EUROPEAN PARLIAMENT 2009 - 2014

Committee on Industry, Research and Energy

2011/0402(CNS)

5.6.2012

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DRAFT REPORT

on the proposal for a Council decision establishing the Specific Programme Implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014 - 2020)
(COM(2011)0811 – C7-0509/2011 – 2011/0402(CNS))

Committee on Industry, Research and Energy

Rapporteur: Maria Da Graça Carvalho

Symbols for procedures

*	Consultation procedure
***	Consent procedure
***I	Ordinary legislative procedure (first reading)
***II	Ordinary legislative procedure (second reading)
***III	Ordinary legislative procedure (third reading)

(The type of procedure depends on the legal basis proposed by the draft act.)

Amendments to a draft act

In amendments by Parliament, amendments to draft acts are highlighted in ***bold italics***. Highlighting in *normal italics* is an indication for the relevant departments showing parts of the draft act which may require correction when the final text is prepared – for instance, obvious errors or omissions in a language version. Suggested corrections of this kind are subject to the agreement of the departments concerned.

The heading for any amendment to an existing act that the draft act seeks to amend includes a third line identifying the existing act and a fourth line identifying the provision in that act that Parliament wishes to amend. Passages in an existing act that Parliament wishes to amend, but that the draft act has left unchanged, are highlighted in **bold**. Any deletions that Parliament wishes to make in such passages are indicated thus: **[...]**.

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DRAFT EUROPEAN PARLIAMENT LEGISLATIVE RESOLUTION

on the proposal for a Council decision establishing the Specific Programme Implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)
(COM(2011)0811 – C7-0509/2011 – 2011/0402(CNS))

(Special legislative procedure – consultation)

The European Parliament,

– having regard to the Commission proposal to the Council (COM(2011)0811),

– having regard to Article 182(4) of the Treaty on the Functioning of the European Union , pursuant to which the Council consulted Parliament (C7-0509/2011),

– having regard to Rule 55 of its Rules of Procedure,

– having regard to the report of the Committee on Industry, Research and Energy and the opinions of the Committee on Foreign Affairs, the Committee on Budgets, the Committee on the Environment, Public Health and Food Safety, the Committee on Transport and Tourism, the Committee on Agriculture, the Committee on Culture and Education and the Committee on Legal Affairs (A7-0000/2012),

1. Approves the Commission proposal as amended;

2. Calls on the Commission to alter its proposal accordingly, in accordance with Article 293(2) of the Treaty on the Functioning of the European Union;

3. Calls on the Council to notify Parliament if it intends to depart from the text approved by Parliament;

4. Asks the Council to consult Parliament again if it intends to substantially amend the Commission proposal;

5. Instructs its President to forward its position to the Council, the Commission and the national parliaments.

Amendment 1
Proposal for a decision
Recital 1 a (new)

Text proposed by the Commission	*Amendment*
	(1a) The Union has the objective of strengthening its scientific and technological bases by achieving a European Research Area ("ERA") in which researchers, scientific knowledge and technology circulate freely, and encouraging the Union to become more competitive, including in its industry. To pursue those objectives the Union should carry out activities to implement research, technological development and demonstration, promote international cooperation, disseminate and optimise results and stimulate training and mobility.

Or. en

Amendment 2
Proposal for a decision
Recital 1 b (new)

Text proposed by the Commission	*Amendment*
	(1b) Widening participation should be encouraged in order to exploit the potential of Europe's talent pool and to optimise the economic and social impact of research, something that should contribute to closing the research and innovation gap in Europe.

Or. en

Amendment 3
Proposal for a decision
Recital 4

Text proposed by the Commission	*Amendment*
(4) Each Part should be complementary to and implemented in a coherent way with the other Parts of the specific programme.	(4) Each Part should be complementary to and implemented in a coherent way with the other Parts of the specific programme. ***Strategic coordination of research and innovation across the three main priorities for each thematic area (e.g. health) should address fragmentation, improve the use of technological and infrastructural resources, involving the sharing of data in order to accelerate the achievement of results.***

Or. en

Amendment 4
Proposal for a decision
Recital 5

Text proposed by the Commission	*Amendment*
(5) There is a critical need to reinforce and extend the excellence of the Union's science base and ensure a supply of world class research and talent to secure Europe's long term competitiveness and well-being. part I 'Excellent science' should support the activities of the European Research Council on frontier research, future and emerging technologies, Marie ***Curie*** Actions and European research infrastructures. These activites should aim at building competence in the long term, focusing strongly on the next-generation of science, systems and researchers, and providing support for emerging talent from across the Union and from associated countries. Union activities to support excellent science should help consolidate the European Research Area and make the Union's science system more competitive	(5) There is a critical need to reinforce and extend the excellence of the Union's science base and ensure a supply of world class research and talent to secure Europe's long term competitiveness and well-being. part I 'Excellent science' should support the activities of the European Research Council on frontier research, future and emerging technologies, Marie ***Skłodowska-Curie*** Actions and European research infrastructures. These activites should aim at building competence in the long term, focusing strongly on the next-generation of science, systems and researchers, and providing support for emerging talent from across the Union and from associated countries. Union activities to support excellent science should help consolidate the European Research Area and make the Union's science system more competitive

and attractive on a global scale.	and attractive on a global scale.

Or. en

Justification

Horizontal Amendment: each time that the text reads "Marie Curie" should be replaced by "Marie Skłodowska-Curie" throughout all the text.

Amendment 5
Proposal for a decision
Recital 8

Text proposed by the Commission	*Amendment*
(8) In order to maintain and increase the Union's industrial leadership there is an urgent need to stimulate private sector research and development and innovation investment, promote research and innovation with a business driven agenda and accelerate the development of new technologies which will underpin future businesses and economic growth. part II 'Industrial leadership' should support investments in excellent research and innovation in key enabling technologies and other industrial technologies, facilitate access to risk finance for innovative companies and projects, and provide Union wide support for innovation in small and medium-sized enterprises.	(8) In order to maintain and increase the Union's industrial leadership there is an urgent need to stimulate private sector research and development and innovation investment, promote research and innovation with a business driven agenda and accelerate the development of new technologies which will underpin future businesses and economic growth. part II 'Industrial leadership' should support investments in excellent research and innovation in key enabling technologies and other industrial technologies, facilitate access to risk finance for innovative companies and projects, and provide Union wide support for innovation in small and medium-sized enterprises. ***The activities should cover the full range of research and innovation with an emphasis on innovation-related activities such as piloting, demonstration, test-beds, and support for public procurement, pre-normative research and standard setting, and market uptake of innovations.***

Or. en

Amendment 6
Proposal for a decision
Recital 9

Text proposed by the Commission	*Amendment*
(9) Space research and innovation, which is a shared competence of the Union, should be included as a coherent element in part II 'Industrial leadership' in order to maximize the scientific, economic and societal impact and**,** to ensure an efficient and cost effective implementation.	(9) Space research and innovation, ***encompassing satellite observation, satellite navigation and satellite telecommunications industry, infrastructure (ground and space), services and applications,*** which is a shared competence of the Union, should be included as a coherent element in part II 'Industrial leadership' in order to maximize the scientific, economic and societal impact and to ensure an efficient and cost effective implementation.

Or. en

Amendment 7
Proposal for a decision
Recital 12

Text proposed by the Commission	*Amendment*
(12) As an integral part of Horizon 2020, the Joint Research Centre (JRC) should continue to provide independent customer-driven scientific and technical support for the formulation, development, implementation and monitoring of Union policies. In order to achieve its mission the Joint Research Centre should carry out research of the highest quality. In carrying out the direct actions in accordance with its mission, the Joint Research Centre should place particular emphasis on areas of key concern for the Union, namely smart, inclusive and sustainable growth, security and citizenship and Global Europe.	(12) As an integral part of Horizon 2020, the Joint Research Centre (JRC) should continue to provide independent customer-driven scientific and technical support for the formulation, development, implementation and monitoring of Union policies. ***JRC should also assist national, regional and local decision making with the latest research and innovation outcomes.*** In order to achieve its mission the Joint Research Centre should carry out research of the highest quality. In carrying out the direct actions in accordance with its mission, the Joint Research Centre should place particular emphasis on areas of key concern for the Union, namely smart, inclusive and sustainable growth, security and citizenship and Global Europe.

Or. en

Amendment 8
Proposal for a decision
Recital 15 a (new)

Text proposed by the Commission	*Amendment*
	(15a) Horizon 2020, in which excellence is the main driver, should create, by means of the stairway to excellence, greater synergy, complementarity and interoperability with the structural funds, whose main driver is capacity building and smart specialisation, providing that bridges are built in both directions linking the two programmes.

Or. en

Amendment 9
Proposal for a decision
Recital 15 b (new)

Text proposed by the Commission	*Amendment*
	(15b) European local and regional authorities have an important role to play in implementing the ERA and in ensuring an efficient coordination of the Union financial instruments, in particular in fostering linkages between Horizon 2020 and the Structural Funds, within the framework of regional innovation strategies based on smart specialisation. Regions also have a key role in the dissemination and implementation of Horizon 2020 results and in offering complementary funding instruments, including public procurement.

Or. en

Amendment 10
Proposal for a decision
Article 3 – paragraph 1 – subparagraph 1 – point c

Text proposed by the Commission	*Amendment*
(c) strengthening skills, training and career development, through the Marie Skłodowska-Curie ***actions ('Marie Curie*** actions***')***;	(c) strengthening skills, training and career development, through the Marie Skłodowska-Curie actions;

Or. en

Amendment 11
Proposal for a decision
Article 3 – paragraph 1 – subparagraph 1 – point d a (new)

Text proposed by the Commission	*Amendment*
	(da) spreading excellence and widening participation

Or. en

Justification

Excellence should be fully exploited enhancing the synergies between Horizon 2020 and the Structural Funds

Amendment 12
Proposal for a decision
Article 3 – paragraph 3 – subparagraph 1 – point f

Text proposed by the Commission	*Amendment*
(f) fostering inclusive, innovative and ***secure*** European societies in a context of unprecedented transformations and growing global interdependencies***.***	(f) fostering inclusive, innovative and ***reflective*** European societies in a context of unprecedented transformations and growing global interdependencies***;***

Or. en

Amendment 13
Proposal for a decision
Article 3 – paragraph 3 – subparagraph 1 – point f a (new)

Text proposed by the Commission	*Amendment*
	(fa) protecting freedom and security of Europe and its citizens.

Or. en

Amendment 14
Proposal for a decision
Article 3 – paragraph 5 – subparagraph 1

Text proposed by the Commission	*Amendment*
5. The specific programme shall be assessed in relation to results and impact as measured against performance indicators, including, where appropriate, publications in high impact journals, the circulation of researchers, the accessibility of research infrastructures, investments mobilised via debt financing and venture capital, SMEs introducing innovations new to the company or the market, references to relevant research activities in policy documents as well as occurences of specific impacts on policies.	5. The specific programme shall be assessed in relation to results and impact as measured against ***general and specific*** performance indicators, including, where appropriate, publications in high impact journals, the circulation of researchers, the accessibility of research infrastructures, investments mobilised via debt financing and venture capital, SMEs introducing innovations new to the company or the market, references to relevant research activities in policy documents as well as occurences of specific impacts on policies.

Or. en

Amendment 15
Proposal for a decision
Article 3 – paragraph 5 – subparagraph 2

Text proposed by the Commission	*Amendment*
Further detail on the key performance indicators which correspond to the specific objectives set out in paragraphs 1 to 4 of this Article are set out in Annex II.	Further detail on the key performance indicators which correspond to the specific objectives set out in paragraphs 1 to 4 of this Article are set out in Annex II. ***The performance indicators for assessing***

progress against Horizon 2020 general objectives are set out in Annex I of Regulation (EU) No XX/XX [Horizon 2020].

Or. en

Amendment 16
Proposal for a decision
Article 4 – paragraph 2

Text proposed by the Commission	*Amendment*
2. The amount referred to in paragraph 1 shall be distributed among the four Parts set out in Article 2(2) of this Decision in accordance with ***Article*** 6(2) of Regulation (EU) No XX/2012 [Horizon 2020]. The indicative budgetary breakdown for the specific objectives set out in Article 3 of this Decision and the maximum overall amount of the contribution to the actions of the Joint Research Centre are set out in Annex II to Regulation (EU) No XX/2012 [Horizon 2020].	2. The amount referred to in paragraph 1 shall be distributed among the four Parts set out in Article 2(2) of this Decision in accordance with ***Articles*** 6(2) ***and 6(4)*** of Regulation (EU) No XX/2012 [Horizon 2020]. The indicative budgetary breakdown for the specific objectives set out in Article 3 of this Decision and the maximum overall amount of the contribution to the actions of the Joint Research Centre are set out in Annex II to Regulation (EU) No XX/2012 [Horizon 2020].

Or. en

Amendment 17
Proposal for a decision
Article 5 – paragraph 2

Text proposed by the Commission	*Amendment*
2. The Commission shall adopt common or separate work programmes for the implementation of the Parts I, II and III of this specific programme referred to in points (a), (b) and (c) of Article 2(2), except for the implementation of the actions under the specific objective 'Strengthening Europe's science base in frontier research'. Those implementing acts	2. The Commission shall adopt common or separate work programmes for the implementation of the Parts I, II and III of this specific programme referred to in points (a), (b) and (c) of Article 2(2), except for the implementation of the actions under the specific objective 'Strengthening Europe's science base in frontier research'. Those implementing acts

shall be adopted in accordance with the examination procedure referred to in Article 9(2).	shall be adopted in accordance with the examination procedure referred to in Article 9(2). ***Effective coordination between the three main priorities of Horizon 2020 shall be required.***

Or. en

Amendment 18
Proposal for a decision
Article 5 – paragraph 5 a (new)

Text proposed by the Commission	*Amendment*
	5a. Strategic research and innovation coordination based on thematic advisory scientific boards shall be established. This will contribute to define research and innovation programmes based on the best leadership and will provide the impetus and instruments needed to promote interaction and synergies on a larger scale. Coordination will address fragmentation and improve the use of technological and infrastructural resources by the entire research community related to each thematic area. Strategic actions and scientific coordination will ensure expert input on policy from the outset, advance innovation and competitiveness by understanding the complexity of the innovation cycle, and encouraging participation from more researchers across borders.

Or. en

Amendment 19
Proposal for a decision
Article 5 – paragraph 6 – paragraph 1

Text proposed by the Commission	*Amendment*
6. The work programmes for the implementation of the Parts I, II and III referred to in points (a), (b) and (c) of Article 2(2) shall set out the objectives pursued, the expected results, the method of implementation and their total amount, including indicative information on the amount of climate related expenditure, where appropriate. They shall also contain a description of the actions to be financed, an indication of the amount allocated to each action, an indicative implementation timetable, as well as a multi-annual approach and strategic orientations for the following years of implementation. They shall include for grants the priorities, the ***essential*** evaluation criteria and the maximum rate of co-financing. They shall allow for bottom-up approaches that address the objectives in innovative ways.	6. The work programmes for the implementation of the Parts I, II and III referred to in points (a), (b) and (c) of Article 2(2) shall set out the objectives pursued, the expected results, the method of implementation and their total amount, including indicative information on the amount of climate related expenditure, where appropriate. They shall also contain a description of the actions to be financed, an indication of the amount allocated to each action, an indicative implementation timetable, as well as a multi-annual approach and strategic orientations for the following years of implementation. They shall include for grants the priorities, the evaluation criteria and the maximum rate of co-financing. They shall allow for bottom-up approaches***, in all the three priorities,*** that address the objectives in innovative ways.

Or. en

Amendment 20
Proposal for a decision
Article 5 – paragraph 6 – paragraph 1 a (new)

Text proposed by the Commission	*Amendment*
	The work programmes shall also include a balanced number of small (focused), medium and large (integrative) projects. Small scale projects are not only an effective way to promote the participation of SME.

Or. en

Amendment 21
Proposal for a decision
Article 5 – paragraph 6 – paragraph 1 b (new)

Text proposed by the Commission	*Amendment*
	Good management of the project will be rewarded in the analysis of Commission and Agencies staff performances.

Or. en

Amendment 22
Proposal for a decision
Annex I – point 1 – point 1.1 – paragraph 3

Text proposed by the Commission	*Amendment*
Particular attention will be paid to ensuring a broad approach to innovation, which is not only limited to the development of new products and services on the basis of scientific and technological breakthroughs, but which also incorporates aspects such as the use of existing technologies in novel applications, continuous improvement, non-technological ***and*** social innovation. Only a holistic approach to innovation can at the same time tackle societal challenges and give rise to new competitive businesses and industries.	Particular attention will be paid to ensuring a broad approach to innovation, which is not only limited to the development of new products and services on the basis of scientific and technological breakthroughs, but which also incorporates aspects such as the use of existing technologies in novel applications, continuous improvement, non-technological***,*** social***, cultural and institutional*** innovation. ***Innovation in services will also be encouraged by investing in multi-disciplinary competences, creation of capabilities, knowledge and value based on service solutions and intangible contents.*** Only a holistic approach to innovation can at the same time tackle societal challenges and give rise to new competitive businesses and industries.

