.

Without a "central" function that is responsible for the horizontal/ enabling technologies particularly ICT, participation of the ICT industry will drop significantly and innovative results coming from "Industrial leadership" priority will not be exploited at its full potential.

Therefore, NESSI advocates the need for a cross-DG management in order to bring ICT research and innovation in applied areas together and to avoid that applied areas do not adequately build on latest ICT developments. This would ensure a higher level of industrial investment that is necessary for these results to be exploited at their full potential. Particularly SME participation will need support, since the application oriented nature of SC and their strength to invent user and market oriented solutions will be a great success factor of the programme.

Recommendations

Work Programmes in the "Societal Challenges" priority of the Horizon 2020 Programme should be defined in collaboration with European ICT Technology Platforms and other KET stakeholders. This will ensure that ICT technologies and efforts needed to be integrated in projects in this are clearly identified.

Adequate management of horizontal aspects such as ICT and KETs will be an essential part of the implementation of the Societal Challenges priority. Collaboration with industrial leadership for the integration of latest EU ICT research results should be a key evaluation criterion. NESSI advocates that the evaluation of project proposals submitted under the "Societal Challenges" priority should involve industry and business experts from cross cutting areas such as ICT.

3.2. Further increase the agility of European research projects

Context

The Software and Services technology is advancing at a breath-taking speed. Markets have seen disruptive developments. New offerings built on “new” business models have revolutionised the sector with integration of technologies and services with unprecedented impacts. Adding music services to their computer hardware products and redefining the mobile telephony user experience has made “Apple” the company with the highest stock market value within few years. The Android handset operation system introduced by a search engine company (Google) has conquered the mobile telephone market within 2 years overtaking all other operating systems.

Europe needs to speed up its research innovation programme and make it more flexible to be able to react on technology developments and evolving market needs. Particularly Software and Services has a very different innovation cycle as opposed to the e.g. telecommunication network technology where new technology takes up to ten years to market introduction. Software research is based on short and focused cycles in which prototyping, testing, validation and pilot activities constitute a large part of the process. Its user oriented nature makes it particularly sensitive to market changes. Therefore research and innovation needs to be fast and flexible to effectively seize opportunities.

While there is an obligation for political programme setting and priority definition for long term objectives, there is also clear need for bottom up project definition with fast application-to-contract cycles and in-project flexibility. Indeed, like other fast moving technologies do, ICT research also requires the flexibility in project size, - duration and topics in order to either push to shorter ramp-up of research activities or in order to have longer projects to be able to better follow market trends and state-of-the-art evolution. NESSI shares the concerns expressed by DIGITALEUROPE that “the rules for participation fail to provide concrete ways to give on-going projects the flexibility needed to adapt to market developments and retain their industrial relevance.” [8]

Recommendations

The Horizon 2020 rules for participation should also allow for bottom up definitions of projects and it should have a distinct place besides political long term programming.

The Horizon 2020 Framework Programme should enable participants to adapt and re-shape the content of research projects at runtime in order to change the focus according to market needs and technology developments. The simplification of direct follow-on activities for projects such as piloting, demonstration and take –up by providing instruments that can be applied at any stage of a running project and that are not constrained by specific calls and timelines. Furthermore PPP principles should be envisaged for a real integrated approach between the various phases of key parts of the program.

3.3. Drive Innovation Integration

Context

Europe is reputed for its excellent research but has not the best track record in bringing new inventions to the market. It regularly happens that EU research results are exploited abroad as in the case of MP3. The innovation part of product cycles including piloting, take-up measures and production ramp-up phases are widely used instruments in other geographical areas. Europe has to catch up and the Horizon 2020 has taken up the challenge to integrate the innovation into a single programme.

Previous innovation programmes such as the CIP (Competitiveness and Innovation Programme) have had several shortcomings particularly in the ICT area. The current ICT CIP is per definition a “policy support programme” that focuses on supporting public sector take up of ICT and not an innovation programme per-se. The foreseen budgets are evaluated as being under-critical with app. € 5 Mio. for pan European pilots of eGovernment technologies. CIP funding rates differ significantly, which results for many industry players in making it difficult to match these rates to internal company funding and investment rules.

The aim of the Horizon 2020 programme to integrate innovation is encouraging but requires true integration regarding instruments, processes, funding and innovation focussed (i.e. market-oriented) organisations such as SMEs. Today, project consortia have to wait for a relevant call to be published and then have to go through a full new proposal cycle. In Horizon 2020, continued work on successful projects and taking project results, feeding them into innovation or pilot projects needs to be “immediately” possible without waiting for a next and hopefully adequate call for proposals.