Or. en

Amendment 23
Proposal for a decision
Annex I – point 1 – point 1.1 – paragraph 4

Text proposed by the Commission	*Amendment*
For the societal challenges and the enabling and industrial technologies in particular, there will be a particular emphasis on supporting activities which operate close to the end-users and the market, such as demonstration, piloting or proof-of-concept. This will also include, where appropriate, activities in support of social innovation, and support to demand side approaches such as pre-standardisation or pre-commercial procurement, procurement of innovative solutions, standardisation and other user-centered measures to help accelerate the deployment and diffusion of innovative products and services into the market. In addition, there will be sufficient room for bottom-up approaches and open, light and fast schemes under each of the challenges and technologies to provide Europe's best researchers, entrepreneurs and enterprises with the opportunity to put forward breakthrough solutions of their choice.	For the societal challenges and the enabling and industrial technologies in particular, there will be a particular emphasis on supporting activities which operate close to the end-users and the market, such as demonstration, piloting or proof-of-concept. This will also include, where appropriate, activities in support of social innovation, ***innovation in services*** and support to demand side approaches such as pre-standardisation or pre-commercial procurement, procurement of innovative solutions, standardisation and other user-centered measures to help accelerate the deployment and diffusion of innovative products and services into the market. In addition, there will be sufficient room for bottom-up approaches and open, light and fast schemes under each of the challenges and technologies to provide Europe's best researchers, entrepreneurs and enterprises with the opportunity to put forward breakthrough solutions of their choice. ***Within the societal challenges a challenge-based approach should be followed, in which basic science, applied research, knowledge transfer and innovation are equally important and interlinked components. In order to ensure the appropriate balance between consensus-based and more disruptive R&D&I, at least 15% of the budget of the societal challenges should follow a bottom-up logic with open calls (no predefined call topics). Furthermore, the right balance should be stricken within the societal challenges and the enabling and industrial technologies between smaller and bigger projects, taking into account the specific sector structure, type of activity, technology and research landscape.***

Or. en

Amendment 24
Proposal for a decision
Annex I – point 1 – point 1.1 – paragraph 5

Text proposed by the Commission	*Amendment*
Detailed priority setting during implementation of Horizon 2020 will entail a strategic approach to programming of research, using modes of governance aligning closely with policy development yet cutting across the boundaries of traditional sectoral policies. This will be based on sound evidence, analysis and foresight, with progress measured against a robust set of performance indicators. This cross-cutting approach to programming and governance will allow effective coordination between all of Horizon 2020‘s specific objectives and will allow to address challenges which cut across them, such as for instance sustainability, climate change or marine sciences and technologies.	Detailed priority setting during implementation of Horizon 2020 will entail a strategic approach to programming of research, using modes of governance aligning closely with policy development yet cutting across the boundaries of traditional sectoral policies. ***In order to improve the governance structure, it is necessary to demonstrate to what extent stakeholders and civil society representatives are involved in bottom-up processes, work programmes and decision-making.*** This will be based on sound evidence, analysis and foresight, with progress measured against a robust set of performance indicators. This cross-cutting approach to programming and governance will allow effective coordination between all of Horizon 2020‘s specific objectives and will allow to address challenges which cut across them, such as for instance sustainability, climate change or marine sciences and technologies. ***Horizon 2020 will be targeted towards activities where intervention at Union level brings added value above intervention at national or regional level by creating economies of scale and critical mass, reducing fragmentation and ensuring a Union-wide dissemination of results. These activities are mainly transnational, pre-competitive, collaborative projects and they shall comprise the majority of the total combined budget for the priority "Societal challenges" and the specific objective on "Leadership in enabling and industrial technologies".***

Or. en

Amendment 25
Proposal for a decision
Annex I – point 1 – point 1.1 – paragraph 6

Text proposed by the Commission	*Amendment*
Priority setting will equally be based on a wide range of inputs and advice. It will include, where appropriate, groups of independent experts set up specifically to advise on the implementation of Horizon 2020 or any of its specific objectives. These experts group shall show the appropriate level of expertise and knowledge in the covered areas and a variety of professional backgrounds, including industry and civil society involvement.	Priority setting will equally be based on a wide range of inputs and advice. It will include, where appropriate, groups of independent experts set up specifically to advise on the implementation of Horizon 2020 or any of its specific objectives. These experts group shall show the appropriate level of expertise and knowledge in the covered areas and a variety of professional backgrounds, including industry and civil society involvement. ***The cross- and transdisciplinary nature of the societal challenges requires the setting up of dedicated Strategic Advisory Boards. The Boards will be composed of relevant stakeholders from academia, industry, end-users and civil society of the highest repute and appropriate expertise, ensuring a diversity of all sectors and research areas concerned. The Boards will provide input and advice to the Commission on the overall strategy for the Societal Challenge concerned, the establishment of its work programmes, and the areas and criteria for the calls for proposals, making use of input provided by relevant structures such as European Technology Platforms, European scientific organizations, Joint Programming Initiatives and the European Innovation Partnerships.***

Or. en

Amendment 26
Proposal for a decision
Annex I – point 1 – point 1.1 – paragraph 7

Text proposed by the Commission	*Amendment*
Priority setting may also take into account the strategic research agendas of European Technology Platforms or inputs from the European Innovation Partnerships. Where appropriate, public-public partnerships and public-private partnerships supported through Horizon 2020 will also contribute to the priority setting process and to the implementation, in line with the provisions laid down in Horizon 2020. Regular interactions with end-users, citizens and civil society organisations, through appropriate methodologies such as consensus conferences, participatory technology assessments or direct engagement in research and innovation processes, will also be a cornerstone of the priority setting process.	Priority setting may also take into account the strategic research agendas of European Technology Platforms or inputs from the European Innovation Partnerships ***and FEST flagships***. Where appropriate, public-public partnerships and public-private partnerships supported through Horizon 2020 will also contribute to the priority setting process and to the implementation, in line with the provisions laid down in Horizon 2020. Regular interactions with end-users, citizens and civil society organisations, through appropriate methodologies such as consensus conferences, participatory technology assessments or direct engagement in research and innovation processes, will also be a cornerstone of the priority setting process.

Or. en

Justification

FEST meaning Future and Emerging Sciences and Technologies - see horizontal amendment in Annex 1 – section 1 – point 2 – introductory part

Amendment 27
Proposal for a decision
Annex I – point 1 – point 1.3 – paragraph 2

Text proposed by the Commission	*Amendment*
In accordance with Article 18 of Horizon 2020, dedicated measures as set out in the specific objective 'Innovation in SMEs' (dedicated SME instrument) shall be applied in the specific objective 'Leadership in enabling and industrial technologies' and part III 'Societal	In accordance with Article 18 of Horizon 2020, dedicated measures as set out in the specific objective 'Innovation in SMEs' (dedicated SME instrument) shall be applied in the specific objective 'Leadership in enabling and industrial technologies' and part III 'Societal

challenges'. This integrated approach is expected to lead to ***around*** 15 % of their total combined budgets going to SMEs.	challenges'. This integrated approach is expected to lead to ***at least*** 15 % of their total combined budgets going to SMEs.

Or. en

Amendment 28
Proposal for a decision
Annex I – point 1 – point 1.5

Text proposed by the Commission	*Amendment*
A key added value of research and innovation funded at the Union level is the possibility to disseminate and communicate results on a continent wide scale to enhance their impact. Horizon 2020 will therefore include, under all of its specific objectives, dedicated support to dissemination ***(including through open access to research results)***, communication and dialogue actions, with a strong emphasis on communicating results to end-users, citizens, civil society organisations, industry and policy makers. To this extent, Horizon 2020 may make use of networks for information transfer. Communication activities undertaken in the context of Horizon 2020 will also seek to raise public awareness on the importance of research and innovation by means of publications, events, knowledge repositories, databases, websites or a targeted use of social media.	A key added value of research and innovation funded at the Union level is the possibility to disseminate and communicate results on a continent wide scale to enhance their impact. Horizon 2020 will therefore include, under all of its specific objectives, dedicated support to dissemination, communication and dialogue actions, with a strong emphasis on communicating results to end-users, citizens, civil society organisations, industry and policy makers. To this extent, Horizon 2020 may make use of networks for information transfer. Communication activities undertaken in the context of Horizon 2020 will also seek to raise public awareness on the importance of research and innovation by means of publications, events, knowledge repositories, databases, websites or a targeted use of social media. ***Free open access to publications, scientific data produced or collected within research funded by Horizon 2020 will be promoted.***

Or. en

Amendment 29
Proposal for a decision
Annex I – point 2 – paragraph 1

Text proposed by the Commission	*Amendment*
International cooperation with partners in third countries is necessary to address effectively many specific objectives defined in Horizon 2020, in particular those relating to Union external policies and international commitments***. This is the case for all the societal challenges addressed by Horizon 2020, which are global in nature***. International cooperation is also essential for frontier and basic research in order to capture the benefits from emerging science and technology opportunities. Promoting researchers and innovation staff mobility at an international scale is therefore crucial to enhance this global cooperation. Activities at the international level are equally important to enhance the competitiveness of European industry by promoting the take-up and trade of novel technologies, for instance through the development of worldwide standards and interoperability guidelines, and by promoting the acceptance and deployment of European solutions outside Europe.	International cooperation with ***key strategic*** partners in third countries is necessary to address effectively many specific objectives defined in Horizon 2020, in particular those relating to Union external policies and international commitments. International cooperation is also essential for frontier and basic research in order to capture the benefits from emerging science and technology opportunities. Promoting researchers and innovation staff mobility at an international scale is therefore crucial to enhance this global cooperation. Activities at the international level are equally important to enhance the competitiveness of European industry by promoting the take-up and trade of novel technologies, for instance through the development of worldwide standards and interoperability guidelines, and by promoting the acceptance and deployment of European solutions outside Europe.

Or. en

Amendment 30
Proposal for a decision
Annex I – point 2 – paragraph 6 – point a

Text proposed by the Commission	*Amendment*
(a) The continuation of the European and Developing Countries Clinical Trials Partnership (EDCTP2) on clinical trials for medical interventions against HIV, malaria and tuberculosis;	(a) The continuation ***and geographical expansion to other developing regions*** of the European and Developing Countries Clinical Trials Partnership (EDCTP2) on clinical trials ***from Phase I-IV*** for medical interventions against HIV, malaria and tuberculosis ***and neglected diseases***;

Or. en

Amendment 31
Proposal for a decision
Annex I – point 2 – paragraph 6 – point f a (new)

Text proposed by the Commission	*Amendment*
	(fa) The implementing arrangement for cooperative activities between the European Union and the United States of America in the field of Homeland Security/Civil Security/ Research, signed 18 November 2010;

Or. en

Amendment 32
Proposal for a decision
Annex I – point 2 – paragraph 6 – point f b (new)

Text proposed by the Commission	*Amendment*
	(fb) Support the activities proposed under the first pillar"Access to raw materials on world markets at undistorted conditions"of the Commission Communication of 4 November 2008 entitled "The raw materials initiative — meeting our critical needs for growth and jobs in Europe", with a view to securing access to raw materials to the European Industry at global level and contribute to ensure access to raw materials from international markets under the same conditions as other industrial competitors;

Or. en

Justification

The competitiveness and innovation of the European industry (and the jobs provided by it) dependency from raw materials outside EU was already recognized by the EC (COM(2008)699, COM (2011)28, COM(2012)82, Competitiveness Council Conclusions 10th March 2011). Considering the importance of this issue in the EU agenda, International

Cooperation with the main regions of cooperation should be envisaged.

Amendment 33
Proposal for a decision
Annex I – point 2 – paragraph 6 – point f c (new)

Text proposed by the Commission	*Amendment*
	(fc) Cooperation with developing countries, namely from Sub-Saharan Africa, in the field of decentralised energy production for poverty alleviation;

Or. en

Amendment 34
Proposal for a decision
Annex I – point 2 – paragraph 6 – point f d (new)

Text proposed by the Commission	*Amendment*
	(fd) The continuation of research collaboration with Brazil on biofuels, with focus on second generation biofuels.

Or. en

Amendment 35
Proposal for a decision
Annex I – point 3 – paragraph 1

Text proposed by the Commission	*Amendment*
Horizon 2020 is structured around the objectives defined for its three major parts: generating excellent science, creating industrial leadership and tackling societal challenges. Particular attention will be paid to ensuring adequate coordination between these parts and fully exploiting the synergies generated between all specific objectives to maximise their combined impact on the higher level policy	Horizon 2020 is structured around the objectives defined for its three major parts: generating excellent science, creating industrial leadership and tackling societal challenges. Particular attention will be paid to ensuring adequate coordination between these parts and fully exploiting the synergies generated between all specific objectives to maximise their combined impact on the higher level policy

objectives of the Union. The objectives of Horizon 2020 will therefore be addressed through a strong emphasis on finding efficient solutions, going well beyond an approach based simply on traditional scientific and technological disciplines and economic sectors.

objectives of the Union. The objectives of Horizon 2020 will therefore be addressed through a strong emphasis on finding efficient solutions, going well beyond an approach based simply on traditional scientific and technological disciplines and economic sectors***, promoting for example innovative global partnerships outside of the classic consortia and providing flexible, innovative funding and investment vehicles which are adapted to fast-evolving portfolios***.

Or. en

Amendment 36
Proposal for a decision
Annex I – point 3 – paragraph 4

Text proposed by the Commission	*Amendment*
Cross-cutting action will also be vital in stimulating the interactions between the societal challenges and the enabling and industrial technologies needed to generate major technological breakthroughs. Examples of where such interactions may be developed are: the domain of eHealth, smart grids, intelligent transport systems, mainstreaming of climate actions, nanomedicine, advanced materials for lightweight vehicles or the development of bio-based industrial processes and products. Strong synergies will therefore be fostered between the societal challenges and the development of generic enabling and industrial technologies. This will be explicitly taken into account in developing the multi-annual strategies and the priority setting for each of these specific objectives. It will require that stakeholders representing the different perspectives are fully involved in the implementation and in many cases, it will also require actions which bring together funding from the enabling and industrial technologies and	Cross-cutting action will also be vital in stimulating the interactions between the societal challenges and the enabling and industrial technologies needed to generate major technological breakthroughs. Examples of where such interactions may be developed are: the domain of eHealth, ***cyber security,*** smart grids, intelligent transport systems, mainstreaming of climate actions, nanomedicine, advanced materials for lightweight vehicles or the development of bio-based industrial processes and products. Strong synergies will therefore be fostered between the societal challenges and the development of generic enabling and industrial technologies. This will be explicitly taken into account in developing the multi-annual strategies and the priority setting for each of these specific objectives. It will require that stakeholders representing the different perspectives are fully involved in the implementation and in many cases, it will also require actions which bring together funding from the enabling and industrial

the societal challenges concerned.	technologies and the societal challenges concerned.

Or. en

Amendment 37
Proposal for a decision
Annex I – point 3 – paragraph 5

Text proposed by the Commission	*Amendment*
Particular attention will also be paid to the coordination of activities funded through Horizon 2020 with those supported under other Union funding programmes, such as the Common Agricultural Policy, the Common Fisheries Policy or the Erasmus For All: the Union's programme for Education, Training, Youth and Sport or the Health for Growth Programme***. This includes an appropriate articulation with the Cohesion policy funds, where support to capacity building for research and innovation at regional level may act as a 'stairway to excellence', the establishment of regional centres of excellence may help close the innovation divide in Europe or support to large-scale demonstration and pilot line projects may aid in achieving the objective of generating industrial leadership in Europe***.	Particular attention will also be paid to the coordination of activities funded through Horizon 2020 with those supported under other Union funding programmes, such as the Common Agricultural Policy, the Common Fisheries Policy or the Erasmus For All: the Union's programme for Education, Training, Youth and Sport or the Health for Growth Programme, ***Life Programme***, ***New Entrants' Reserve (NER300)***.

Or. en

Amendment 38
Proposal for a decision
Annex I – point 3 – paragraph 5 a (new)

Text proposed by the Commission	*Amendment*
	The aforementioned coordination includes an appropriate articulation with the Cohesion policy funds, where support to capacity building for research and

innovation at regional level may act as a 'stairway to excellence', the establishment of regional centres of excellence may help close the innovation divide in Europe. Structural Funds should be deployed to their full extent to support capacity building in the regions through dedicated activities aimed at founding centres of excellences, modernising universities, purchase of scientific equipment, local technology transfer, support to start-ups and spin-offs, local interaction between industry and academia, creating clusters in the priority areas of Horizon 2020 and as a source of small grants given for the preparation of proposals to be submitted to Horizon 2020. This will allow a stairway of excellence to be developed, leading these regions to fully participate in the Horizon 2020, based on quality and excellence.

Downstream from Horizon 2020, the structural funds could be used to finance or co-finance the follow up to Horizon 2020 research projects and to valorise research results in such a way as to encourage easy access to knowledge or to facilitate the deployment of the resulting knowledge in terms of its direct economic or societal use;

Building greater synergy, complementarity and interoperability between the instruments of Horizon 2020, in which excellence is the main driver, and the structural funds, by means of the stairway to excellence and whose main driver is capacity building and smart specialisation, providing that bridges are built in both directions linking the two programmes.

Horizon 2020 projects should attract additional financing from the Structural Funds, the EIB and from the private sector, something that supposes adopting a multi-fund approach.

An all-European common fund financed

by the structural funds should be set up to promote collaborative European research.

Or. en

Amendment 39
Proposal for a decision
Annex I – point 4 – paragraph 3

Text proposed by the Commission	*Amendment*
Existing public-public and public-private partnerships may receive support from Horizon 2020, provided they address Horizon 2020 objectives, they meet the criteria laid down in Horizon 2020 and they have shown to make significant progress under the Seventh Framework Programme for Research, Technological Development and Demonstration (FP7).	Existing public-public and public-private partnerships may receive support from Horizon 2020, provided they address Horizon 2020 objectives, they meet the criteria laid down in Horizon 2020 and they have shown to make significant progress under the Seventh Framework Programme for Research, Technological Development and Demonstration (FP7)***, according to the criteria laid down in Article [19(2) and (3)] of Regulation (EU) No XX/XX [Horizon 2020]. New innovative partnerships, including product development partnerships may also receive support provided they address Horizon 2020 objectives and meet the criteria.***

Or. en

Amendment 40
Proposal for a decision
Annex I – point 4 – paragraph 3 a (new)

Text proposed by the Commission	*Amendment*
	Cooperation with the Eureka initiative network, a natural partner for the design and implementation of innovation components of cohesion policy, notably when setting up regional innovation smart specialisation strategies will contribute to achieve the objectives of Horizon 2020

and thus further consolidate the Innovation Union

Or. en

Amendment 41
Proposal for a decision
Annex I – point 4 – paragraph 4

Text proposed by the Commission	*Amendment*
Initiatives under Article 185 of the Treaty supported under FP6 and/or FP7 for which further support may be provided under the above conditions include: the European and Developing Countries Clinical Trials Partnership (EDCTP), Ambient Assisted Living (AAL), Baltic Sea Research and Development Programme (BONUS), Eurostars and the European Metrology Research Programme. Further support may also be provided to the European Energy Research Alliance (EERA) established under the Strategic Energy Technology Plan (SET Plan).	Initiatives under Article 185 of the Treaty supported under FP6 and/or FP7 for which further support may be provided under the above conditions include: the European and Developing Countries Clinical Trials Partnership (EDCTP), Ambient Assisted Living (AAL), Baltic Sea Research and Development Programme (BONUS), Eurostars and the European Metrology Research Programme. ***Stronger private sector involvement may be provided through European and National Technology Platforms.*** Further support may also be provided to the European Energy Research Alliance (EERA) established under the Strategic Energy Technology Plan (SET Plan).

Or. en

Amendment 42
Proposal for a decision
Annex I – point 4 – paragraph 7

Text proposed by the Commission	*Amendment*
Further public-public partnerships and public-private partnerships may be launched under Horizon 2020 where they meet the defined criteria. This may include partnerships on Information and Communication Technologies in the areas of Photonics and Robotics, on sustainable	Further public-public partnerships and public-private partnerships may be launched under Horizon 2020 where they meet the defined criteria. This may include partnerships on Information and Communication Technologies in the areas of Photonics and Robotics, on sustainable

process industries, on bio-based industries and on security technologies for maritime border surveillance.

process industries, on bio-based industries and on security technologies for maritime border surveillance ***or critical infrastructure protection***.

Or. en

Amendment 43
Proposal for a decision
Annex I – part I – point 1 – paragraph 3 a (new)

Text proposed by the Commission	*Amendment*
	Research between excellent researchers from different Member-States and Associated Countries will also be promoted through the ERC Synergy Grant, which has proven to be very attractive for researchers in the previous framework programme.

Or. en

Amendment 44
Proposal for a decision
Annex I – part I – point 1 – paragraph 4

Text proposed by the Commission	*Amendment*
An 'investigator-driven' approach will be followed. This means that the ERC will support projects carried out by researchers on subjects of their choice within the scope of calls for proposals. Proposals will be evaluated on the sole criterion of excellence as judged by peer review, taking account of excellence in new groups, new generation researchers, as well as established teams, and paying particular attention to proposals which are highly pioneering and involve correspondingly high scientific risks.	An 'investigator-driven' approach will be followed. This means that the ERC will support projects carried out by researchers on subjects of their choice within the scope of calls for proposals. Proposals will be evaluated on the sole criterion of excellence as judged by peer review, taking account of excellence in new groups, new generation researchers, as well as established teams, ***gender dimensions*** and paying particular attention to proposals which are highly pioneering and involve correspondingly high scientific risks.

Or. en

Amendment 45
Proposal for a decision
Annex I — part I – point 2 – title

Text proposed by the Commission	*Amendment*
2. Future and Emerging Technologies	2. Future and Emerging ***Sciences and*** Technologies

Or. en

Justification

Horizontal Amendment: each time that the text reads "Future and Emerging Technologies" or "FET" should be replaced by "Future and Emerging Sciences and Technologies" or "FEST" throughout all the text.

Amendment 46
Proposal for a decision
Annex I – part I – point 2 – point 2.1

Text proposed by the Commission	*Amendment*
Supporting a large set of embryonic, high risk visionary science and technology collaborative research projects is necessary for the successful exploration of new foundations for radically new future technologies. By being explicitly non–topical and non-prescriptive, this activity allows for new ideas, whenever they arise and wherever they come from, within the broadest spectrum of themes and disciplines. Nurturing such fragile ideas requires an agile, risk-friendly and highly interdisciplinary research approach, going well beyond the strictly technological realms. Attracting and stimulating the participation of new high-potential actors in research and innovation, such as young researchers and high-tech SMEs is also important for nurturing the scientific and industrial leaders of the future.	Supporting a large set of embryonic, high risk visionary science and technology collaborative research projects is necessary for the successful exploration of new foundations for radically new ***scientific knowledge and*** future technologies. By being explicitly non–topical and non-prescriptive, this activity allows for new ***and transformal*** ideas, whenever they arise and wherever they come from, within the broadest spectrum of themes and disciplines. Nurturing such fragile ideas requires an agile, risk-friendly and highly interdisciplinary research approach, going well beyond the strictly technological realms. Attracting and stimulating the participation of new high-potential actors in research and innovation, such as young researchers and high-tech SMEs is also important for nurturing the scientific and industrial leaders of the future.

Or. en

Amendment 47
Proposal for a decision
Annex I –part I – point 2 – point 2.3 – paragraph 1

Text proposed by the Commission	*Amendment*
Research initiatives within this challenge are science-driven, large-scale, multidisciplinary and built around a visionary unifying goal. They tackle grand science and technology challenges requiring cooperation among a range of disciplines, communities and programmes. The scientific advance should provide a strong and broad basis for future technological innovation and economic exploitation, as well as novel benefits for society. The overarching nature and magnitude implies that they can only be realised through a federated and sustained effort (in the order of 10 years duration).	Research initiatives within this challenge are science-driven, large-scale, multidisciplinary and built around a visionary unifying goal. They tackle grand science and technology challenges requiring cooperation among a range of disciplines, communities and programmes. The scientific advance should provide a strong and broad basis for future technological innovation and economic exploitation, as well as novel benefits for society. ***Activities with a high social impact should be taken into consideration.*** The overarching nature and magnitude implies that they can only be realised through a federated and sustained effort (in the order of 10 years duration).

Or. en

Amendment 48
Proposal for a decision
Annex I – part I – point 2 – point 2.4 – paragraph 1

Text proposed by the Commission	*Amendment*
A ***FET*** Advisory Board will provide ***stakeholder*** input on the overall scientific strategy, ***including*** the definition of the work programme.	A ***FEST*** Advisory Board***, composed of scientists and engineers of the highest repute and appropriate expertise, ensuring a diversity of research areas and acting in their personal capacity,*** will provide input ***and advice to the Commission*** on the overall scientific strategy ***for the FEST activities***, the ***establishment of the work programme and criteria for the calls for proposals, as well***

as the definition of ***specific topics for FEST Proactive and FEST Flagships.***

The FEST Advisory Board shall be consulted in particular on:

- the overall scientific strategy for the FEST activities, in the light of scientific and application opportunities and

needs at European level;

- the establishment of the work programme ***and necessary modifications, including calls for proposals and criteria;***

- the definition of specific topics for the top-down FEST activities (Proactive and Flagships), including in particular

those emerging from the FEST bottom-up activities (Open) as well as from ERC grants funded in the relevant areas.

Or. en

Amendment 49
Proposal for a decision
Annex I – part I – point 2 – point 2.4 – paragraph 1 a (new)

Text proposed by the Commission	*Amendment*
	Evaluation of all FEST projects will follow exclusively strict criteria of scientific and technological excellence.

Or. en

Amendment 50
Proposal for a decision
Annex I – part I – point 2 – point 2.4 – paragraph 2 a (new)

Text proposed by the Commission	*Amendment*
	The majority of FEST resources will be devoted to bottom-up collaborative frontier research in all fields.

Or. en

Amendment 51
Proposal for a decision
Annex I – part I – point 3 – point 3.1 – paragraph 3

Text proposed by the Commission	*Amendment*
The action will be implemented through support to Union-wide competitively selected research training programmes implemented by partnerships of universities, research institutions, businesses, SMEs and other socio-economic actors from different countries across Europe and beyond. Single institutions able to provide the same enriching environment will also be supported. ***Flexibility*** in the implementation of the objectives will have to be ensured in order to address the different needs. Typically, successful partnerships will take the form of research training networks or industrial doctorates, while single institutions will usually be involved in innovative doctoral programmes. In this frame, support is foreseen for the best early stage researchers from any country to join these excellent programmes.	The action will be implemented through support to Union-wide competitively selected research training programmes implemented by partnerships of universities, research institutions, businesses, SMEs and other socio-economic actors from different countries across Europe and beyond. Single institutions able to provide the same enriching environment will also be supported. ***Full flexibility*** in the implementation of the objectives ***in terms of duration, host institution, number of trainees inside the overall agreed host network and financial volume for a project*** will have to be ensured in order to address the different needs. Typically, successful partnerships will take the form of research training networks or industrial***, joint and multiple*** doctorates, while single institutions will usually be involved in innovative doctoral programmes. In this frame, support is foreseen for the best early stage researchers from any country to join these excellent programmes.

Or. en

Amendment 52
Proposal for a decision
Annex I– part I – point 3 – point 3.2 – paragraph 2

Text proposed by the Commission	*Amendment*
Funding will be given to the best or most promising experienced researchers,	Funding will be given to the best or most promising experienced researchers,

regardless of their nationality, who want to develop their skills through a trans-national or international mobility experience. They can be supported along all the different stages of their career, including the most junior ones just after their doctoral degree or equivalent experience. These researchers will receive funding on the condition that they move from one country to another to broaden or deepen their competences in universities, research institutions, businesses, SMEs or other socio-economic actors of their choice, working on research and innovation projects fitting their personal needs and interests. They will also be encouraged to move from public to private sector or vice-versa through the support of temporary postings. Part-time opportunities allowing combined positions in both public and private sectors will also be supported to enhance the transfer of knowledge between sectors and also encourage the creation of start-ups. Such tailor-made research opportunities will help promising researchers to become fully independent and to facilitate career moves between public and private sectors.	regardless of their nationality, who want to develop their skills through a trans-national or international mobility experience. They can be supported along all the different stages of their career, including the most junior ones just after their doctoral degree or equivalent experience ***and subsequently return to Europe, should they so wish***. These researchers will receive funding on the condition that they move from one country to another to broaden or deepen their competences in universities, research institutions, businesses, SMEs or other socio-economic actors of their choice, working on research and innovation projects fitting their personal needs and interests. They will also be encouraged to move from public to private sector or vice-versa through the support of temporary postings. Part-time opportunities allowing combined positions in both public and private sectors will also be supported to enhance the transfer of knowledge between sectors and also encourage the creation of start-ups. Such tailor-made research opportunities will help promising researchers to become fully independent and to facilitate career moves between public and private sectors.

Or. en

Amendment 53
Proposal for a decision
Annex I – part I – point 3 – point 3.5 – paragraph 1

Text proposed by the Commission	*Amendment*
To efficiently meet the challenge it will be essential to monitor progress. The programme will support the development of indicators and the analysis of data related to researchers' mobility, skills and careers with a view to identifying gaps in the Marie Curie actions and to increasing the impact of these actions. These activities	To efficiently meet the challenge it will be essential to monitor progress. The programme will support the development of indicators and the analysis of data related to researchers' mobility, skills and careers with a view to identifying gaps ***and barriers*** in the Marie Curie actions and to increasing the impact of these actions.

will be implemented seeking synergies and close coordination with the policy support actions on researchers, their employers and funders carried out under ***'Inclusive, innovative*** and ***secure societies'***. Specific actions will be funded to support initiatives to raise awareness on the importance of the research career, and to disseminate research and innovation results emanating from work supported by Marie Curie actions.	These activities will be implemented seeking synergies and close coordination with the policy support actions on researchers, their employers and funders carried out under ***the specific objective 'Enhanced dialogue between science*** and ***society'***. Specific actions will be funded to support initiatives to raise awareness on the importance of the research career, ***women mobility*** and to disseminate research and innovation results emanating from work supported by Marie Curie actions.

Or. en

Amendment 54
Proposal for a decision
Annex I – part I – point 3 – point 3.6 – paragraph 5

Text proposed by the Commission	*Amendment*
In order to be open to all sources of talent, general measures to overcome any distortions in the access to the grants will be ensured, for example by encouraging equal opportunities in all Marie Curie actions and by benchmarking gender participation. In addition, the Marie Curie actions will support researchers to get established on a more stable career path and to ensure that they can achieve an appropriate work/life balance, taking into account their family situation, and to contribute to facilitate resuming a research career after a break. The principles of the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers promoting open recruitment and attractive working conditions will ***have to be endorsed and applied by all the funded participants***.	In order to be open to all sources of talent, general measures to overcome any distortions in the access to the grants will be ensured, for example by encouraging equal opportunities in all Marie Curie actions and by benchmarking gender participation ***and the mobility of female researchers***. In addition, the Marie Curie actions will support researchers to get established on a more stable career path and to ensure that they can achieve an appropriate work/life balance, taking into account their family situation, and to contribute to facilitate resuming a research career after a break. The ***general*** principles of the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers promoting open recruitment and attractive working conditions will ***apply***.

Or. en

Amendment 55
Proposal for a decision
Annex I – part I – point 4 – point 4.1 – point 4.1.1 – paragraph 1

Text proposed by the Commission	*Amendment*
The aim is to ensure the implementation, long-term sustainability and efficient operation of the research infrastructures identified by the European Strategy Forum on Research Infrastructures (ESFRI) and other world-class research infrastructures, which will help Europe to respond to grand challenges in science, industry and society. This objective will address ***specifically*** those infrastructures that are setting up or that have set up their governance, e.g. on the basis of the European Research Infrastructure Consortium (ERIC) or any equivalent structure at European or international level.	The aim is to ensure the implementation, long-term sustainability and efficient operation of the research infrastructures***, namely the infrastructures*** identified by the European Strategy Forum on Research Infrastructures (ESFRI) and other world-class research infrastructures, which will help Europe to respond to grand challenges in science, industry and society. ***The distribution of these infrastructures will be taken into account.*** This objective will address those infrastructures that are setting up or that have set up their governance, e.g. on the basis of the European Research Infrastructure Consortium (ERIC) or any equivalent structure at European or international level.

Or. en

Amendment 56
Proposal for a decision
Annex I – part I – point 4 – point 4.2 – point 4.2.1 – paragraph 2 – point d a (new)

Text proposed by the Commission	*Amendment*
	(da) foster access to private research infrastructures suitable for public research purposes.

Or. en

Amendment 57
Proposal for a decision
Annex I – part I – point 4 – point 4.3 – point 4.3.1

Text proposed by the Commission	*Amendment*
The aims are to exploit synergies between national and Union initiatives by setting up partnerships between relevant policy makers and funding bodies (e.g. ESFRI, e-Infrastructure Reflection Group (e-IRG), EIROforum organisations, national public authorities), to develop complementarities and cooperation between research infrastructures and activities implementing other Union policies (such as regional, cohesion, industrial, health, employment, or development policy), and to ensure coordination between different Union funding sources. Union actions will also support survey, monitoring and assessment of research infrastructures at Union level, as well as relevant policy studies and communication tasks.	The aims are to exploit synergies between national and Union initiatives by setting up partnerships between relevant policy makers and funding bodies (e.g. ESFRI, e-Infrastructure Reflection Group (e-IRG), EIROforum organisations, national public authorities), to develop complementarities and cooperation between research infrastructures and activities implementing other Union policies (such as regional, cohesion, industrial, health, employment, ***security*** or development policy), and to ensure coordination between different Union funding sources. ***Activities with a high social impact should be taken into consideration.*** Union actions will also support survey, monitoring and assessment of research infrastructures at Union level, as well as relevant policy studies and communication tasks.

Or. en

Amendment 58
Proposal for a decision
Annex I – part I – point 4 a (new)

Text proposed by the Commission	*Amendment*
	4a. Spreading Excellence and Widening Participation
	In order to help close the research and innovation divide in Europe, complementarity and close synergies will be developed with the Structural Funds both upstream (capacity-building in the Member States to better prepare their participation in Horizon 2020) and downstream (exploit and diffuse research and innovation results stemming from Horizon 2020). Where possible, interoperability between the two instruments will be promoted. Cumulative

or combined funding will be encouraged.

In this context, measures will aim at fully exploiting the potential of Europe's talent pool and thereby optimising the economic and social impact of research and innovation and will be distinct yet complementary with regard to policies and actions of the Cohesion policy Funds. These measures include:

(a) Linking in a competition emerging institutions, centres of excellence and innovative regions in less developed Member States to leading international counterparts elsewhere in Europe. This will involve the teaming of excellent research institutions and less developed regions, twinning of staff exchanges, expert advice and assistance and the development of joint strategies for the establishment of centres of excellence. These may be supported by the Cohesion policy funds in less developed regions. Building links with innovative clusters and recognising excellence in less developed regions, including through peer reviews and awarding labels of excellence to those institutions that meet international standards, will be considered.

(b) Establishing 'ERA Chairs' to attract outstanding academics to institutions with a clear potential for research excellence, in order to help these institutions fully unlock this potential and thereby create a level playing field for research and innovation in the European Research Area. This will include institutional support for creating a competitive research environment and the framework conditions necessary for attracting, retaining and developing top research talent within these institutions.

(c) Conferring a "seal of excellence" on positively evaluated ERC, Marie Sklodowska-Curie or collaborative project proposals that have not been able to

achieve funding because of budgetary limitations. National and regional funds might thus be encouraged to contribute to the funding of those projects that meet the criteria of excellence but cannot be funded due to lack of European funds.

(d) Conferring a "seal of excellence" to completed projects in order to facilitate funding of the follow up (e.g. pilot scale, demonstration projects or valorisation of research results) by national or regional sources.

(e) Attribution of ERC "Return Grants" to researchers currently working outside of Europe and who wish to work in Europe or to researchers already working in Europe who wish to move to a less developed region.

(f) Support complementary agreements signed among organisations beneficiaries of the collaborative research projects with other entities and organisations established mainly in countries others than those directly involved in the project with the specific objective of facilitating training opportunities (namely doctoral and post-doctoral positions)

(g) Strengthening successful networks aiming at establishing high quality institutional networking in research and innovation. Particular attention will be paid to COST in order to promote activities to identify and connect "pockets of excellence" (high-quality scientific communities and early career investigators) throughout Europe.

(h) Developing specific training mechanisms on how to participate in Horizon 2020, taking full advantage of existing networks such as the National Contact Points.

(i) Making available doctoral and post-doctoral fellowships, as well as advanced training fellowships for engineers for accessing all international research

infrastructures in Europe, including those managed by international scientific organisations.

(j) Supporting the development and monitoring of smart specialisation strategies. A policy support facility will be developed and policy learning at regional level will be facilitated through international evaluation by peers and best practice sharing.

(k) Setting up an online marketplace where intellectual property can be advertised in order to bring together the owners and users of IPR.

Or. en

Justification

Excellence should be fully exploited enhancing the synergies between Horizon 2020 and the Structural Funds

Amendment 59
Proposal for a decision
Annex I – part II – point 1 – paragraph 1

Text proposed by the Commission	*Amendment*
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 high-tech application sectors and the ability to develop unique solutions for societal challenges.Innovation activities will be combined with R&D, as an integral part of the funding.	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 high-tech application sectors and the ability to develop unique solutions for societal challenges ***and user needs***. ***Industrial sectors that have higher impact in value added, employment, importance for the rest of the economy and potential for reducing the cost of non-Europe should be targeted.*** Innovation activities will be combined with R&D, as an integral part of the funding.

Or. en

Amendment 60
Proposal for a decision
Annex I – part II – point 1 – paragraph 4

Text proposed by the Commission	*Amendment*
Innovation activities will include the integration of individual technologies; demonstrations of capacities to make and deliver innovative products and services; user and customer pilots to prove feasibility and added value; and large-scale demonstrators to facilitate market take-up of the research results.	Innovation activities will ***be fostered from the earliest stages of the passage from concept to market. They will also*** include the integration of individual technologies; demonstrations of capacities to make and deliver innovative products and services; user and customer pilots to prove feasibility and added value; and large-scale demonstrators to facilitate market take-up of the research results.