Furthermore it needs to be possible to integrate innovation into a research project. The current proposal requires separate projects supported with different funding schemes (100% of direct costs / 20 % indirect cost flat rate for research projects versus 70% of direct costs / 20 % indirect cost flat rate for Innovation projects). This will lead to a disintegration of the research and innovation activities.

While the streamlining of research and innovation funding programmes is welcome, the flexibility needed for carrying out innovation activities should be ensured.

Recommendations

A better coupling of instruments should be found in order to support different stages in the innovation lifecycle. For instance add-on pilots or spin-offs from research projects should be supported through flexible instruments such as open calls.

A facilitation of the proposal phase for results directly emanating from funded research projects would also be a useful mean. NESSI advocates that funding to innovation activities such as pilots should be adapted to the same funding levels as those for research activities.

3.4. Fostering European ICT SMEs and start-up creation

Context

Many elements in Horizon 2020 address the participation and support of SMEs either under the specific objective “Innovation in SMEs” or through the simplification of funding rules or the increased support for venture capital. Yet the target of 15% of budget of the “Industrial Leadership” and the “Societal Challenges” priorities to go to SMEs is by far not ambitious considering the fact that today’s level of participation is comparable.

High-tech research intensive SMEs can be the essential bridge between novel ideas from science on the one hand, and marketable ideas on the other [9]. As such, SMEs are instrumental in providing smart, easy-to-use, affordable technology [10].

However they typically plan on shorter time horizons and only few manage long-term RDI programs in similar ways as large research organisation in academic institutions and industry do. Improvements should therefore be implemented by making the integration of SMEs in research projects more flexible – in particular by reducing the need to participate in the full lifecycle of a project.

While a unique set of rules will be more beneficial for organisations participating in several projects, SMEs participating in only one project will not notice the effects of the streamlining and would benefit more from flexible and purpose-suited rules. However, the rules for participation do not provide concrete ways in which flexibility will be achieved [11].

While the proposed Regulation establishing Horizon 2020 mentions a “dedicated SME instrument”, the proposed rules for participation only re-iterate FP7 rules concerning personnel costs of owners of SMEs.

Recommendations

The rules for participation should create the necessary flexibility to allow for the integration of SMEs at project runtime and for limited shorter-than-project time-frames (e.g. 1 year) in research projects.

The Framework Programme should also create a new category of smaller (micro) projects for SMEs that can be created independently or as spin-outs from larger research projects. In addition, evaluation procedures that accommodate the specific character of SMEs should be considered. Particularly, diminishing the role of academic evaluators especially in impact related programs and replacing it with business orientated evaluators (SMEs, Large industry, venture capitalists) would go in this direction.

3.5. Support European ICT Innovation via a Balanced IP and Open Access Approach

Context

The international development model of software and services is partially based on open contributions (e.g. specifications of open standards) and equally on proprietary IP (e.g. proprietary algorithms for data analytics, search or large scale data handling in the cloud).

In order to make research projects attractive for ICT industry players and not to diminish industry participation below the currently appr. 25% [12] in the current cooperation programme, a balance needs to be found between open access of results or IP protection and joint or individual exploitation by project partners via licensing.

The default regime for joint ownership should be a regime that supports exploitation and does not drive parties away from genuine collaboration [8]. The currently proposed default rules concerning joint ownership introducing limitations and obligations of compensating other owners in case of licensing of joint project results to third parties is likely to bring the opposite effect.

Furthermore, the push towards open access of project results other than publications might have an adverse effect on the evaluation. Consortia that do not consider to put all the results in e.g. open source should not be disadvantaged. The support the EU is giving to industrial research investments with the intention to share the risk associated with it, should not be tied to the obligation to give away the results for free.

Finally, ICT companies need to be sure that IPR remains in their possession while contributing to EU research. Clauses that impose limitations on transfer of results to company's legal entities established outside the Union might have adverse effects on the capacity of project participants to efficiently exploit project results.

Recommendations

The rules for participation should balance open access versus the legitimate rights to exploit and license project results. They should provide research projects and consortia with flexibility regarding these options rather than providing general rules that will not fit all specific cases.

The rules for participation should also support exploitation of results through affiliates and within groups or networks (ecosystems) of companies by allowing for worldwide transfer or licensing of results.

3.6. Improve Global Impact of European ICT Innovation

Context

In the 21st Century, not only large multinational companies act globally but increasingly small and medium sized businesses have to address the worldwide market. This is particularly true for the ICT industry, where e.g. SAP, the biggest European software company makes more than 50% of its revenues in Asia, America and the South Pacific [13].

Software research and innovation is a worldwide and interconnected activity. Siemens has around 30 R&D centres outside Europe [14]. SAP just opened a new research facility in Singapore, having centres in US, South Africa or Australia. No European ICT company can afford not to be present in markets like the US or the BRIC countries. Indeed promoting international cooperation in software research and development opens access to emerging and expanding markets.

For this reason, it is vital to further foster international research collaboration and allow for “win-win research” projects with partners from non-European countries through cooperation with non-EU-partners [15].

NESSI is concerned about Article 7 of the proposed Regulation establishing Horizon 2020 that introduces legal uncertainty when referring to countries having “geographical links” with the Union or “good track record” of participation in Union funded programmes.

Recommendations

The Horizon 2020 proposal should be more concrete in the definition of how international collaboration will be promoted on key topics such as standardization for ICT research and in strategic applied areas. The evaluation of e.g. large scale ICT research projects should clearly take into account their potential for international collaboration

Based on reciprocity, collaboration with third country funding programs should be increased in particular with those leading in ICT innovation such as the United States, Japan, Israel or BRIC Countries. Higher levels of funding resources should be foreseen in conjunction with clearly defined and quantifiable targets (number of participant from non-EU countries, joint patents, etc.) which can be measured and reported.

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**Annex I:
Potential Amendments**

**to Regulation establishing Horizon 2020 - The Framework
Programme for Research and Innovation (2014-2020)**

and

**to Regulation laying down the rules for the participation
and dissemination in 'Horizon 2020 – the Framework
Programme for Research and Innovation (2014-2020)'**



1. Regulation establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020) – core text.

	Original article	Proposed amendment
Section 3.1	<p>Article 13. Cross-cutting actions</p> <p>1. Linkages and interfaces shall be implemented across and within the priorities of Horizon 2020. Particular attention shall be paid in this respect to the development and application of key enabling and industrial technologies, to bridging from discovery to market application, to cross-disciplinary research and innovation, to social and economic sciences and humanities, to fostering the functioning and achievement of the ERA, to cooperation with third countries, to responsible research and innovation including gender, and to enhancing the attractiveness of the research profession and to facilitating cross-border and cross-sector mobility of researchers.</p>	<p>Article 13. Cross-cutting actions</p> <p>1. Linkages and interfaces shall be implemented across and within the priorities of Horizon 2020. Particular attention shall be paid in this respect to the development and application of key enabling and industrial technologies and to ensuring that state-of-the-art solutions are used to meet Societal Challenges, to bridging from discovery to market application, to cross-disciplinary research and innovation, to social and economic sciences and humanities, to fostering the functioning and achievement of the ERA, to cooperation with third countries, to responsible research and innovation including gender, and to enhancing the attractiveness of the research profession and to facilitating cross-border and cross-sector mobility of researchers.</p>
Section 3.2	<p>Article 14 Evolving nature of science, technology, innovation, markets and society</p> <p>Horizon 2020 shall be implemented in a manner ensuring that the priorities and actions supported are relevant to changing needs and take account of the evolving nature of science, technology, innovation, markets and society, where innovation includes business, organisational and social aspects.</p>	<p>Article 14 Evolving nature of science, technology, innovation, markets and society</p> <p>Horizon 2020 shall be implemented in a manner ensuring that the priorities and actions supported are relevant to changing needs and take account of the evolving nature of science, technology, innovation, markets and society, where innovation includes business, organisational and social aspects.</p> <p>This flexibility shall also be taken into account during the implementation of individual actions.</p>



Section 3.2	<p style="text-align: center;">Article 19 Public-private partnerships</p> <p>1. Horizon 2020 may be implemented through public-private partnerships where all the partners concerned commit to support the development and implementation of research and innovation activities of strategic importance to the Union's competitiveness and industrial leadership or to address specific societal challenges.</p>	<p style="text-align: center;">Article 19 Public-private partnerships</p> <p>1. Horizon 2020 may be implemented through public-private partnerships where all the partners concerned commit to support the development and implementation of research and innovation activities of strategic importance to the Union's competitiveness and industrial leadership or to address specific societal challenges. Public Private Partnerships shall ensure that a real integrated approach is taken between the various phases of key parts of the program.</p>
Section 3.1	<p style="text-align: center;">Article 25 Monitoring</p> <ol style="list-style-type: none"> 1. The Commission shall annually monitor the implementation of Horizon 2020, its specific programme and the activities of the European Institute of Innovation and Technology. This shall include information on cross-cutting topics such as sustainability and climate change, including information on the amount of climate related expenditure. 2. [...] 	<p style="text-align: center;">Article 25 Monitoring</p> <ol style="list-style-type: none"> 1. The Commission shall annually monitor the implementation of Horizon 2020, its specific programme and the activities of the European Institute of Innovation and Technology. This shall include information on cross-cutting topics such as sustainability and climate change, including information on the amount of climate related expenditure as well as an assessment of the application of state-of-the-art solutions provided by Key Enabling and Information and Communication Technologies to meet Societal Challenges. 2. [...]