Or. en

Amendment 61
Proposal for a decision
Annex I – part II – point 1 – paragraph 7 a (new)

Text proposed by the Commission	*Amendment*
	Union RDI activities on the Technology Readiness Level scale will be in line with the OECD definition. The Commission will consider this definition in order to include technological research, product development and demonstration activities within its RDI portfolio.

Or. en

Amendment 62
Proposal for a decision
Annex I – part II – point 1 – point 1.1 – point 1.1.2

Text proposed by the Commission	*Amendment*
The objective is to leverage European assets in processor and system architecture, interconnect and data localisation technologies, cloud computing, parallel computing ***and*** simulation software for all market segments of computing.	The objective is to leverage European assets in processor and system architecture, interconnect and data localisation technologies, cloud computing, parallel computing***,*** simulation software for all market segments of computing***, uncertainty quantification, risk analysis and decision in engineering***.

Or. en

Amendment 63
Proposal for a decision
Annex I – part II – point 1 – point 1.1 – point 1.1.3

Text proposed by the Commission	*Amendment*
The objective is to reinforce the competitiveness of European industry in developing, mastering and shaping the next generation Internet that will gradually replace the current Web, fixed and mobile networks and service infrastructures, and enable the interconnection of trillions of devices (IoT) across multiple operators and domains that will change the way we communicate, access and use knowledge. This includes R&I on networks, software and services, cyber security, privacy and trust, wireless[22] communication and all optical networks, immersive interactive multimedia and on the connected enterprise of the future.	The objective is to reinforce the competitiveness of European industry in developing, mastering and shaping the next generation Internet that will gradually replace the current Web, fixed***, satellite*** and mobile networks and service infrastructures, and enable the interconnection of trillions of devices (IoT) across multiple operators and domains that will change the way we communicate, access and use knowledge. This includes R&I on networks, software and services, cyber security, privacy and trust, wireless[22] communication and all optical networks, immersive interactive multimedia and on the connected enterprise of the future.

Or. en

Amendment 64
Proposal for a decision
Annex I – part II – point 1 – point 1.1 – point 1.1.6 a (new)

Text proposed by the Commission	*Amendment*
	1.1.6a. Quantum technologies: next generation of ICT devices through the combination of quantum physics and information science
	The objective is to develop the next generation of ICT devices through the combination of quantum physics and information science, thereby securing the Union a key role in a future global market where the quantum limits will define the performance of industrial applications.

Or. en

Amendment 65
Proposal for a decision
Annex I – part II – point 1 – point 1.2 – point 1.2.2 a (new)

Text proposed by the Commission	*Amendment*
	1.2.2a. Developing a new tool for designing, simulation, characterization and manipulations of nanomaterials, components and systems
	Studying, imaging and controlling the new nanomaterials and systems at the nanoscale.

Or. en

Amendment 66
Proposal for a decision
Annex I – part II – point 1 – point 1.3 – point 1.3.2

Text proposed by the Commission	*Amendment*
Research and development to ensure efficient ***and*** sustainable scale up to enable industrial manufacturing of future products e.g. in the metal or chemical industries.	Research and development to ensure efficient***,*** sustainable***, safe and secure*** scale up to enable industrial manufacturing of future products e.g. in the metal or

chemical industries.

Or. en

Amendment 67
Proposal for a decision
Annex I – part II – point 1 – point 1.3 – point 1.3.3

Text proposed by the Commission	*Amendment*
Research and development for new and innovative techniques and systems, joining, adhesion, separation, assembly, self-assembly and disassembling, decomposition and deconstruction.	Research and development for new and innovative ***production*** techniques ***for materials, components*** and systems, joining, adhesion, separation, assembly, self-assembly and disassembling, decomposition and deconstruction.

Or. en

Amendment 68
Proposal for a decision
Annex I – part II – point 1 – point 1.3 – point 1.3.4

Text proposed by the Commission	*Amendment*
Developing new products and applications and consumer behaviour that reduce energy demand and facilitate low-carbon production, as well as process intensification, recycling, depollution and high added-value materials from waste and remanufacture.	Developing new ***materials, components,*** products and applications and consumer behaviour that reduce energy demand and facilitate low-carbon production, as well as process intensification, recycling, depollution and high added-value materials from waste and remanufacture.

Or. en

Amendment 69
Proposal for a decision
Annex I – part II – point 1 – point 1.3 – point 1.3.5 a (new)

Text proposed by the Commission	*Amendment*
	1.3.5a. New raw materials for the

	chemical industry
	Development of an alternative feedstock basis for the chemical industry, ranging from coal, biomass, and waste materials, to environmentally friendly substitute petroleum as carbon source in the medium and long term. New syngas technologies (third generation gasification technologies) are required to explore a wide range of potential feedstock.

Or. en

Amendment 70
Proposal for a decision
Annex I – part II – point 1 – point 1.3 – point 1.3.7

Text proposed by the Commission	*Amendment*
Research and development to investigate alternatives to the use of materials and innovative business model approaches.	Research and development to investigate alternatives to the use of materials***, including scarce raw materials,*** and innovative business model approaches.

Or. en

Amendment 71
Proposal for a decision
Annex I – part II – point 1 – point 1.4 – point 1.4.1

Text proposed by the Commission	*Amendment*
The objective is to lay the foundations for the European industry to stay at the front line of innovation, also in the medium and long term. It encompasses the development of emerging tools such as synthetic biology, bioinformatics, systems biology and exploiting the convergence with other enabling technologies such as nanotechnology (e.g. bionanotechnology) and ICT (e.g. bioelectronics). These and other cutting-edge fields deserve	The objective is to lay the foundations for the European industry to stay at the front line of innovation, also in the medium and long term. It encompasses the development of emerging tools such as synthetic biology, bioinformatics, systems biology and exploiting the convergence with other enabling technologies such as nanotechnology (e.g. bionanotechnology) and ICT (e.g. bioelectronics). These and other cutting-edge fields deserve

appropriate measures in terms of research and development to facilitate effective transfer and implementation into new applications (drug delivery systems, biosensors, biochips, etc).	appropriate measures in terms of research and development to facilitate effective transfer and implementation into new applications (drug delivery systems, biosensors, biochips, etc)***, products and technologies***.

Or. en

Amendment 72
Proposal for a decision
Annex I – part II – point 1 – point 1.4 – point 1.4.2

Text proposed by the Commission	*Amendment*
The objective is twofold: on the one hand, enabling the European industry (e.g. chemical, health, mining, energy, pulp and paper, textile, starch, food processing) to develop new products and processes meeting industrial and societal demands; and competitive and enhanced biotechnology-based alternatives to replace established ones; on the other hand, harnessing the potential of biotechnology for detecting, monitoring, preventing and removing pollution. It includes R&I on enzymatic and metabolic pathways, bio-processes design, advanced fermentation, up- and down-stream processing, gaining insight on the dynamics of microbial communities. It will also encompass the development of prototypes for assessing the techno-economic feasibility of the developed products and processes.	The objective is twofold: on the one hand, enabling the European industry (e.g. chemical, health, mining, energy, pulp and paper, textile, starch, food processing) to develop new products***, materials*** and ***sustainable*** processes meeting industrial and societal demands; and competitive and enhanced biotechnology-based alternatives to replace established ones; on the other hand, harnessing the potential of biotechnology for detecting, monitoring, preventing and removing pollution. It includes R&I on enzymatic and metabolic pathways, bio-processes design, advanced fermentation, up- and down-stream processing, gaining insight on the dynamics of microbial communities. It will also encompass the development of prototypes for assessing the techno-economic feasibility of the developed products and processes.

Or. en

Amendment 73
Proposal for a decision
Annex I – part II – point 1 – point 1.4 – point 1.4.3

Text proposed by the Commission	*Amendment*
The objective is to develop platform technologies (e.g. genomics, meta-genomics, proteomics, molecular tools) triggering leadership and competitive advantage on a wide number of ***economic*** sectors. It includes aspects, such as underpinning the development of bio-resources with optimised properties and applications beyond conventional alternatives; enabling exploration, understanding and exploitation in a sustainable manner of terrestrial and marine biodiversity for novel applications; and sustaining the development of biotechnology-based healthcare solutions (e.g. diagnostics, biologicals, bio-medical devices).	The objective is to develop platform technologies (e.g. genomics, meta-genomics, proteomics, molecular tools ***and cell-based platforms***) triggering leadership and competitive advantage on a wide number of sectors ***having economic impact. This approach can further advance the potential of novel SMEs and reduce time-to-market significantly.*** It includes ***development of activities for enhancing populations' health and well-being. It includes also*** aspects, such as underpinning the development of bio-resources with optimised properties and applications beyond conventional alternatives; enabling exploration, understanding and exploitation in a sustainable manner of terrestrial and marine biodiversity for novel applications; and sustaining the development of biotechnology-based healthcare solutions (e.g. diagnostics, biologicals, bio-medical devices).

Or. en

Amendment 74
Proposal for a decision
Annex I – part II – point 1 – point 1.5 – point 1.5.3

Text proposed by the Commission	*Amendment*
Increasing the competitiveness of process industries, such as chemical, pulp and paper, glass, or non-ferrous metals and steel by drastically improving resource and energy efficiencies and reducing the environmental impact of such industrial activities. Focus will be on the development, and validation of enabling technologies for innovative substances, materials and technological solutions for low-carbon products and less energy-	Increasing the competitiveness of process industries, such as chemical, pulp and paper, glass, or non-ferrous metals and steel by drastically improving resource and energy efficiencies and reducing the environmental impact of such industrial activities***, such as clean combustion for lowering micro-particles and heavy metals emissions***. Focus will be on the development, and validation of enabling technologies for innovative substances,

intensive processes and services along the value chain, as well as the adoption of ultra-low carbon production technologies and techniques to achieve specific GHG emission intensity reductions.	materials and technological solutions for low-carbon products and less energy-intensive processes and services along the value chain, as well as the adoption of ultra-low carbon production technologies and techniques to achieve specific GHG emission intensity reductions.

Or. en

Amendment 75
Proposal for a decision
Annex I – part II – point 1 – point 1.6 – point 1.6.1

Text proposed by the Commission	*Amendment*
The objective is to maintain a globally leading role in space by safeguarding and developing a competitive space industry and research community and by fostering space-based innovation.	***Space encompasses, when it is referred to as a generic term, satellite observation, satellite navigation and satellite telecommunications industry, infrastructure (ground and space), services and applications.*** The objective is to maintain a globally leading role in space by safeguarding and developing a competitive space industry and research community and by fostering space-based innovation.

Or. en

Amendment 76
Proposal for a decision
Annex I – part II – point 1 – point 1.6 – point 1.6.1 – point 1.6.1.2

Text proposed by the Commission	*Amendment*
A number of challenges in space technologies have parallels to terrestrial challenges, for example in the fields of energy, telecommunications, natural resource exploration, robotics, security, and health. These commonalities offer opportunities for early co-development, in particular by SMEs, of technologies across	A number of challenges in space technologies have parallels to terrestrial challenges, for example in the fields of energy, telecommunications, natural resource exploration, robotics, security, and health. These commonalities offer opportunities for early co-development, in particular by SMEs, of technologies across

space and non-space communities, potentially resulting in breakthrough innovations more rapidly than achieved in spin-offs at a later stage. Exploitation of existing European space infrastructure should be stimulated by promoting development of innovative products and services based on remote sensing and geo-positioning. Europe should furthermore reinforce the incipient development of an entrepreneurial space sector by well targeted ***measures***.	space and non-space communities, potentially resulting in breakthrough innovations more rapidly than achieved in spin-offs at a later stage. Exploitation of existing European space infrastructure should be stimulated by promoting development of innovative products and services based on remote sensing and geo-positioning ***and space based telecommunications***. Europe should furthermore reinforce the incipient development of an entrepreneurial space sector by well targeted ***measures to encourage integrated use of several space-based services***.

Or. en

Amendment 77
Proposal for a decision
Annex I – part II – point 1 – point 1.6 – point 1.6.2 – paragraph 2 – point d

Text proposed by the Commission	*Amendment*
(d) mission context, e.g. analysis of the space environment, ground stations, protecting space systems from collision with debris and effects of solar flares (Space Situational Awareness, SSA), fostering innovative data and sample archiving infrastructure;	(d) mission context, e.g. analysis of the space environment, ground stations, protecting space systems from collision with debris and effects of solar flares (Space Situational Awareness, SSA), fostering innovative data ***gathering*** and ***transmission and*** sample archiving infrastructure;

Or. en

Amendment 78
Proposal for a decision
Annex I – part II – point 2 – paragraph 3 a (new)

Text proposed by the Commission	*Amendment*
	The risk sharing financing schemes shall also target unsolved needs within policies and sectors, notably regarding the societal

challenges, which are pressing but chronically underfinanced by the private sector due to high risk thresholds.

Or. en

Justification

For example, global challenges like poverty related diseases can find solutions if stable and sustainable funding is organised to develop new tools. Private sector might take up these challenges, if financial risks are matched. In order to attract necessary funding for global health R&D, it is key to explore further funding mechanisms to ensure long term private sector investment.

Amendment 79
Proposal for a decision
Annex I – part II – point 2 – point 2.1 – paragraph 1

Text proposed by the Commission	*Amendment*
The Debt facility will provide loans to single beneficiaries for investment in R&I; guarantees to financial intermediaries making loans to beneficiaries; combinations of loans and guarantees; and guarantees and/or counter-guarantees for national or regional debt-financing schemes. The Debt facility will undertake maturity enhancement activities, and it will support the dedicated SME Instrument (see part II, section '3. Innovation in SMEs' of this Annex). Provisions from the debt facility may be combined, with the possible addition of grants (including lump sums), with provisions from the equity financial instrument in one or more integrated schemes. Soft loans and convertible loans may also be possible.	The Debt facility will provide loans to single beneficiaries for investment in R&I; guarantees to financial intermediaries making loans to beneficiaries; combinations of loans and guarantees; and guarantees and/or counter-guarantees for national or regional debt-financing schemes. The Debt facility will undertake maturity enhancement activities, and it will support the ***Phase 3 of the*** dedicated SME Instrument (see part II, section '3. Innovation in SMEs' of this Annex). Provisions from the debt facility may be combined, with the possible addition of grants (including lump sums), with provisions from the equity financial instrument in one or more integrated schemes. Soft loans and convertible loans may also be possible.

Or. en

Amendment 80
Proposal for a decision
Annex I – part II – point 2 – point 2.1 – paragraph 4

Text proposed by the Commission	*Amendment*
Risk-sharing and other parameters may vary within policy or sector compartments, provided their values or states comply with the common rules for debt instruments. Furthermore, compartments may have specific communications strategies within the overall promotional campaign for the Debt facility. In addition, specialist intermediaries at national level may be used if specific expertise is needed to assess prospective loans in the domain of a particular compartment.	Risk-sharing and other parameters may vary within policy or sector compartments, provided their values or states comply with the common rules for debt instruments. Furthermore, compartments may have specific communications strategies within the overall promotional campaign for the Debt facility. In addition, specialist intermediaries at national level may be used if specific expertise is needed to assess prospective loans in the domain of a particular compartment. ***The EIB, managing the Debt facility on behalf of the Commission, will have the mandate to lend to projects carrying a high technological risk, not merely to offer below-market-rate loans to projects with a low technological risk.***

Or. en

Amendment 81
Proposal for a decision
Annex I – part II – point 2 – point 2.1 – paragraph 5

Text proposed by the Commission	*Amendment*
The SME window under the Debt facility shall target R&I-driven SMEs and small mid-caps with loan amounts exceeding EUR ***150 000***, thus complementing finance to SMEs by the Loan Guarantee Facility under the Programme for the Competitiveness of Enterprises and SMEs.	The SME window under the Debt facility shall target R&I-driven SMEs and small mid-caps with loan amounts exceeding EUR ***X***, thus complementing finance to SMEs by the Loan Guarantee Facility under the Programme for the Competitiveness of Enterprises and SMEs.

Or. en

Justification

The final amount will be in line with the one agreed in the COSME programme.

Amendment 82
Proposal for a decision
Annex I – part II – point 3 – point 3.1 – paragraph 1

Text proposed by the Commission	*Amendment*
SMEs will be supported across Horizon 2020. For this purpose a dedicated SME instrument is targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise. It will be provided for all types of innovation, including non-technological and service innovations. The objective is to help filling the gap in funding for early stage high risk research and innovation, stimulate break-through innovations and increase private-sector commercialisation of research results.	SMEs will be supported across Horizon 2020. For this purpose a dedicated SME instrument is targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise. It will be provided for all types of innovation, including non-technological and service innovations. The objective is to help filling the gap in funding for early stage high risk research and innovation, stimulate break-through innovations and increase private-sector commercialisation of research results. ***The instrument will provide a quality label for successful SMEs in view of their participation in public procurement.***

Or. en

Amendment 83
Proposal for a decision
Annex I – part II – point 3 – point 3.1 – paragraph 5 – introductory part

Text proposed by the Commission	*Amendment*
The SME instrument will provide simplified and staged support. Its three phases will cover the whole innovation cycle. Transition from one phase to the next will be seamless provided the SME project has proven to be worth further funding during a previous phase. At the same time each phase will be open to all SMEs:	The SME instrument will provide simplified and staged support. Its three phases will cover the whole innovation cycle. Transition from one phase to the next will be seamless provided the SME project has proven to be worth further funding during a previous phase. ***SMEs can apply directly to Phase 2, independently from Phase 1.*** At the same time each phase will be open to all SMEs:

Or. en

Amendment 84
Proposal for a decision
Annex I – part II – point 3 – point 3.1 – paragraph 5 – indent 2

Text proposed by the Commission	*Amendment*
Research and development will be supported with a particular focus ***on*** demonstration activities (testing, prototype, scale-up studies, design, piloting innovative processes, products and services, performance verification etc.) and market replication.	Research and development will be supported ***through an Innovation Voucher which SMEs can use to work individually or*** with ***one or more research performers (universities, research centres or other companies in another Member State or Associated Country). Although*** a particular focus ***will be given to*** demonstration activities (testing, prototype, scale-up studies, design, piloting innovative processes, products and services, performance verification etc.) and market replication***, R&D activities are also possible***.