2. Regulation establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020) – Annex I.

	Original article	Proposed amendment
Section 3.1	<p>Broad lines of the specific objectives and activities, p. 28, paragraph 3</p> <p>This general objective shall be pursued through three distinct, yet mutually reinforcing, priorities, each containing a set of specific objectives. They will be implemented in a seamless manner in order to foster interactions between the different specific objectives, avoid any duplication of effort and reinforce their combined impact.</p>	<p>Broad lines of the specific objectives and activities, p. 28, paragraph 3</p> <p>This general objective shall be pursued through three distinct, yet mutually reinforcing, priorities, each containing a set of specific objectives. They will be implemented in a seamless manner in order to foster interactions between the different specific objectives, avoid any duplication of effort and reinforce their combined impact. A specific coordination mechanism shall be put in place in order to ensure that the most innovative research results of each priority are the ones channelled into the other priorities.</p>

<p>Sections 3.1 & 3.4</p>	<p>PART II. PRIORITY 'INDUSTRIAL LEADERSHIP', p. 29,</p> <p>[...]</p> <p>c. Innovation in SMEs shall stimulate all forms of innovation in SMEs, targeting those with the potential to grow and internationalise across the single market and beyond.</p> <p>The activities shall follow a business-driven agenda. The budgets for the specific objectives 'Access to risk finance' and 'Innovation in SMEs' will follow a demand-driven, bottom-up logic, without predetermined priorities. These shall be complemented by the use of financial instruments and a dedicated SME instrument following a policy driven logic within the Part on 'Societal challenges' and the specific objective 'Leadership in enabling and industrial technologies'.</p> <p>Horizon 2020 will take an integrated approach to the participation of SMEs, which could lead to around 15 % of the total combined budgets for all specific objectives on societal challenges and the specific objective 'Leadership in enabling and industrial technologies' being devoted to SMEs.</p> <p>The specific objective 'Leadership in enabling and industrial technologies' shall follow a technology-driven approach to develop enabling technologies that can be used in multiple areas, industries and services. Applications of these technologies to meet societal challenges shall be supported together with the Societal challenges.</p>	<p>PART II. PRIORITY 'INDUSTRIAL LEADERSHIP', p. 29,</p> <p>[...]</p> <p>c. Innovation in SMEs shall stimulate all forms of innovation in SMEs, targeting those with the potential to grow and internationalise across the single market and beyond.</p> <p>The activities shall follow a business-driven agenda. The budgets for the specific objectives 'Access to risk finance' and 'Innovation in SMEs' will follow a demand-driven, bottom-up logic, without predetermined priorities. These shall be complemented by the use of financial instruments, flexible rules for participation and a dedicated SME instrument following a policy driven logic within the Part on 'Societal challenges' and the specific objective 'Leadership in enabling and industrial technologies'.</p> <p>Horizon 2020 will take an integrated approach to the participation of SMEs, which could lead to around 15 % of the total combined budgets for all specific objectives on societal challenges and the specific objective 'Leadership in enabling and industrial technologies' being devoted to SMEs.</p> <p>The specific objective 'Leadership in enabling and industrial technologies' shall follow a technology-driven approach to develop enabling technologies that can be used in multiple areas, industries and services. Applications of these technologies to meet societal challenges shall be supported together with the Societal challenges. However, the Commission as well as other funding bodies shall ensure that the necessary visibility is maintained for industrial players to identify those areas of the Societal Challenges where their expertise can be best put in practice.</p>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Section 3.1 & 3.2</p> <p>PART II INDUSTRIAL LEADERSHIP 1. LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES p.42,</p> <p>The successful mastering and deployment of enabling technologies by European industry is a key factor in strengthening Europe's productivity and innovation capacity and ensuring Europe has an advanced, sustainable and competitive economy, global leadership in hi-tech application sectors and the ability to develop effective solutions for societal challenges. The pervasive nature of such activities can spur further progress through complementary inventions and applications, ensuring a higher return on investment in these technologies than in any other field.</p> <p>[...]</p> <p>The integration of enabling technologies in solutions for the societal challenges shall be supported together with the relevant challenges. Applications of enabling technologies that do not fall under the societal challenges, but are important for reinforcing the competitiveness of European industry, shall be supported under 'Leadership in Enabling and Industrial Technologies'.</p> <p><i>A common approach</i> The approach shall include both agenda-driven activities and more open areas to promote innovative projects and breakthrough solutions. Emphasis shall be on R&D, large-scale pilots and demonstration activities, test beds and living labs, prototyping and product validation in pilot lines. Activities shall be designed to boost industrial competitiveness by stimulating industry, and in particular SMEs, to make more research and innovation investment.</p>	<p>PART II INDUSTRIAL LEADERSHIP 1. LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES p.42,</p> <p>The successful mastering and deployment of enabling technologies by European industry is a key factor in strengthening Europe's productivity and innovation capacity and ensuring Europe has an advanced, sustainable and competitive economy, global leadership in hi-tech application sectors and the ability to develop effective solutions for societal challenges. The pervasive nature of such activities can spur further progress through complementary inventions and applications, ensuring a higher return on investment in these technologies than in any other field. The development of add-on pilots or spin-offs from research projects shall be supported through flexible instruments such as open calls.</p> <p>[...]</p> <p>The integration of enabling technologies in solutions for the societal challenges shall be supported together with the relevant challenges. Applications of enabling technologies that do not fall under the societal challenges, but are important for reinforcing the competitiveness of European industry, shall be supported under 'Leadership in Enabling and Industrial Technologies'. However, a coordination mechanism shall be put in place in order to ensure that Key Enabling and Information and Communication Technologies are applied in the most efficient way in the Societal Challenges priority.</p> <p><i>A common approach</i> The approach shall include both agenda-driven activities and more open areas to promote innovative projects and breakthrough solutions. Emphasis shall be on R&D, large-scale pilots and demonstration activities, test beds and living labs, prototyping and product validation in pilot lines. Activities shall be designed to boost industrial competitiveness by stimulating industry, and in particular SMEs, to make more research and innovation investment. Direct follow-on activities for projects such as piloting, demonstration and take –up shall be supported through flexible instruments such as open calls.</p>
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Section 3.1 & 3.2	<p>PART II INDUSTRIAL LEADERSHIP 1. LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES 1.1. Information and Communication Technologies (ICT) 1.1.3. Broad lines of the activities</p> <p>These six major activity lines are expected to cover the full range of needs. These would include industrial leadership in generic ICT-based solutions, products and services needed to tackle major societal challenges as well as application-driven ICT research and innovation agendas which will be supported together with the relevant societal challenge.</p> <p>These six activity lines shall also include ICT specific research infrastructures such as living labs for large-scale experimentation, and infrastructures for underlying key enabling technologies and their integration in advanced products and innovative smart systems, including equipment, tools, support services, clean rooms and access to foundries for prototyping.</p>	<p>PART II INDUSTRIAL LEADERSHIP 1. LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES 1.1. Information and Communication Technologies (ICT) 1.1.3. Broad lines of the activities</p> <p>These six major activity lines are expected to cover the full range of needs. These would include industrial leadership in generic ICT-based solutions, products and services needed to tackle major societal challenges as well as application-driven ICT research and innovation agendas which will be supported together with the relevant societal challenge. Special attention shall be given to ensuring that state-of-the-art ICT solutions are selected for projects funded under the Societal Challenges priority.</p> <p>These six activity lines shall also include ICT specific research infrastructures such as living labs for large-scale experimentation, and infrastructures for underlying key enabling technologies and their integration in advanced products and innovative smart systems, including equipment, tools, support services, clean rooms and access to foundries for prototyping.</p> <p>The diversity of research areas and cycles characteristic to ICT research shall be catered for through the introduction of flexibility in the rules for participation in order to allow for long-term cost-intensive large-scale research projects as well as fast opportunity seizing activities identified by the market.</p>
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Section 3.4	<p>PART II INDUSTRIAL LEADERSHIP 3. INNOVATION IN SMALL AND MEDIUM-SIZED ENTERPRISES 3.3. Broad lines of the activities, p. 59</p> <p>(a) Mainstreaming SME support</p> <p>SMEs shall be supported across Horizon 2020. For this purpose a dedicated SME instrument shall provide staged and seamless support covering the whole innovation cycle. The SME instrument shall be targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise. It shall be provided for all types of innovation, including service, non-technological and social innovations. The aim is to develop and capitalise on the innovation potential of SMEs by filling the gap in funding for early stage high risk research and innovation, stimulating innovations and increasing private-sector commercialisation of research results.</p> <p>All of the specific objectives on societal challenges and on leadership in enabling and industrial technologies will apply the dedicated SME instrument and will allocate an amount for this.</p> <p>(b) Support for research intensive SMEs</p> <p>The goal is to promote market-oriented innovation of R&D performing SMEs. A specific action shall target research intensive SMEs in high-technology sectors that show the capability to commercially exploit the project results.</p> <p>(c) Enhancing the innovation capacity of SMEs</p> <p>Activities assisting the implementation and complementing the SME specific measures across Horizon 2020 shall be supported, notably to enhance the innovation capacity of SMEs.</p> <p>(d) Supporting market-driven innovation</p> <p>Supporting market-driven innovation to improve the framework conditions for innovation and tackling the specific barriers preventing, in particular, the growth of innovative SMEs.</p>	<p>PART II INDUSTRIAL LEADERSHIP 3. INNOVATION IN SMALL AND MEDIUM-SIZED ENTERPRISES 3.3. Broad lines of the activities, p. 59</p> <p>(a) Mainstreaming SME support</p> <p>SMEs shall be supported across Horizon 2020. For this purpose a dedicated SME instrument shall provide staged and seamless support covering the whole innovation cycle. The SME instrument shall be targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise. It shall be provided for all types of innovation, including service, non-technological and social innovations. The aim is to develop and capitalise on the innovation potential of SMEs by filling the gap in funding for early stage high risk research and innovation, stimulating innovations and increasing private-sector commercialisation of research results.</p> <p>All of the specific objectives on societal challenges and on leadership in enabling and industrial technologies will apply the dedicated SME instrument and will allocate an amount for this. This instrument shall create the necessary flexibility to allow for the integration of SMEs at project runtime and for limited shorter-than-project time-frames into research projects. It shall also allow the creation of a new category of smaller (micro) projects for SMEs that can be created independently or as spin-outs from larger research projects.</p> <p>(b) Support for research intensive SMEs</p> <p>The goal is to promote market-oriented innovation of R&D performing SMEs. A specific action shall target research intensive SMEs in high-technology sectors that show the capability to commercially exploit the project results.</p> <p>(c) Enhancing the innovation capacity of SMEs</p> <p>Activities assisting the implementation and complementing the SME specific measures across Horizon 2020 shall be supported, notably to enhance the innovation capacity of SMEs.</p> <p>(d) Supporting market-driven innovation</p> <p>Supporting market-driven innovation to improve the framework conditions for innovation and tackling the specific barriers preventing, in particular, the growth of innovative SMEs.</p>
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3. Regulation laying down the rules for the participation and dissemination in 'Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)'