Or. en

Amendment 85
Proposal for a decision
Annex I – part II – point 3 – point 3.2 – point 3.2.2 – paragraph 2

Text proposed by the Commission	*Amendment*
Synergies with Union cohesion policy will be sought in the context of national and regional innovation strategies for smart specialisation.	Synergies with Union cohesion policy will be sought in the context of national and regional innovation strategies for smart specialisation. ***These synergies may also build on the bottom-up national and regional experience of Eureka and Eurostars in supporting SME innovation and research activities.***

Or. en

Amendment 86
Proposal for a decision
Annex I – part III – point 1 – paragraph 2

Text proposed by the Commission	*Amendment*
Successful efforts to prevent, manage, treat and cure disease, disability and reduced functionality are underpinned by the fundamental understanding of their causes, processes and impacts, as well as factors underlying good health and wellbeing. Effective sharing of data and the linkage of these data with real-world large scale cohort studies is also essential, as is the translation of research findings into the clinic, in particular through the conduct of clinical trials.	Successful efforts to prevent, manage, treat and cure disease, disability and reduced functionality ***as well as the study of living standard of elderly citizens*** are underpinned by the fundamental understanding of their causes, processes and impacts, as well as factors underlying good health and wellbeing. Effective sharing of data and the linkage of these data with real-world large scale cohort studies is also essential, as is the translation of research findings into the clinic, in particular through the conduct of clinical trials.

Or. en

Amendment 87
Proposal for a decision
Annex I – part III – point 1 – paragraph 3

Text proposed by the Commission	*Amendment*
An increasing disease and disability burden in the context of an aging population places further demands on health and care sectors. If effective health and care is to be maintained for all ages, efforts are required to improve decision making in prevention and treatment provision, to identify and support the dissemination of best practice in the healthcare sector, and to support integrated care and the uptake of technological, organisational and social innovations empowering older persons in particular to remain active and independent. Doing so will contribute to increasing, and lengthening the duration of their physical, social, and mental well-being.	An increasing disease and disability burden in the context of an aging population places further demands on health and care sectors***, but also in social innovation research and development***. If effective health and care is to be maintained for all ages, efforts are required to improve decision making in prevention and treatment provision, to identify and support the dissemination of best practice in the healthcare sector, and to support integrated care and the uptake of technological, organisational and social innovations empowering older persons in particular to remain active and independent. Doing so will contribute to increasing, and lengthening the duration of their physical, social, and mental well-

	being. ***Special attention should be devoted to chronic diseases, such as cancer, cardiovascular diseases, diabetes and respiratory and mental diseases.***

Or. en

Amendment 88
Proposal for a decision
Annex I – part III – point 1 – paragraph 4

Text proposed by the Commission	*Amendment*
All of these activities will be undertaken in such a way as to provide support throughout the research and innovation cycle, strengthening the competitiveness of the European based industries and development of new market opportunities.	All of these activities will be undertaken in such a way as to provide support throughout the research and innovation cycle, strengthening the competitiveness of the European based industries and development of new market opportunities. ***Programmes and projects under this topic should coordinate their research programmes with and take advantage of ESFRI research infrastructures. In order to foster strategic coordination of health research and innovation across Horizon 2020 and promote transnational medical research, the corresponding thematic advisory board for Health could be established. This coordination can be extended to other programmes and instruments related to this challenge. This co-ordinated, European effort will increase the scientific and human capabilites in health research.***

Or. en

Amendment 89
Proposal for a decision
Annex I – part III – point 1 – point 1.1 – paragraph 1

Text proposed by the Commission	*Amendment*
A better understanding of the determinants	A better understanding of the determinants

of health is required in order to provide evidence for effective health promotion and disease prevention, and will also allow the development of comprehensive health and wellbeing indicators in the Union. Environmental, behavioural (including life-style), socio-economic and genetic factors, in their broadest senses will be studied. Approaches will include the long term study of cohorts and their linkage with data derived from '-omics' research, and other methods.	of health is required in order to provide evidence for effective health promotion and disease prevention, and will also allow the development of comprehensive health and wellbeing indicators in the Union ***and worldwide***. Environmental, behavioural (including life-style), socio-economic and genetic factors, in their broadest senses will be studied. Approaches will include the long term study of cohorts and their linkage with data derived from '-omics' research, and other methods.

Or. en

Justification

Investments in global health produce real results and increased investment will not only provide health benefits abroad but health benefits in the EU too. In a global world, no major challenge can be solved just locally or even regionally.

Amendment 90
Proposal for a decision
Annex I – part III – point 1 – point 1.5

Text proposed by the Commission	*Amendment*
There is a need for more effective preventive vaccines (or alternative preventive interventions) and evidence-based vaccination schemes for an expanded range of diseases. This relies on a better understanding of disease and disease processes and their consequent epidemics, and that clinical trials and associated studies are undertaken.	There is a need for more effective preventive vaccines (or alternative preventive interventions) and evidence-based vaccination schemes for an expanded range of diseases***, including poverty-related diseases such as HIV/AIDS, tuberculosis, malaria and neglected diseases***. This relies on a better understanding of disease and disease processes and their consequent epidemics, and that clinical trials and associated studies are undertaken.

Or. en

Amendment 91
Proposal for a decision
Annex I – part III – point 1 – point 1.6

Text proposed by the Commission	*Amendment*
An improved understanding of health, disease and disease processes at all ages is needed to develop new and more effective diagnostics. Innovative and existing technologies will be developed with the goal of significantly improving disease outcomes through earlier, more accurate diagnosis and by allowing for more patient-adapted treatment.	An improved understanding of health, disease and disease processes at all ages is needed to develop new and more effective diagnostics. Innovative and existing technologies will be developed with the goal of significantly improving disease outcomes through earlier, more accurate diagnosis and by allowing for more patient-adapted treatment ***in the pre-hospital as well as in hospital phase***.

Or. en

Amendment 92
Proposal for a decision
Annex I – part III – point 1 – point 1.8

Text proposed by the Commission	*Amendment*
There is a need to support the improvement of cross-cutting support technologies for drugs, vaccines and other therapeutic approaches, including transplantation, gene and cell therapy; to increase success in the drug and vaccine development process (including alternative methods to replace classical safety and effectiveness testing e.g. the development of new methods); to develop regenerative medicine approaches, including approaches based on stem cells; to develop improved medical and assistive devices and systems; to maintain and enhance our ability to combat communicable, rare, major and chronic diseases and undertake medical interventions that depend on the availability of effective antimicrobial drugs; and to develop comprehensive approaches to treat co-morbidities at all ages and avoid poly-pharmacy. These	There is a need to support the improvement of cross-cutting support technologies for drugs, vaccines and other therapeutic approaches, including transplantation, gene and cell therapy; to increase success in the drug and vaccine development process (including alternative methods to replace classical safety and effectiveness testing e.g. the development of new methods); to develop regenerative medicine approaches, including approaches based on stem cells; to develop improved medical and assistive devices and systems; to maintain and enhance our ability to combat communicable, ***poverty-related, neglected,*** rare, major and chronic diseases and undertake medical interventions that depend on the availability of effective antimicrobial drugs; and to develop comprehensive approaches to treat co-morbidities at all ages and avoid poly-

improvements will facilitate the development of new, more efficient, effective and sustainable treatments for disease and for the management of disability.	pharmacy. These improvements will facilitate the development of new, more efficient, effective and sustainable treatments for disease and for the management of disability***, both outside and inside hospital***.

Or. en

Amendment 93
Proposal for a decision
Annex I – part III – point 1 – point 1.16

Text proposed by the Commission	*Amendment*
Support provided will cover the full spectrum of activities from knowledge and technology transfer to large scale demonstration actions, leading to scalable solutions for Europe and beyond.	Support provided will cover the full spectrum of activities from knowledge and technology transfer to large scale demonstration actions, leading to scalable solutions for Europe and beyond. ***It is widely recognized that coordinated and strategic planning of health research is urgently needed in order to tackle the major health challenges facing Europe. Coordination can address fragmentation and improve the use of technological and infrastructural resources by the entire biomedical research community. Success and innovation in health research moreover requires a long-term commitment to sustain excellent research.*** ***A scientific-led strategy can promote a healthier and more productive Europe by responding to the generous commitment of the European scientific biomedical community and to the opportunities and challenges offered by the results of biomedical research, namely under the prospects of personalized medicine. Strategic action and high-level scientific assistance can ensure expert input on policy from the outset, advance innovation and competitiveness by understanding the complexity of the innovation cycle, encourage participation***

from more researchers across borders and science-based savings for national health systems.

As a first step, a high-level scientific advisory board for Health research will be established in order to respond to the urgent need of fostering strategic scientific coordination of health research across Horizon 2020 and of promoting translational medical research. Such strategic coordination will aim at contributing to defining biomedical research and translation programmes based upon the best scientific leadership and that should ensure expert scientific input on policy from the outset and warrant cost-effectiveness for national health systems. Strategic scientific coordination will also aim at attracting other areas of scientific and technological research to the opportunities provided by modern biomedical research.

By establishing Horizon 2020 internal strategic coordination across health research issues, based upon top-level scientific advisory, the advisory board will also provide the impetus and instruments needed to promote interaction and synergies at a larger scale. Voluntary convergence among national funding agencies, and with the Commission, on specific objectives, whenever appropriate, as well as strategic specific partnership, at Union level, between industry, national agencies and the Commission and strategic convergence at programme level involving regulatory bodies and national health authorities will be pursued.

Or. en

Amendment 94
Proposal for a decision
Annex I – part III – point 1 – point 1.16 a (new)

Text proposed by the Commission	*Amendment*
	1.16a. Developing simulation-based medical devices
	The drop in costs of sequencing and other –omics technologies as well as the availability of high power computing allows in the near future for the first time the development of mechanistic, computer-based simulation models and its implementing medical devices, which will support treatment decision of physician based on evidence and prior simulation before use as well as new and cheaper drug development technologies. Precision medicine become possible with the ultimate goal of curing diseases not only treating and reducing the growth rate of health care spending.

Or. en

Amendment 95
Proposal for a decision
Annex I – part III – point 2 – title

Text proposed by the Commission	*Amendment*
2. ***Food*** security, sustainable agriculture, marine and maritime research ***and the bio-economy***	2. ***European bio-economy challenges: food*** security ***and safety***, sustainable agriculture ***and forestry***, marine and maritime research

Or. en

Amendment 96
Proposal for a decision
Annex I – part III – point 2 – point 2.1

Text proposed by the Commission	*Amendment*
Appropriate knowledge, tools, services and innovations are necessary to support more	Appropriate knowledge, tools, services and innovations are necessary to support more

productive, resource-efficient and resilient agriculture and forestry systems that supply sufficient food, feed, biomass and other raw-materials and deliver ecosystems services while at the same time supporting the development of thriving rural livelihoods. Research and innovation will provide options for integrating agronomic and environmental goals into sustainable production, thus: increasing productivity and resource efficiency of agriculture; reducing agricultural greenhouse gases (GHGs) emissions; reducing leaching of nutrients from cultivated lands into terrestrial and aquatic environments; decreasing dependence from international plant derived protein imports to Europe; increasing the level of biodiversity in primary production systems.	productive, resource-efficient and resilient agriculture and forestry systems that supply sufficient food, feed, biomass and other raw-materials and deliver ecosystems services while at the same time supporting the development of thriving rural livelihoods. Research and innovation will provide ***a better understanding of the complex relationship of agriculture and forestry with the hydrologic cycle, leading to better*** options for integrating agronomic and environmental goals into sustainable production, thus: increasing productivity and resource efficiency of agriculture; reducing agricultural greenhouse gases (GHGs) emissions; reducing leaching of nutrients from cultivated lands into terrestrial and aquatic environments; decreasing dependence from international plant derived protein imports to Europe; increasing the level of biodiversity in primary production systems.

Or. en

Amendment 97
Proposal for a decision
Annex I – part III – point 2 – point 2.1 – point 2.1.1 – paragraph 1

Text proposed by the Commission	*Amendment*
Activities will enhance productivity as well as the adaptive capacity of plants, animals and production systems to cope with rapidly changing environmental/climatic conditions and increasingly scarce natural resources. The resulting innovations will help to move towards a low energy, low emission and low waste economy, along the entire food and feed supply chain. In addition to contributing to food security, new opportunities will be created for the use of biomass and by-products from agriculture and forestry for a wide range of non-food applications.	Activities will enhance productivity as well as the adaptive capacity of plants, animals and production systems to cope with rapidly changing environmental/climatic conditions and increasingly scarce natural resources***, especially water***. The resulting innovations will help to move towards a low energy, low emission and low waste economy, along the entire food and feed supply chain. In addition to contributing to food security, new opportunities will be created for the use of biomass and by-products from agriculture and forestry for a wide range of non-food applications.

Or. en

Amendment 98
Proposal for a decision
Annex I – part III – point 2 – point 2.1 – point 2.1.1 – paragraph 2

Text proposed by the Commission	*Amendment*
Multi-disciplinary approaches will be sought to improve the performance of plants, animals, micro-organisms, while ensuring efficient resource use (water, nutrients, energy) and the ecological integrity of rural areas. Emphasis will be placed on integrated and diverse production systems and agronomic practices, including the use of precision technologies and ecological intensification approaches to benefit both conventional and organic agriculture. Genetic improvement of plants and animals for adaptation and productivity traits will call for all appropriated conventional and modern breeding approaches and for a better use of genetic resources. Due attention will be given to on-farm soil management for increasing soil fertility as a basis for crop productivity. Animal and plant health will be promoted and integrated disease/pest control measures will be further developed. Strategies for the eradication of animal diseases including zoonoses will be tackled along with research on antimicrobial resistance. Studying the effects of practices on animal welfare will help meet societal concerns. The above listed areas will be underpinned by more fundamental research to address relevant biological questions as well as to support the development and implementation of Union policies.	Multi-disciplinary approaches will be sought to improve the performance of plants, animals, micro-organisms, while ensuring efficient resource use (water, nutrients, energy) and the ecological integrity of rural areas. Emphasis will be placed on integrated and diverse production systems and agronomic practices, including the use of precision technologies and ecological intensification approaches to benefit both conventional and organic agriculture. ***Irrigated agriculture deserves special attention because it is usually associated to a more intense mobilization of water and to the construction of infrastructure that has a potential impact on the ecosystems. The appropriate use of treated wastewater as a means of increasing production efficiency and coping with climate change, while ensuring sustainability and resilience against water scarcity for agricultural irrigation, must be considered. Reducing leaching of nutrients from cultivated lands into terrestrial and aquatic environments, avoiding diffuse pollution through groundwater returning to surface water bodies, is particularly important.*** Genetic improvement of plants and animals for adaptation and productivity traits will call for all appropriated conventional and modern breeding approaches and for a better use of genetic resources. Due attention will be given to on-farm soil management for increasing soil fertility as a basis for crop productivity. Animal and plant health will be promoted and integrated disease/pest control measures

will be further developed. Strategies for the eradication of animal diseases including zoonoses will be tackled along with research on antimicrobial resistance. Studying the effects of practices on animal welfare will help meet societal concerns. The above listed areas will be underpinned by more fundamental research to address relevant biological questions as well as to support the development and implementation of Union policies.

Or. en

Amendment 99
Proposal for a decision
Annex I – part III – point 2 – point 2.1 – point 2.1.2

Text proposed by the Commission	*Amendment*
Agriculture and forestry are unique systems delivering commercial products but also wider societal public goods (including cultural and recreational value) and important ecological services such as functional and in-situ biodiversity, pollination, water regulation, landscape, erosion reduction and carbon sequestration / GHG mitigation. Research activities will support the provisions of these public goods and services, through the delivery of management solutions, decision-support tools and the assessment of their non-market value. Specific issues to be dealt with include the identification of farming/forest systems and landscape patterns likely to achieve these goals. Shifts in theactive management of agricultural systems - including the use of technologies and change of practices - will increase GHG mitigation and the adaptive capacity of the agriculture sector to the adverse effects of climate change.	Agriculture and forestry are unique systems delivering commercial products but also wider societal public goods (including cultural and recreational value) and important ecological services such as functional and in-situ biodiversity, pollination, water ***storage and*** regulation, landscape, erosion reduction and carbon sequestration / GHG mitigation. Research activities will support the provisions of these public goods and services, through the delivery of management solutions, decision-support tools and the assessment of their non-market value. Specific issues to be dealt with include the identification of farming/forest systems and landscape patterns likely to achieve these goals. Shifts in theactive management of agricultural systems - including the use of technologies and change of practices - will increase GHG mitigation and the adaptive capacity of the agriculture sector to the adverse effects of climate change. ***This also calls for an integrated water management of natural bodies and alternative sources (e.g. treated***

wastewater) for irrigation (agriculture, landscape and forestry), environmental restoration/enhancement, forest fire fighting, recreational activities and public supply.

Or. en

Amendment 100
Proposal for a decision
Annex I – part III – point 2 – point 2.1 – point 2.1.3

Text proposed by the Commission	*Amendment*
Development opportunities for rural communities will be mobilised by strengthening their capacity for primary production and delivery of eco-systems services as well as by opening avenues for the production of new and diversified products (food, feed, materials, energy), which meet the increasing demand for low-carbon short-chain delivery systems. Socio-economic research along with the development of new concepts and institutional innovations is needed to ensure cohesion of rural areas and prevent economic and social marginalisation, foster diversification of economic activities (including service sector), ensure appropriate relations between rural and urban areas, as well as facilitate knowledge exchange, demonstration, innovation and dissemination and foster participatory resource management. Also, there is a need to look at ways in which public goods in rural areas can be converted into local/regional socio-economic benefits. Innovation needs defined at regional and local levels will be complemented by cross-sectoral research actions at inter-regional and European levels. By providing the necessary analytical tools, indicators, models and forward looking activities, research projects will support policy makers and other actors in the	Development opportunities for rural communities will be mobilised by strengthening their capacity for primary production and delivery of eco-systems services as well as by opening avenues for the production of new and diversified products (food, feed, materials, energy), which meet the increasing demand for low-carbon short-chain delivery systems. Socio-economic research along with the development of new concepts and institutional innovations is needed to ensure cohesion of rural areas and prevent economic and social marginalisation, foster diversification of economic activities (including service sector), ensure appropriate relations between rural and urban areas, as well as facilitate knowledge exchange, demonstration, innovation and dissemination and foster participatory resource management. Also, there is a need to look at ways in which public goods in rural areas can be converted into local/regional socio-economic benefits. Innovation needs defined at regional and local levels will be complemented by cross-sectoral research actions at inter-regional and European levels. By providing the necessary analytical tools, indicators, models and forward looking activities, research projects will support policy makers and other actors in the

implementation, monitoring and assessment of relevant strategies, policies and legislation, not only for rural areas but for the whole bio-economy. Tools and data are also required to allow for proper assessment of potential trade-offs between various types of resource use (land, water and other inputs) and bio-economy products. Socio-economic and comparative assessment of farming/forestry systems and their sustainability performance will be ***addressed***.	implementation, monitoring and assessment of relevant strategies, policies and legislation, not only for rural areas but for the whole bio-economy. Tools and data***, including those that have been developed and collected in the process of implementing Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy[1],*** are also required to allow for proper assessment of potential trade-offs between various types of resource use (land, water and other inputs) and bio-economy products. Socio-economic and comparative assessment of farming/forestry systems and their sustainability performance will be ***assessed using social, economic and ecologic criteria***.
	[1] OJ L 327, 22.12.2000, p. 1.

Or. en

Amendment 101
Proposal for a decision
Annex I – part III – point 2 – point 2.2 – point 2.2.3

Text proposed by the Commission	*Amendment*
The needs for the food and feed industry to cope with social, environmental, climate and economic change from local to global will be addressed at all stages of the food and feed production chain, including food design, processing, packaging, process control, waste reduction, by-product valorisation and the safe use or disposal of animal by-products. Innovative and sustainable resource-efficient processes and diversified, safe, affordable and high quality products will be generated. This will strengthen the innovation potential of the European food supply chain, enhance	The needs for the food and feed industry to cope with social, environmental, climate and economic change from local to global will be addressed at all stages of the food and feed production chain, including food design, processing, packaging, process control, ***water reuse,*** waste reduction, by-product valorisation and the safe use or disposal of animal by-products. Innovative and sustainable resource-efficient processes and diversified, safe, affordable and high quality products will be generated. This will strengthen the innovation potential of the European food

its competitiveness, create economic growth and employment and allow the European food industry to adapt to changes. Other aspects to address are traceability, logistics and services, socio-economic factors, the resilience of the food chain against environmental and climate risks, and the limitation of negative impacts of food chain activities and of changing diets and production systems on the environment.	supply chain, enhance its competitiveness, create economic growth and employment and allow the European food industry to adapt to changes. Other aspects to address are traceability, logistics and services, ***including water scarcity and fresh water quality degradation,*** socio-economic factors, the resilience of the food chain against environmental and climate risks, and the limitation of negative impacts of food chain activities and of changing diets and production systems on the environment.
	Or. en

Amendment 102
Proposal for a decision
Annex I –part III – point 2 – point 2.3

Text proposed by the Commission	*Amendment*
One of the main features of living aquatic resources is that they are renewable and their sustainable exploitation relies on in depth understanding and a high degree of quality and productivity of the aquatic ecosystems. The overall objective is to sustainably exploit aquatic living resources to maximise social and economic benefits/returns from Europe's oceans and ***seas***. This includes the need to optimise the sustainable contribution of fisheries and aquaculture to food security in the context of the global economy ***and reduce*** the heavy Union's dependence on seafood imports (approximately 60 % of total European sea food consumption depends on import and the Union is the world's largest importer of fisheries products), and to boost marine biotechnologies to fuel 'blue' growth. In line with current policy frameworks, research activities will underpin the ecosystem approach to the management and exploitation of natural resources, and the 'greening' of the sectors	One of the main features of living aquatic resources is that they are renewable and their sustainable exploitation relies on in depth understanding and a high degree of quality and productivity of the aquatic ecosystems. The overall objective is to sustainably exploit aquatic living resources to maximise social and economic benefits/returns from Europe's oceans***, seas, rivers*** and ***other water bodies***. This includes the need to optimise the sustainable contribution of fisheries and aquaculture to food security in the context of the global economy***, specially reducing*** the heavy Union's dependence on seafood imports (approximately 60 % of total European sea food consumption depends on import and the Union is the world's largest importer of fisheries products), and to boost marine biotechnologies to fuel 'blue' growth. ***Cross-cutting marine and maritime scientific and technological knowledge will be addressed with a view to unlock the potential of the seas and***

involved.	***inland waters across the range of marine and maritime industries, while protecting the environment and adapting to climate change.*** In line with current policy frameworks, research activities will underpin the ecosystem approach to the management and exploitation of natural resources, and the 'greening' of the sectors involved.

Or. en

Amendment 103
Proposal for a decision
Annex I – part III – point 2 – point 2.4 – title

Text proposed by the Commission	*Amendment*
2.4. Sustainable and competitive bio-based industries	2.4. Sustainable and competitive bio-based industries ***and supporting the development of a European bio-economy***

Or. en

Amendment 104
Proposal for a decision
Annex I – part III – point 3 – point 3.1 – title

Text proposed by the Commission	*Amendment*
3.1. Reducing energy consumption and carbon footprint through smart and sustainable usage	3.1. Reducing energy consumption and carbon footprint through smart and sustainable ***and secure*** usage

Or. en

Amendment 105
Proposal for a decision
Annex I – part III – point 3 – point 3.1

Text proposed by the Commission	*Amendment*
The energy sources and consumption patterns of Europe's industries, transport, buildings, towns and cities are largely unsustainable, leading to significant environmental and climate change impacts. The development of near-zero-emission buildings, highly efficient industries and mass take-up of energy-efficient approaches by companies, individuals, communities and cities will require not only technological advances, but also non-technological solutions such as new advisory, financing and demand management services. In this way energy efficiency may provide one of the most cost effective ways to reduce energy demand, thereby enhancing security of energy supply, reducing environmental and climate impacts and boosting competitiveness.	The energy sources and consumption patterns of Europe's industries, transport, buildings, towns and cities are largely unsustainable, leading to significant environmental and climate change impacts. The development of ***new and existing*** near-zero-emission buildings, highly efficient industries and mass take-up of energy-efficient approaches by companies, individuals, communities and cities will require not only technological advances, but also non-technological solutions such as new advisory, financing and demand management services. In this way energy efficiency may provide one of the most cost effective ways to reduce energy demand, thereby enhancing security of energy supply, reducing environmental and climate impacts and boosting competitiveness.

Or. en

Amendment 106
Proposal for a decision
Annex I – part III – point 3 – point 3.1 – point 3.1.1 – paragraph 1

Text proposed by the Commission	*Amendment*
Reducing energy consumption and eliminating energy waste, while providing the services that society and economy need, requires not only that more, efficient, cost-competitive, environmentally-friendly, and smarter products and services are brought to mass market but also the integration of components and devices in such a way that they cooperate to optimise the overall energy use of buildings, services and industry.	Reducing energy consumption and eliminating energy waste, while providing the services that society and economy need, requires not only that more, efficient, cost-competitive, ***safe,*** environmentally-friendly, and smarter products and services are brought to mass market but also the integration of components and devices in such a way that they cooperate to optimise the overall energy use of buildings, services and industry.

Or. en

Amendment 107
Proposal for a decision
Annex I – part III – point 3 – point 3.1 – point 3.1.3

Text proposed by the Commission	*Amendment*
Urban areas are one of the largest consumers of energy in the Union and emit a correspondingly large share of greenhouse gases, while generating a substantial amount of air pollutants. At the same time, urban areas are affected by decreasing air quality and climate change and have to develop their own mitigation and adaptation strategies. Finding innovative energy solutions (energy efficiency, electricity and heating and cooling supply systems), integrated with transport, waste and water treatment as well as ICT solutions for the urban environment are therefore crucial in the transformation towards a low carbon society. Targeted initiatives in support to the convergence of industrial value chains of the energy, transport and ICT sector for smart urban applications need to be envisaged. At the same time, new technological, organisational, planning and business models need to be developed and tested at full scale according to the needs and means of cities and communities. Research is also needed to understand the social, economic and cultural issues that are involved in this transformation.	Urban areas are one of the largest consumers of energy in the Union and emit a correspondingly large share of greenhouse gases, while generating a substantial amount of air pollutants. At the same time, urban areas are affected by decreasing air quality and climate change and have to develop their own mitigation and adaptation strategies. Finding innovative energy solutions (energy efficiency, ***integration of renewables within the built environment,*** electricity and heating and cooling supply systems), integrated with transport, waste and water treatment as well as ICT solutions for the urban environment are therefore crucial in the transformation towards a low carbon society. Targeted initiatives in support to the convergence of industrial value chains of the energy, transport and ICT sector for smart urban applications need to be envisaged. At the same time, new technological, organisational, planning and business models need to be developed and tested at full scale according to the needs and means of cities and communities. Research is also needed to understand the social, economic and cultural issues that are involved in this transformation.

Or. en

Amendment 108
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.1

Text proposed by the Commission	*Amendment*
The objective for wind energy is to reduce the cost of electricity production of onshore and offshore wind by up to about 20 % by 2020 compared to 2010, to increasingly move offshore, and to enable proper integration in the electricity grid. The focus will be on the development, testing and demonstration of next generation wind energy conversion systems of larger scale, higher conversion efficiencies and higher availabilities for both on- and off-shore (including remote locations and hostile weather environments) as well as new serial manufacturing processes.	The objective for wind energy is to reduce the cost of electricity production of onshore and offshore wind by up to about 20 % by 2020 compared to 2010, to increasingly move offshore, and to enable proper integration in the electricity grid. The focus will be on the development, testing and demonstration of next generation wind energy conversion systems of larger scale, higher conversion efficiencies and higher availabilities for both on- and off-shore (including remote locations and hostile weather environments) as well as new serial manufacturing processes. ***The feasibility of remote and hostile weather locations should be investigated using appropriate atmosphere and ocean modelling tools.***

Or. en

Amendment 109
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.2 – paragraph 2

Text proposed by the Commission	*Amendment*
For PV, this will need ***long term*** research on ***novel concepts*** and ***systems***, demonstration and testing of mass production with a view to large-scale deployment.	For PV, this will need research on ***higher performance manufacturing processes*** and ***products***, demonstration and testing of mass production with a view to large-scale deployment ***and long term research on novel technologies***. ***Innovative system integration solutions should be deployed by 2020. Focus will be on development and demonstration of enhanced grid interface (grid storage and active inverters providing services for the electricity system operation) and on enhanced building interface (advanced multifunctional PV modules and balance of system (BoS) elements with specific functionalities for building integration).***

Or. en

Amendment 110
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.2 – paragraph 3

Text proposed by the Commission	*Amendment*
For CSP, the focus will be on developing ways to increase efficiency while reducing costs and environmental impact, ***enabling*** industrial up-scaling of demonstrated technologies by building first-of-a-kind power plants. Solutions to efficiently combine the production of solar electricity with water desalination will be ***tested***.	For CSP, the focus will be on developing ways to increase efficiency ***and dispatchability, by storage and hybridization,*** while reducing costs and environmental impact***. In addition to research topics, the objective is to foster*** industrial up-scaling of demonstrated technologies by building first-of-a-kind power plants. Solutions to efficiently combine the production of solar electricity with ***other renewables as biomass in hybrid plants which will allow for firm electricity generation or other purposes as*** water desalination will be ***a priority***.

Or. en

Amendment 111
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.3

Text proposed by the Commission	*Amendment*
3.2.3. Develop competitive and environmentally safe technologies for CO2 capture, transport and storage	***deleted***
Carbon capture and storage (CCS) is a key option that has to be widely deployed on a commercial scale at global level to meet the challenge of a decarbonised power generation and low carbon industry by 2050. The objective is to minimise the extra-cost of CCS in the power sector for coal-fired and gas-fired power plants compared to equivalent plants without CCS and energy intensive industrial	

installations.

Support will be given, in particular, to demonstrate the full CCS chain for a representative portfolio of different capture, transport and storage technology options. This will be accompanied by research to further develop these technologies and to deliver more competitive capture technologies, improved components, integrated systems and processes, safe geological storage and rational solutions for the large-scale re-use of captured CO2 to enable the commercial deployment of CCS technologies for fossil fuel power plants and other carbon-intensive industries going into operation after 2020.

Or. en

Justification

Text moved to 3.2.4c

Amendment 112
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.4

Text proposed by the Commission	*Amendment*
Geothermal, hydro, and marine energy as well as other renewable energies can contribute to the decarbonisation of the European energy supply while enhancing its flexibility to variable production and use of energy. The objective is to bring to commercial maturity cost-effective and sustainable technologies, enabling large-scale deployment at an industrial scale including grid integration. Ocean energies such as tidal, current or wave energy offer truly zero-emission, predictable energy. Research activities should include laboratory scale innovative research into low-cost reliable components and materials in a high corrosion, biofouling	Geothermal, hydro, and marine energy as well as other renewable energies can contribute to the decarbonisation of the European energy supply while enhancing its flexibility to variable production and use of energy. The objective is to bring to commercial maturity cost-effective and sustainable technologies, enabling large-scale deployment at an industrial scale including grid integration. Ocean energies such as tidal, current or wave energy offer truly zero-emission, predictable energy. Research activities should include laboratory scale innovative research into low-cost reliable components and materials in a high corrosion, biofouling

environment as well as demonstrations under the varied conditions found in European waters.

environment as well as demonstrations under the varied conditions found in European waters. ***Besides pilot installations, demonstration projects should include adequate management systems based on information provided by monitoring and forecasting tools, aiming at the protection of assets.***

Or. en

Amendment 113
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.4 a (new)

Text proposed by the Commission	*Amendment*
	3.2.4a. Storage of energy from renewable sources
	With increasing implementation of renewable energies the demand for storage of the intermittent renewables becomes more and more important. A development of storage technologies will become mandatory, for short-term storage (minute reserve in tertiary grid control) as well as for long-term applications from hours up to seasonal storage. The large temporal range requires a broad range of technologies. The objective is to develop different routes using electrical storage (e.g. super-capacitors, various battery types), and mechanical storage (e.g. flywheels, adiabatic compressed-air), and chemical storage (e.g. hydrogen generation by flexible electrolysis, conversion into methane or other hydrocarbons). Here, the first routes (electrical and mechanical storage) rather aim for short-term storage, because of their high conversion efficiency. Also round trip efficiency is lower, the last route, called "power to gas", offers an enormous potential not only for long-term energy storage. It allows also for

integrating energy storage with production of alternative fuels for (air-)transport, and with production of chemicals. Finally, "power to gas" technology enables the highest potential for CO2 usage (CCU), by using hydrogen from electrolysis for methanation of CO2. Hydro-energy based on water storage and reversible systems may also play an important role in the enhancement of other forms of renewable energy that cannot be stored to meet the peaks of the demand.

Or. en

Amendment 114
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.4 b (new)

Text proposed by the Commission	*Amendment*
	3.2.4b. Decentralised energy production
	Distributed energy production, such as electricity micro-generation, plays an important role in inland isolated regions and islands. Adequate solutions for energy production and energy systems management will be further investigated.
	International cooperation activities with developing countries with regard to poverty alleviation will be promoted.

Or. en

Amendment 115
Proposal for a decision
Annex I – part III – point 3 – point 3.2 – point 3.2.4 c (new)

Text proposed by the Commission	*Amendment*
	3.2.4c. Develop competitive and environmentally safe technologies for

CO2 capture, transport and storage and utilisation

Carbon capture and storage (CCS) is a key option that has to be widely deployed on a commercial scale at global level to meet the challenge of a decarbonised power generation and low carbon industry by 2050. The objective is to minimise the extra-cost of CCS in the power sector for coal-fired and gas-fired power plants compared to equivalent plants without CCS and energy intensive industrial installations.

Furthermore, carbon capture and usage (CCU) offers potential for value-added applications of CO2 captured from power plants and industrial installations. To demonstrate and develop re-use routes for captured CO2 will make carbon capture technologies more sustainable and raise public acceptance of CCS and CCU technologies, in the future. CCU systems and technologies to convert CO2 into products such as chemicals, fertilizers, fuels and bio-oils shall be explored.

New storage technologies shall be explored, including storage in chemical products (carbon to chemicals), syngas-based production of fuels for storage as well as the development of low-cost and fuel-tolerant gasification technologies which are essential for these systems. In addition, a reliable CO2-infrastructure needs to be developed timely as most fossil fuel power plants and other CO2-sources will not be close to storage areas.

Support will be given, in particular, to demonstrate the full CCS or CCU chain for a representative portfolio of different capture, utilisation, transport and storage technology options. This will be accompanied by research to deliver more efficient power and capture technologies, improved components, integrated systems and processes, for fossil fuelled power plants and other carbon-intensive

industries going into operation after 2020. Furthermore, research on safe geological storage and rational solutions for the utilisation of captured CO2 will be conducted to enable the commercial deployment of CCS and CCU technologies.

Or. en

Amendment 116
Proposal for a decision
Annex I – part III – point 3 – point 3.3 – point 3.3.3

Text proposed by the Commission	*Amendment*
There is a range of new options with long term potential, such as powdered metal fuel, fuel from photosynthetic microorganisms (in water and land environments) and from artificial photosynthesis mimics. These new paths may offer potential for more efficient energy conversion, more cost-competitive and sustainable technologies, and almost neutral 'greenhouse gases' emitting processes that do not compete for agricultural lands. Support will be given notably to bring these new and other potential technologies from laboratory to demonstration scale size in view of pre-commercial demonstration by 2020.	There is a range of new options with long term potential, such as powdered metal fuel, fuel from photosynthetic microorganisms (in water and land environments) and from artificial photosynthesis mimics ***or from low temperature pyroelectrical water decomposition***. These new paths may offer potential for more efficient energy conversion, more cost-competitive and sustainable technologies, and almost neutral 'greenhouse gases' emitting processes that do not compete for agricultural lands. Support will be given notably to bring these new and other potential technologies from laboratory to demonstration scale size in view of pre-commercial demonstration by 2020.

Or. en

Amendment 117
Proposal for a decision
Annex I – part III – point 3 – point 3.4 a (new)

Text proposed by the Commission	*Amendment*
	3.4a. Flexible and efficient fossil fuel

power plants – enabling intermittent renewable

Flexible and efficient fossil fuel power plants are still essential for ensuring grid stability and security of electricity supply. In a transition period, moving on towards a low-carbon economy, we are facing the challenge to balance electricity from variable renewables with electricity from flexible conventional power plants. Conventional power plants are currently designed to operate at base-load, whereas, when backing up renewable energy, they will frequently run at part-load. In this mode, they are less efficient with an impact on emissions.

Research is needed to optimise the flexibility and efficiency of conventional power plants when operated part-load, thus ensuring that flexible and efficient backup will be available to accompany and support the growth of renewable energy and gradually enabling a higher integration of electricity from variable renewables into the grid

Or. en

Amendment 118
Proposal for a decision
Annex I – part III – point 3 – point 3.8 – subparagraph 4 a (new)

Text proposed by the Commission	*Amendment*
	The priorities on decision making and market uptake should be built on the success of the Intelligent Energy Europe (IEE) initiative, run by the Executive Agency for Competitiveness and Innovation (EACI), which since its creation in 2003 has provided funding for more than 500 European projects involving 3,500 European organisations. Intelligent Energy Europe should continue with similar objectives and

managed along the same lines as done so far.