	Original article	Proposed amendment
Section 3.2	<p style="text-align: center;">PREAMBLE</p> <p>(6) An integrated approach should be ensured by bringing together activities covered by the Seventh Framework Programme for research, the Competitiveness and Innovation Framework Programme and the European Institute of Innovation and Technology (the EIT) to make participation easier, create a more coherent set of instruments and increase the scientific and economic impact while avoiding duplication and fragmentation. Common rules should apply in order to ensure a coherent framework which should facilitate the participation in programmes receiving Union financial contribution from the budget of Horizon 2020, including the participation in programmes managed by the EIT, joint undertakings or any other structures under Article 187 TFEU or participation in programmes undertaken by Member States pursuant to Article 185 TFEU. However, flexibility to adopt specific rules should be ensured when justified by the specific needs of the respective actions and with Commission consent.</p>	<p style="text-align: center;">PREAMBLE</p> <p>(6) An integrated approach should be ensured by bringing together activities covered by the Seventh Framework Programme for research, the Competitiveness and Innovation Framework Programme and the European Institute of Innovation and Technology (the EIT) to make participation easier, create a more coherent set of instruments and increase the scientific and economic impact while avoiding duplication and fragmentation. Common rules should apply in order to ensure a coherent framework which should facilitate the participation in programmes receiving Union financial contribution from the budget of Horizon 2020, including the participation in programmes managed by the EIT, joint undertakings or any other structures under Article 187 TFEU or participation in programmes undertaken by Member States pursuant to Article 185 TFEU. However, flexibility to adopt specific rules should be ensured when justified by the specific needs of the respective actions and with Commission consent. This shall hold especially in order to boost opportunity-seizing activities in sectors with short research and innovation cycles, to ease the participation of SMEs and to simplify procedures for activities directly building on funded research results.</p>
Section 3.1 & 3.2	<p style="text-align: center;">Article 8 Conditions for participation</p> <p>[...]</p> <p>5. Work programmes or work plans may provide for additional conditions according to specific policy requirements or to the nature and objectives of the action, including inter alia conditions regarding the number of participants, the type of participant and the place of establishment.</p>	<p style="text-align: center;">Article 8 Conditions for participation</p> <p>[...]</p> <p>5. Work programmes or work plans may provide for additional conditions according to specific policy requirements or to the nature and objectives of the action, including inter alia conditions regarding the number of participants, the type of participant and the place of establishment.</p> <p>6. Flexibility in the conditions for participation shall be introduced in order to:</p> <ul style="list-style-type: none"> - Boost opportunity-seizing activities in sectors with short research and innovation cycles, - Ease the participation of SMEs, - Simplify procedures for activities directly building on funded research results.