Or. en

Amendment 119
Proposal for a decision
Annex I – part III – point 3 – point 3.8 – paragraph 1

Text proposed by the Commission	*Amendment*
The priority setting for the implementation of the activities in this challenge is led by the need to strengthen the European dimension of energy research and innovation. A main aim will be to support the implementation of the research and innovation agenda of the Strategic Energy Technology Plan (SET Plan)[24] to achieve the objectives of the Union's energy and climate change policy. The SET-Plan roadmaps and implementation plans will therefore provide a valuable input for the formulation of the work programmes. The SET Plan governance structure will be used as a principle basis for strategic priority setting and the coordination of Energy Research and innovation across the Union.	The priority setting for the implementation of the activities in this challenge is led by the need to strengthen the European dimension of energy research and innovation. A main aim will be to support the implementation of the research and innovation agenda of the Strategic Energy Technology Plan (SET Plan)[24] to achieve the objectives of the Union's energy and climate change policy. The SET-Plan roadmaps and implementation plans will therefore provide a valuable input for the formulation of the work programmes. The SET Plan governance structure will be used as a principle basis for strategic priority setting and the coordination of Energy Research and innovation across the Union. ***The input of the industry within the governance of the European Industrial Initiatives (EIIs) will be taken formally and transparently into account with respect to tools financing priorities identified in the EIIs Implementation Plans.***

Or. en

Amendment 120
Proposal for a decision
Annex I – part III – point 4 – point 4.1 – point 4.1.1 – paragraph 1 – point a

Text proposed by the Commission	*Amendment*
(a) Developing and accelerating the take-up of cleaner propulsion technologies is important for reducing or eliminating CO2 and pollution from transport. New and innovative solutions are necessary, based on electric engines and batteries, fuel cells, or hybrid propulsion. Technological breakthroughs will also help improve the environmental performance of traditional propulsion systems.	(a) Developing and accelerating the take-up of cleaner propulsion technologies is important for reducing or eliminating CO2 and pollution from transport ***(e.g. particulate matter).*** New and innovative solutions are necessary, based on electric engines and batteries, fuel cells, or hybrid propulsion. Technological breakthroughs will also help improve the environmental performance of traditional propulsion systems.

Or. en

Amendment 121
Proposal for a decision
Annex I – part III – point 4 – point 4.2 – point 4.2.1

Text proposed by the Commission	*Amendment*
This can be achieved by implementing a fully intermodal 'door-to-door' transport system and by avoiding unnecessary use of transport. This means promoting greater integration between transport modes, the optimisation of transportation chains and better integrated transport services. Such innovative solutions will also facilitate accessibility, including for the ageing population and vulnerable users.	This can be achieved by implementing a fully intermodal 'door-to-door' transport system and by avoiding unnecessary use of transport. This means promoting greater integration between transport modes, the optimisation of transportation chains and better integrated transport services***, leveraging new and more performant navigation systems, such as EGNOS and Galileo***. Such innovative solutions will also facilitate accessibility, including for the ageing population and vulnerable users.

Or. en

Amendment 122
Proposal for a decision
Annex I – part III – point 4 – point 4.2 – point 4.2.2 – paragraph 1

Text proposed by the Commission	*Amendment*
This can be achieved through the development and widespread use of intelligent transport applications and management systems. This entails: planning, demand management, information and payment systems that are interoperable Europe-wide; and the full integration of information flows, management systems, infrastructure networks and mobility services into a new common multi-modal framework based on open platforms. This will also ensure flexibility and rapid responses to crisis events and extreme weather conditions by reconfiguring travel across modes. New positioning, navigation and timing applications, made possible through the Galileo and EGNOS satellite navigation systems, ***will be instrumental*** in achieving this objective.	This can be achieved through the development and widespread use of intelligent transport applications and management systems. This entails: planning, demand management, information and payment systems that are interoperable Europe-wide; and the full integration of information flows, management systems, infrastructure networks and mobility services into a new common multi-modal framework based on open platforms. This will also ensure flexibility and rapid responses to crisis events and extreme weather conditions by reconfiguring travel across modes. New positioning, navigation and timing applications, made possible through the Galileo and EGNOS satellite navigation systems, ***are key enablers*** in achieving this objective.

Or. en

Amendment 123
Proposal for a decision
Annex I – part III – point 4 – point 4.2 – point 4.2.2 – paragraph 2 – point a

Text proposed by the Commission	*Amendment*
(a) Innovative air traffic management technologies will contribute to a step-change in safety and efficiency with rapidly increasing demand, to achieve improved punctuality, to reduce time spent in travel-related procedures at airports and to achieve resilience in the air transport system. The implementation and further development of the 'Single European Sky' will be supported with solutions for increased automation and autonomy in air traffic management and aircraft control, better integration of air and ground components, and novel solutions for the	(a) Innovative air traffic management technologies will contribute to a step-change in safety and efficiency with rapidly increasing demand, to achieve improved punctuality, to reduce time spent in travel-related procedures at airports and to achieve resilience in the air transport system. ***Innovative navigation systems, leveraging the European GNSS, such as EGNOS, will optimise landing approaches, increase flight safety and reduce fuel consumption, with better use of major airports and allowing full exploitation of minor ones.*** The

efficient and seamless handling of passengers and freight throughout the transport system.	implementation and further development of the 'Single European Sky' will be supported with solutions for increased automation and autonomy in air traffic management and aircraft control, better integration of air and ground components, and novel solutions for the efficient and seamless handling of passengers and freight throughout the transport system.

Or. en

Amendment 124
Proposal for a decision
Annex I – part III – point 4 – point 4.2 – point 4.2.2 – paragraph 2 – point c

Text proposed by the Commission	*Amendment*
(c) For rail and road, the optimisation of network management will improve efficient use of infrastructure and make cross-border operations easier. Comprehensive cooperative road traffic management and information systems will be developed, relying on vehicle to vehicle and vehicle to infrastructure communication.	(c) For rail and road, the optimisation of network management will improve efficient use of infrastructure and make cross-border operations easier. Comprehensive cooperative road traffic management and information systems will be developed, relying on vehicle to vehicle and vehicle to infrastructure communication ***and on European satellite navigation systems***.

Or. en

Amendment 125
Proposal for a decision
Annex I – part III – point 5 – point 5.1 – paragraph 2

Text proposed by the Commission	*Amendment*
The aim of this activity is therefore to develop and assess innovative, cost-effective and sustainable adaptation and mitigation measures, targeting both CO2 ***and*** non-CO2 greenhouse gases, and underlining both technological and non-technological green solutions, through the	The aim of this activity is therefore to develop and assess innovative, cost-effective and sustainable adaptation and mitigation measures, targeting both CO2***,*** non-CO2 greenhouse gases ***and particulate matter***, and underlining both technological and non-technological green solutions,

generation of evidence for informed, early and effective action and the networking of the required competences.	through the generation of evidence for informed, early and effective action and the networking of the required competences.

Or. en

Amendment 126
Proposal for a decision
Annex I – part III – point 5 – point 5.1 – point 5.1.1

Text proposed by the Commission	*Amendment*
Better understanding of the causes and evolution of climate change and more accurate climate projections are crucial for society to protect lives, goods and infrastructures and ensure effective decision making. It is essential to further improve the scientific knowledge-base of climate drivers, processes, mechanisms and feedbacks associated with the functioning of oceans, terrestrial ecosystems and the atmosphere. Improved climate predictions at pertinent temporal and spatial scales will be supported via the development of more accurate scenarios and models, including fully coupled Earth-system models.	Better understanding of the causes and evolution of climate change and more accurate climate projections are crucial for society to protect lives, ***economic activities,*** goods and infrastructures and ensure effective decision making. It is essential to further improve the scientific knowledge-base of climate drivers, processes, mechanisms and feedbacks associated with the functioning of oceans, terrestrial ecosystems and the atmosphere ***as well as polar regions***. Improved climate predictions at pertinent temporal and spatial scales will be supported via the development of more accurate scenarios and models, including fully coupled Earth-system models.

Or. en

Amendment 127
Proposal for a decision
Annex I – part III – point 5 – point 5.1 – point 5.1.2

Text proposed by the Commission	*Amendment*
There is incomplete knowledge on the ability of society and the economy to adapt to climate change. Effective, equitable and socially acceptable measures towards a climate resilient environment and society require the integrated analysis of current	There is incomplete knowledge on the ability of society and the economy to adapt to climate change. Effective, equitable and socially acceptable measures towards a climate resilient environment and society require the integrated analysis of current

and future impacts, vulnerabilities, population exposure, risks, costs and opportunities associated with climate change and variability, taking into account extreme events and related climate-induced hazards and their recurrence. This analysis will also be developed on the adverse impacts of climate change on biodiversity, ecosystems and ecosystem services, infrastructures and economic and natural assets. Emphasis will be placed on the most valuable natural ecosystems and built environments, as well as key societal, cultural and economic sectors across Europe. Actions will investigate the impacts and growing risks for human health stemming from climate change and increased greenhouse gases concentrations in the atmosphere. Research will evaluate innovative, equitably distributed and cost-effective adaptation responses to climate change, including the protection and adaptation of natural resources and ecosystems, and related effects, to inform and support their development and implementation at all levels and scales. This will also include the potential impacts, costs and risks, of geo-engineering options. The complex inter-linkages, conflicts and synergies of adaptation and risk-prevention policy choices with other climate and sectoral policies will be investigated, including impacts on employment and the living standards of vulnerable groups.

and future impacts, vulnerabilities, population exposure, risks, costs and opportunities associated with climate change and variability, taking into account extreme events and related climate-induced hazards and their recurrence. This analysis will also be developed on the adverse impacts of climate change on biodiversity, ecosystems and ecosystem services, infrastructures and economic and natural assets. ***For instance, climate changes are likely to enhance the occurrence of extreme hydrological phenomena (floods and droughts) with major impacts in water resources, ecosystems and the sustainability of economic activities as known today. Impact on water availability is especially relevant. In many regions of the Union scarcity will be intensified and a more uneven distribution in space and time will occur, requiring new forms of management.*** Emphasis will be placed on the most valuable natural ecosystems and built environments, as well as key societal, cultural and economic sectors across Europe. Actions will investigate the impacts and growing risks for human health stemming from climate change and increased greenhouse gases concentrations in the atmosphere. Research will evaluate innovative, equitably distributed and cost-effective adaptation responses to climate change, including the ***specificities of islands and outermost regions and the*** protection and adaptation of natural resources and ecosystems, and related effects, to inform and support their development and implementation at all levels and scales. This will also include the potential impacts, costs and risks, of geo-engineering options. The complex inter-linkages, conflicts and synergies of adaptation and risk-prevention policy choices with other climate and sectoral policies will be investigated, including impacts on employment and the living standards of vulnerable groups.

Amendment 128
Proposal for a decision
Annex I – part III – point 5 – point 5.1 – point 5.1.3

Text proposed by the Commission	*Amendment*
The Union's transition to a competitive, resource efficient and climate change resilient ***economy*** by 2050 requires the design of effective, long-term, low-emission strategies and major advancements in our capacity to innovate. Research will assess the environmental and socio-economic risks, opportunities and impacts of climate change mitigation options. Research will support the development and validation of new climate-energy-economy models, taking into account economic instruments and relevant externalities, with the aim of testing mitigation policy options and low carbon technology pathways at different scales and for the key economic and societal sectors at Union and global level. Actions will facilitate technological, institutional and socio-economic innovation by improving the links between research and application and between entrepreneurs, end users, researchers and knowledge institutions.	The Union's transition to a competitive, resource efficient and climate change resilient ***society*** by 2050 requires the design of effective, long-term, low-emission strategies and major advancements in our capacity to innovate. Research will assess the environmental and socio-economic risks, opportunities and impacts of climate change mitigation options. Research will support the development and validation of new climate-energy-economy models, taking into account economic instruments and relevant externalities, with the aim of testing mitigation policy options and low carbon technology pathways at different scales and for the key economic and societal sectors at Union and global level. Actions will facilitate technological, institutional and socio-economic innovation by improving the links between research and application and between entrepreneurs, end users, researchers and knowledge institutions. ***Effective and efficient water management will necessarily play a key role as a component of the mitigation policies. Semi-arid and water stressed areas of the EU will expand and will be seriously affected by climate change. Reduction in water availability, increase of frequency and intensity of extreme events and principally a more uneven distribution of water availability will require very efficient water management practices, a better demand management and, in some cases, an increase of water storage to increase the safe yield of water. Research is needed on***

how to minimize the environmental impacts of such mitigation measures.

Or. en

Amendment 129
Proposal for a decision
Annex I – part III – point 5 – point 5.2 – title

Text proposed by the Commission	*Amendment*
5.2. Sustainably ***managing*** natural resources and ecosystems	5.2. ***Protecting of the environment,*** sustainably ***management of*** natural resources, ***water, biodiversity*** and ecosystems

Or. en

Amendment 130
Proposal for a decision
Annex I – part III – point 5 – point 5.2 – paragraph 1

Text proposed by the Commission	*Amendment*
Societies face a major challenge to establish a sustainable balance between human needs and the environment. Environmental resources, including water, air, biomass, fertile soils, biodiversity, ecosystems and the services they provide, underpin the functioning of the European and global economy and quality of life. Global business opportunities related to natural resources are expected to amount to over EUR 2 trillion by 2050. Despite this, ecosystems in Europe and globally are being degraded beyond nature's ability to regenerate them and environmental resources are being over-exploited. For example, 1000 km² of some of the most fertile soils and valuable ecosystems are lost every year in the Union, while a quarter of fresh water is wasted. Continuing these patterns is not an option.	Societies face a major challenge to establish a sustainable balance between human needs and the environment. Environmental resources, including water, air, biomass, fertile soils, ***forestry,*** biodiversity, ecosystems and the services they provide, underpin the functioning of the European and global economy and quality of life. Global business opportunities related to natural resources are expected to amount to over EUR 2 trillion by 2050. Despite this, ecosystems in Europe and globally are being degraded beyond nature's ability to regenerate them and environmental resources are being over-exploited ***and even destroyed (e.g., extreme forest fires events).*** For example, 1000 km² of some of the most fertile soils and valuable ecosystems are lost every year in the Union, while a quarter of fresh

Research must contribute to reversing the trends that damage the environment and to ensuring that ecosystems continue to provide the resources, goods and services that are essential for well-being and economic prosperity.	water is wasted. Continuing these patterns is not an option. Research must contribute to reversing the trends that damage the environment and to ensuring that ecosystems continue to provide the resources, goods and services that are essential for well-being and economic prosperity.

Or. en

Amendment 131
Proposal for a decision
Annex I – part III – point 5 – point 5.2 – paragraph 2

Text proposed by the Commission	*Amendment*
The aim of this activity is therefore to provide knowledge for the management of natural resources that achieves a sustainable balance between limited resources and the needs of society and the economy.	The aim of this activity is therefore to provide knowledge for the management ***and conservation*** of natural resources that achieves a sustainable balance between limited resources and the needs of society and the economy. ***To achieve this, research and innovation will focus on the following:***

Or. en

Amendment 132
Proposal for a decision
Annex I – part III – point 5 – point 5.2 – point 5.2.1

Text proposed by the Commission	*Amendment*
Society's actions risk triggering changes in the environment that are irreversible and which alter the character of ecosystems. It is vital to anticipate these risks by assessing, monitoring and forecasting the impact of human activities on the environment, and environmental changes on human well-being. Research on marine, (from coastal zones to the deep sea), fresh-water, terrestrial and urban ecosystems,	Society's actions risk triggering changes in the environment that are irreversible and which alter the character of ecosystems. It is vital to anticipate these risks by assessing, monitoring and forecasting the impact of human activities on the environment, and environmental changes on human well-being. ***A better understanding of the environmental determinants of health and wellbeing and***

including groundwater dependent ecosystems, will improve our understanding of the complex interactions between natural resources and social, economic, and ecological systems, including natural tipping points, and the resilience, or fragility, of human and biological systems. It will examine how ecosystems function and react to anthropogenic impacts, how ***they*** can be restored, and how this will affect economies and human well-being. It will also investigate solutions for addressing resource challenges. It will contribute to policies and practices that ensure that social and economic activities operate within the limits of the sustainability and adaptability of ecosystems and biodiversity.

the mediating mechanisms is required in order to provide evidence for effective health protection strategies and inform the Union programmes and policies.

Knowledge improvement is a fundamental concern when social, economic and environmental aspects are contributing to an overall change like the forest fire phenomena. A better understanding of the physical and social phenomena that lead forest fires is of paramount need. Simulation, data collection and analysis is fundamental to feed research based decision support systems as a primordial way to prevent forest fires and increase efficiency in their combat and decrease damages in human, environmental, social and economic assets.

Research on marine, (from coastal zones to the deep sea), ***polar,*** fresh-water, terrestrial and urban ecosystems, including groundwater dependent ecosystems ***and their biological diversity***, will improve our understanding of the complex interactions between natural resources and social, economic, and ecological systems, including natural tipping points, and the resilience, or fragility, of human and biological systems. ***With respect to water, management strategies integrating natural bodies and alternative sources (e.g. treated wastewater) for the often-***

conflicting uses (agriculture, landscape maintenance, environmental restoration/enhancement, forest fire fighting, recreational activities and public supply) are envisaged. Attention shall be given to the water quantity and quality of natural bodies, particularly those used for drinking water abstraction. It will examine how ecosystems function and react to anthropogenic impacts, how ***these impacts*** can be ***minimised, how ecosystems can be*** restored, and how this will affect economies and human well-being. It will also investigate solutions for addressing resource challenges. It will contribute to policies and practices that ensure that social and economic activities operate within the limits of the sustainability and adaptability of ecosystems and biodiversity.