Section 3.6	<p style="text-align: center;">Article 9 Eligibility for funding</p> <p>1. The following participants are eligible for funding from the Union:</p> <ul style="list-style-type: none"> a. [...] b. [...] c. any legal entity established in a third country identified in the work programme. <p>2. In the case of a participating international organisation or in the case of a participating legal entity established in a third country, neither of which are eligible for funding according to paragraph 1, funding from the Union may be granted provided that at least one of the following conditions is fulfilled:</p> <ul style="list-style-type: none"> a. the participation is deemed essential for carrying out the action by the Commission or the relevant funding body; b. such funding is provided for under a bilateral scientific and technological agreement or any other arrangement between the Union and the international organisation or, for entities established in third countries, the country in which the legal entity is established. 	<p style="text-align: center;">Article 9 Eligibility for funding</p> <p>1. The following participants are eligible for funding from the Union:</p> <ul style="list-style-type: none"> a. [...] b. [...] c. any legal entity established in a third country identified in the work programme. <p>2. In the case of a participating international organisation or in the case of a participating legal entity established in a third country, neither of which are eligible for funding according to paragraph 1, funding from the Union may be granted provided that at least one of the following conditions is fulfilled:</p> <ul style="list-style-type: none"> a. the participation is deemed essential for carrying out the action by the Commission or the relevant funding body; b. such funding is provided for under a bilateral scientific and technological agreement or any other arrangement between the Union and the international organisation or, for entities established in third countries, the country in which the legal entity is established. c. cooperation with such legal entity or with the research programme of such third country carries reasonable potential for activities such as international standardization.
Section 3.2	<p style="text-align: center;">Article 10 Calls for proposals</p> <p>Without prejudice to the other cases provided for in Regulation (EU) No XX/2012 [Financial Regulation] and in Regulation (EU) No XX/2012 [Delegated Regulation], calls for proposals shall not be issued for coordination and support actions and programme co-fund actions to be carried out by legal entities identified in the work programmes provided that the action does not fall under the scope of a call for proposals.</p>	<p style="text-align: center;">Article 10 Calls for proposals</p> <p>Without prejudice to the other cases provided for in Regulation (EU) No XX/2012 [Financial Regulation] and in Regulation (EU) No XX/2012 [Delegated Regulation], calls for proposals shall not be issued for coordination and support actions and programme co-fund actions to be carried out by legal entities identified in the work programmes provided that the action does not fall under the scope of a call for proposals.</p> <p>Calls for proposal shall take all forms, including open calls, necessary to ensure the level of flexibility imposed by the diversity of research and innovations sectors and activities, from long-term horizontal projects to short-term opportunity-seizing activities.</p>

Section 3.1	<p style="text-align: center;">Article 14 Selection and award criteria</p> <ol style="list-style-type: none"> 1. The proposals submitted shall be evaluated on the basis of the following award criteria: <ol style="list-style-type: none"> a. excellence; b. impact; c. quality and efficiency of the implementation. 2. The sole criterion of excellence shall apply for proposals for ERC frontier research actions. 3. The work programme or work plan shall lay down further details of the application of the award criteria laid down in paragraph 1, and specify weightings and thresholds. 	<p style="text-align: center;">Article 14 Selection and award criteria</p> <ol style="list-style-type: none"> 1. The proposals submitted shall be evaluated on the basis of the following award criteria: <ol style="list-style-type: none"> a. excellence; b. impact; c. quality and efficiency of the implementation. 2. The sole criterion of excellence shall apply for proposals for ERC frontier research actions. 3. The work programme or work plan shall lay down further details of the application of the award criteria laid down in paragraph 1, and specify weightings and thresholds. Special attention shall be given to ensuring that state-of-the-art solutions provided by key enabling and industrial technologies are used to meet Societal Challenges. 4. Where appropriate, the potential of a proposal to foster international cooperation on key topics such as standardization shall be taken into account in the evaluation procedure.
Section 3.3	<p style="text-align: center;">Article 22 Funding of the action</p> <ol style="list-style-type: none"> 1. [...] 2. [...] 3. A single reimbursement rate of the eligible costs shall be applied per action for all activities funded therein. The maximum rate shall be fixed in the work programme or work plan. 4. The Horizon 2020 grant may reach a maximum of 100 % of the total eligible costs, without prejudice to the co-financing principle. 5. The Horizon 2020 grant shall be limited to a maximum of 70 % of the total eligible costs for the following actions: <ol style="list-style-type: none"> a. actions primarily consisting of activities such as prototyping, testing, demonstrating, experimental development, piloting, market replication; b. programme co-fund actions. 	<p style="text-align: center;">Article 22 Funding of the action</p> <ol style="list-style-type: none"> 1. [...] 2. [...] 3. A single reimbursement rate of the eligible costs shall be applied per action for all activities funded therein. The maximum rate shall be fixed in the work programme or work plan. 4. The Horizon 2020 grant may reach a maximum of 100 % of the total eligible costs, without prejudice to the co-financing principle. 5. The Horizon 2020 grant shall be limited to a maximum of 70 % of the total eligible costs for the following actions: <ol style="list-style-type: none"> a. actions primarily consisting of activities such as prototyping, testing, demonstrating, experimental development, piloting, market replication; b. programme co-fund actions.



Section 3.1 & 3.4	<p style="text-align: center;">Article 37 Appointment of independent experts</p> <p>1. [...] 2. Independent experts shall be chosen on the basis of skills, experience and knowledge appropriate to carry out the tasks assigned to them. [...]</p>	<p style="text-align: center;">Article 37 Appointment of independent experts</p> <p>1. [...] 2. Independent experts shall be chosen on the basis of skills, experience and knowledge appropriate to carry out the tasks assigned to them. Experts from relevant sectors shall be involved wherever key and industrial technologies are to be used to meet Societal Challenges [...]</p>
Section 3.5	<p style="text-align: center;">Article 38 Ownership of results</p> <p>1. [...] 2. [...]</p> <p>Unless otherwise agreed in the joint ownership agreement, each joint owner shall be entitled to grant non-exclusive licences to third parties to exploit the jointly owned results, without any right to sub-licence, subject to the following conditions:</p> <p>a. prior notice shall be given to the other joint owners;</p> <p>b. fair and reasonable compensation shall be provided to the other joint owners.</p>	<p style="text-align: center;">Article 38 Ownership of results</p> <p>1. [...] 2. [...]</p> <p>Unless otherwise agreed in the joint ownership agreement, each joint owner shall be entitled to grant non-exclusive licences to third parties to exploit the jointly owned results, without any right to sub-licence, subject to the following conditions:</p> <p>a. prior notice shall be given to the other joint owners;</p> <p>b. fair and reasonable compensation shall be provided to the other joint owners.</p>

Section 3.5	<p style="text-align: center;">Article 40 Exploitation and dissemination of results</p> <p>1. [...]</p> <p>2. [...]</p> <p>Additional dissemination obligations may be laid down in the grant agreement.</p> <p>With regard to dissemination through research publications, open access shall apply under the terms and conditions laid down in the grant agreement. With regard to dissemination of other results, including research data, the grant agreement may lay down the terms and conditions under which open access to such results shall be provided, in particular in ERC frontier research or in other appropriate areas.</p> <p>[...]</p>	<p style="text-align: center;">Article 40 Exploitation and dissemination of results</p> <p>1. [...]</p> <p>2. [...]</p> <p>Additional dissemination obligations may be laid down in the grant agreement.</p> <p>With regard to dissemination through research publications, open access shall apply under the terms and conditions laid down in the grant agreement. With regard to dissemination of other results, including research data, and without prejudice to the legitimate right to protect commercially exploitable results as described in Article 39, the grant agreement may lay down the terms and conditions under which open access to such results shall be provided, in particular in ERC frontier research or in other appropriate areas.</p> <p>[...]</p>
Section 3.5	<p style="text-align: center;">Article 41 Transfer and licensing of results</p> <p>1. [...]</p> <p>Without prejudice to confidentiality obligations arising from laws or regulations in the case of mergers and acquisitions, where other participants still enjoy access rights to the results to be transferred, the participant who intends to transfer the results shall give prior notice to those other participants, together with sufficient information concerning the intended new owner of the results to permit the other participants to analyse the effect of the intended transfer on the possible exercise of their access rights.</p> <p>Following notification, a participant may object to the transfer of ownership if it demonstrates that the intended transfer would adversely affect the exercise of its access rights. In such case, the transfer may not take place until agreement has been reached between the participants concerned. The grant agreement may lay down time-limits.</p>	<p style="text-align: center;">Article 41 Transfer and licensing of results</p> <p>1. [...]</p> <p>Without prejudice to confidentiality obligations arising from laws or regulations in the case of mergers and acquisitions, where other participants still enjoy access rights to the results to be transferred, the participant who intends to transfer the results shall give prior notice to inform those other participants and ensure that those participants shall fully enjoy their access rights. The participant shall provide sufficient information concerning the intended new owner of the results to permit the other participants to analyse the effect of the intended transfer on the possible exercise of their access rights.</p> <p>Following notification, a participant may object to the transfer of ownership if it demonstrates that the intended transfer would adversely affect the exercise of its access rights. In such case, the transfer may not take place until agreement has been reached between the participants concerned. The grant agreement may lay down time-limits.</p>