Or. en

Amendment 133
Proposal for a decision
Annex I – part III – point 5 – point 5.2 – point 5.2.2

Text proposed by the Commission	*Amendment*
Social, economic and governance systems still need to address both resource depletion and the damage to ecosystems. Research and innovation will underpin policy decisions needed to manage natural resources and ecosystems so as to avoid, or adapt to, disruptive climate and environmental change and to promote institutional, economic, behavioural and technological change that ensure sustainability. Emphasis will be put on critical policy relevant ecosystems and ecosystem services, such as fresh water, seas and oceans, air quality, biodiversity, land use and soil. The resilience of societies and ecosystems to catastrophic events, including natural hazards, will be	Social, economic and governance systems still need to address both resource depletion and the damage to ecosystems. Research and innovation will underpin policy decisions needed to manage natural resources and ecosystems so as to avoid, or adapt to, disruptive climate and environmental change and ***its impacts and*** to promote institutional, economic, behavioural and technological change that ensure sustainability. Emphasis will be put on critical policy relevant ecosystems and ecosystem services, such as fresh water, seas and oceans, ***polar regions,*** air quality, biodiversity, land use***, forest fires*** and soil. The resilience of societies and ecosystems to catastrophic events, including natural

supported through improving capacities for forecasting, early warning, and assessing vulnerabilities and impacts, including the multi-risk dimension. Research and innovation will thus provide support for environmental and resource efficiency policies, and options for effective evidence-based governance within safe operating limits. Innovative ways will be developed to increase policy coherence, resolve trade-offs and manage conflicting interests***, and*** improve public awareness of research results ***and*** the participation of citizens in decision-making.	hazards ***including forest fires***, will be supported through improving capacities for forecasting, early warning, and assessing vulnerabilities and impacts, including the multi-risk dimension. Research and innovation will thus provide support for environmental and resource efficiency policies, and options for effective evidence-based governance within safe operating limits. Innovative ways will be developed to increase policy coherence, resolve trade-offs and manage conflicting interests***. Special attention will also be given to*** improve public awareness of research results***,*** the participation of citizens in decision-making ***and the public acceptance of innovations and innovative technologies***.

Or. en

Amendment 134
Proposal for a decision
Annex I – part III – point 5 – point 5.2 – point 5.2.2 a (new)

Text proposed by the Commission	*Amendment*
	5.2.2 a. Sustainable exploitation of coastal and marine environment
	Climate change and resources exploitation are main threats to ecosystems. The protection and sustainable management of natural resources and biodiversity assessment and conservation in coastal and marine (including deep sea) ecosystems through innovative observation and monitoring tools is of paramount importance. Knowledge should focus on the development of new concepts and tools for the ecosystems resilience to natural hazards and on the effects of climate change and socio economic activities that exert additional pressure on ecosystems. This should be achieved through a

science-based governance with societal engagement, promoting the development of sustainable and marine resource efficient services including non-exploitive services and involving reliable knowledge of the marine ecosystems domain. This approach must take into account the marine ecosystem structure, function and services. Also, the mitigation of coastal and marine biodiversity threats (including habitat change and fragmentation, invasive species, overexploitation and pollution) must be guaranteed. Promote and improved the marine spatial planning tools including coastal protection and marine protected areas.

Or. en

Amendment 135
Proposal for a decision
Annex I – part III – point 5 – point 5.3 – point 5.3.2 – title

Text proposed by the Commission	*Amendment*
5.3.2. Promote the sustainable supply and use of raw materials, covering exploration, extraction, processing, recycling and recovery	5.3.2. Promote the sustainable supply and use of raw materials, ***including mineral resources from land and sea,*** covering exploration, extraction, processing, recycling and recovery

Or. en

Amendment 136
Proposal for a decision
Annex I – part III – point 5 – point 5.3 – point 5.3.2

Text proposed by the Commission	*Amendment*
Research and innovation is needed over the entire life cycle of materials, in order to secure an affordable, reliable, and sustainable supply and management of raw materials essential for European industries.	Research and innovation is needed over the entire life cycle of materials, in order to secure an affordable, reliable, and sustainable supply and management of raw materials essential for European industries.

Developing and deploying economically viable, socially acceptable and environmentally friendly exploration, extraction and processing technologies will boost the efficient use of resources. This will also exploit the potential of urban mines. New and economically viable recycling and materials recovery technologies, business models and processes will also contribute to reducing the Union's dependence on the supply of primary raw materials. This will include the need for longer use, high-quality recycling and recovery, and the need to drastically reduce ***resource*** wastage. A full life-cycle approach will be taken, from the supply of available raw materials to end of life, with minimum energy and resources requirements.	Developing and deploying economically viable, socially acceptable and environmentally friendly exploration, extraction and processing technologies will boost the efficient use of resources. This will also exploit the potential of urban mines. New and economically viable recycling and materials recovery technologies, business models and processes will also contribute to reducing the Union's dependence on the supply of primary raw materials. This will include the need for longer use, high-quality recycling and recovery, and the need to drastically reduce ***both the normal consumption as well as the*** wastage ***of these resources***. A full life-cycle approach will be taken, from the supply of available raw materials to end of life, with minimum energy and resources requirements.

Or. en

Amendment 137
Proposal for a decision
Annex I – part III – point 5 – point 5.3 – point 5.3.4 – paragraph 1 a (new)

Text proposed by the Commission	*Amendment*
	An example is the increasing dependence of the European chemical industry on external sources of oil and natural gas as chemical raw materials. Therefore, the European chemical industry has become more and more interested in recent years in the use of indigenous coal as an alternative chemical feedstock. The non-energetic use of indigenous coal can offer long-term development prospects to many European chemical sites given the depletion of global oil reserves and political instabilities in the producing countries. In the future, process technologies and plants should be developed which make alternative hydrocarbon sources like indigenous coal

	resources useful to the European chemical industry

Or. en

Amendment 138
Proposal for a decision
Annex I – part III – point 5 – point 5.4 – title

Text proposed by the Commission	*Amendment*
5.4. Enabling the transition towards a ***green*** economy through eco-innovation	5.4. Enabling the transition towards a ***sustainable society and*** economy through eco-innovation

Or. en

Amendment 139
Proposal for a decision
Annex I – part III – point 5 – point 5.4 – paragraph 2

Text proposed by the Commission	*Amendment*
The aim of this activity is therefore to foster all forms of eco-innovation that enable the transition to a ***green*** economy.	The aim of this activity is therefore to foster all forms of eco-innovation that enable the transition to a ***sustainable society and*** economy.

Or. en

Amendment 140
Proposal for a decision
Annex I – part III – point 5 – point 5.4 – point 5.4.1 – title

Text proposed by the Commission	*Amendment*
5.4.1. Strengthen eco-innovative technologies, processes, services and products ***and boost their market uptake***.	5.4.1. Strengthen eco-innovative technologies, processes, services and products.

Or. en

Amendment 141
Proposal for a decision
Annex I – part III – point 5 – point 5.4 – point 5.4.1

Text proposed by the Commission	*Amendment*
All forms of innovation, both incremental and radical, combining technological, organisational, societal, behavioural, business and policy innovation, and strengthening the participation of civil society, will be supported. This will underpin a more circular economy, while reducing environmental impacts and taking account of rebound effects on the environment. This will include business models, industrial symbiosis, product service systems, product design, full life cycle and cradle-to-cradle approaches. The aim will be to improve resource efficiency by reducing, in absolute terms, inputs, waste and the release of harmful substances along the value chain and foster re-use, recycling and resource substitution. Emphasis will be given to facilitate the transition from research to market, involving industry and notably SMEs, from the development of prototypes to ***their introduction in the market and replication***. Networking among eco-innovators will also seek to enhance the dissemination of knowledge and better link supply with demand.	All forms of innovation, both incremental and radical, combining technological, organisational, societal, behavioural, business and policy innovation, and strengthening the participation of civil society, will be supported. This will underpin a more circular economy, while reducing environmental impacts and taking account of rebound effects on the environment. This will include business models, industrial symbiosis, product service systems, product design, full life cycle and cradle-to-cradle approaches. The aim will be to improve resource efficiency by reducing, in absolute terms, inputs, waste and the release of harmful substances along the value chain and foster re-use, recycling and resource substitution. ***With current economic context, priority needs to be given to support private companies with an emphasis on SMEs in introducing environmental innovative ideas into the market, as successfully done by the previous Eco-innovation market replication.*** Emphasis will be given to facilitate the transition from research to market, involving industry and notably SMEs, from the development of prototypes to ***pre-commercial demonstration***. Networking among eco-innovators will also seek to enhance the dissemination of knowledge and better link supply with demand.

Or. en

Amendment 142
Proposal for a decision
Annex I – part III – point 5 – point 5.4 – point 5.4.1 a (new)

Text proposed by the Commission	*Amendment*
	Promote the first application and market replication of near commercial eco-innovative solutions
	It is not uncommon that highly promising and technically advanced eco-innovative technologies, processes, services and products do not reach the market due to pre-commercialisation challenges and the residual risk linked to scaling-up. Eco-innovative solutions that have been technically demonstrated do not realise their full environmental and economic potential as their market introduction is perceived as too risky by private investors. This is in particular true for solutions originating from start-ups and innovative SMEs. The aim will be to support projects concerned with the first application and market replication of eco-innovative techniques, products, services or practices of Union relevance, that have already been technically demonstrated but that, owing to residual risk, have not yet penetrated the market. Actions should contribute to removing barriers to the development and wide application of eco-innovation, create or enlarge markets for the solutions concerned and improve the competitiveness of Union enterprises, especially SMEs, on world markets.

Or. en

Justification

Building on the experience of the extremely successful eco-innovation market replication programme (CIP) run by EACI, H2020 should foresee support to market replication as a separate new bullet point. Distinguishing between eco-innovation R&D and eco-innovation market replication has the benefit of highlighting the different nature of both projects of ensuring the continuity of the eco-innovation programme which is to date by far the most popular EC programme for entrepreneurial eco-innovators.

Amendment 143
Proposal for a decision
Annex I – part III – point 5 – point 5.4 – point 5.4.2

Text proposed by the Commission	*Amendment*
Structural and institutional changes are needed to enable the transition towards a ***green*** economy. Research and innovation will address the main barriers to societal and market change and will aim to empower consumers, business leaders and policy makers to adopt innovative and sustainable behaviour. Robust and transparent tools, methods and models to assess and enable the main economic, societal and institutional changes needed to achieve a paradigm shift towards a green economy will be developed. Research will explore how to promote sustainable consumption patterns, encompassing socio-economic research, behavioural science, user engagement and public acceptance of innovation, as well as activities to improve communication and public awareness. Full use will be made of demonstration actions.	Structural and institutional changes are needed to enable the transition towards a ***sustainable society and*** economy. Research and innovation will address the main barriers to societal and market change and will aim to empower consumers, business leaders and policy makers to adopt innovative and sustainable behaviour. Robust and transparent tools, methods and models to assess and enable the main economic, societal and institutional changes needed to achieve a paradigm shift towards a green economy will be developed. Research will explore how to promote sustainable consumption patterns, encompassing socio-economic research, behavioural science, user engagement and public acceptance of innovation, as well as activities to improve communication and public awareness. Full use will be made of demonstration actions.

Or. en

Amendment 144
Proposal for a decision
Annex I – part III – point 5 – point 5.5 a (new)

Text proposed by the Commission	*Amendment*
	5.5a. Cultural heritage
	Research strategies, methodologies and tools needed to enable a dynamic and sustainable cultural heritage in Europe in response to climate change. Cultural heritage in its diverse physical forms provides the living context for resilient communities responding to multivariate

changes. Research in cultural heritage requires a multidisciplinary approach to improve the understanding of historical material. Activities shall focus on identifying resilience levels via observations, monitoring and modelling as well as provide for a better understanding on how communities perceive and respond to climate change and seismic and volcanic hazards.

Or. en

Amendment 145
Proposal for a decision
Annex I – part III – point 6 – title

Text proposed by the Commission	*Amendment*
6. Inclusive, innovative and ***secure*** societies	6. ***Europe in a changing world -*** inclusive, innovative and ***reflective*** societies

Or. en

Amendment 146
Proposal for a decision
Annex I – part III – point 6 – point 6.1 – paragraph 2

Text proposed by the Commission	*Amendment*
In this context, the objective is to enhance social, economic and political inclusion, combat poverty, enhance human rights, digital inclusiveness, equality, solidarity and inter-cultural dynamics by supporting interdisciplinary research, indicators, technological advances, organisational solutions and new forms of collaboration and co-creation. Research and other activities shall support the implementation of the Europe 2020 strategy as well as other relevant Union foreign policies. ***Humanities*** research may have an important role to play in this context.	In this context, the objective is to enhance social, economic and political inclusion, combat poverty, enhance human rights, digital inclusiveness, equality, solidarity and inter-cultural dynamics by supporting interdisciplinary research, indicators, technological advances, organisational solutions and new forms of collaboration and co-creation. Research and other activities shall support the implementation of the Europe 2020 strategy as well as other relevant Union foreign policies. ***Social sciences and humanities*** research may have an important role to play in this

Specifying, monitoring and assessing the objectives of European strategies and policies will require focused research on high-quality statistical information systems, and the development of adapted instruments that allow policy makers to assess the impact and effectiveness of envisaged measures, in particular in favour of social inclusion.	context. Specifying, monitoring and assessing the objectives of European strategies and policies will require focused research on high-quality statistical information systems, and the development of adapted instruments that allow policy makers to assess the impact and effectiveness of envisaged measures, in particular in favour of social inclusion. ***Scientific agenda should be able to deeply analyze the social space of the European cities, from its own dynamics of local, regional and global empowerment, assessing the impacts of knowledge, citizen's participation and social inequality to the well-being of societies.***

Or. en

Amendment 147
Proposal for a decision
Annex I – part III – point 6 – point 6.1 – point 6.1.1

Text proposed by the Commission	*Amendment*
The constant quest for economic growth carries a number of important human, social, environmental and economic costs. A smart, sustainable and inclusive growth in Europe implies substantial changes in the way growth and wellbeing are defined, measured (including through the measurement of progress beyond the commonly used GDP indicator), generated and sustained over time. Research will analyse the development of sustainable lifestyles and socio-economic behaviours and values and how they relate to paradigms, policies and to the functioning of institutions, markets, firms, governance and belief systems in Europe. It will develop tools for a better assessment of the contextual and mutual impacts of such evolutions and policy options in areas such as employment, taxation, inequalities, poverty, social inclusion, education and	The constant quest for economic growth carries a number of important human, social, environmental and economic costs. A smart, sustainable and inclusive growth in Europe implies substantial changes in the way growth and wellbeing are defined, measured (including through the measurement of progress beyond the commonly used GDP indicator), generated and sustained over time. Research will analyse the development of sustainable lifestyles and socio-economic behaviours and values and how they relate to paradigms, policies and to the functioning of institutions, markets, firms, governance and belief systems in Europe. It will develop tools for a better assessment of the contextual and mutual impacts of such evolutions and policy options in areas such as employment, taxation, inequalities, poverty, social inclusion, education and

skills, community development, competitiveness and the Internal Market. It will also analyse how national economies evolve and which forms of governance at European and international level could help prevent macro-economic imbalances, monetary difficulties, fiscal competition, unemployment and employment problems and other forms of economic and financial disorders. It will take into account the growing interdependencies between Union and global economies, markets and financial systems.

skills, community development, competitiveness and the Internal Market. It will also analyse how national economies evolve and which forms of governance at European and international level could help prevent macro-economic imbalances, monetary difficulties, fiscal competition, unemployment and employment problems and other forms of economic and financial disorders. It will take into account the growing interdependencies between Union and global economies, markets and financial systems. ***The European cities have to be at the heart policies aiming to create growth, jobs and a sustainable future. The scrutiny of their performance – how well they function, their liveability, their attractiveness to investment and skills – is therefore critical to Europe's success. A European research agenda knowledgeable of inclusive urban development is more able to mitigate the social and the economic cost of inter-regional contrasts.***

Or. en

Amendment 148
Proposal for a decision
Annex I – part III – point 6 – point 6.1 – point 6.1.2 – paragraph 2

Text proposed by the Commission	*Amendment*
Given the increasing socio-economic importance of digital inclusion, research and large-scale innovation actions will promote inclusive ICT solutions and the effective acquisition of digital skills leading to the empowerment of citizens and a competitive workforce. Emphasis will be given to new technological advances that will enable a radical improvement in personalisation, user-friendliness and accessibility through a better understanding of citizen, consumer and user behaviours and values, including	Given the increasing socio-economic importance of digital inclusion, research and large-scale innovation actions will promote inclusive ICT solutions and the effective acquisition of digital skills leading to the empowerment of citizens and a competitive workforce. Emphasis will be given to new technological advances that will enable a radical improvement in personalisation, user-friendliness and accessibility through a better understanding of citizen, consumer and user behaviours and values, including

persons with disabilities. This will require an ‘inclusion by design’ research and innovation approach.	persons with disabilities. This will require an ‘inclusion by design’ research and innovation approach. ***Several key topics are essential to build an inclusive society: e.g. understanding changing labour markets and labour mobility and how they affect social inclusion; the construction of resilient and inclusive territories in Europe; the promotion of collaborative models of governance of diversity and cohesion; social, cultural and gender inequalities and their linkages to social cohesion; the impact of the economic crisis on welfare state; immigration, discrimination and minority groups and current policies to reduce discrimination and exclusion; combating poverty and social exclusion in disadvantages areas and regions; educational systems and reforms and their capacity to promote inclusion of young people in schooling and in society; changing transitions over the life course and their challenge for public policies and societies; reconciling work and personal life over the life course; inclusion of disabled citizens.***

Or. en

Amendment 149
Proposal for a decision
Annex I – part III – point 6 – point 6.1 – point 6.1.4

Text proposed by the Commission	*Amendment*
6.1.4. [...]	***deleted***

Or. en

Justification

Text moved to section 4a in "Excellent Science" pillar

Amendment 150
Proposal for a decision
Annex I – part III – point 6 – point 6.2 – point 6.2.1 – paragraph 1

Text proposed by the Commission	*Amendment*
In order to assess and prioritise investments and strengthen the Innovation Union and the European Research Area, the analysis of research and innovation policies, systems and actors in Europe and third countries as well as the development of indicators, data and information infrastructures will be supported. Forward-looking activities and pilot initiatives, economic analysis, policy monitoring, mutual learning, coordination tools and activities and the development of methodologies for impact assessment and evaluations will also be needed, exploiting direct feedback from research stakeholders, enterprises, public authorities and citizens.	In order to assess and prioritise investments and strengthen the Innovation Union and the European Research Area, the analysis of research and innovation policies, systems and actors in Europe and third countries as well as the development of indicators, data and information infrastructures will be supported. ***Coordination with other European policies, such as education, innovation and cohesion policies will also be envisaged, as stated in The Ljubljana Process.*** Forward-looking activities and pilot initiatives, economic analysis, policy monitoring, mutual learning, coordination tools and activities and the development of methodologies for impact assessment and evaluations will also be needed, exploiting direct feedback from research stakeholders, enterprises, public authorities and citizens.

Or. en

Amendment 151
Proposal for a decision
Annex I – part III – point 6 – point 6.2 – point 6.2.2 – paragraph 2

Text proposed by the Commission	*Amendment*
It will be essential to promote innovation in order to foster efficient, open and citizen-centric public services (eGovernment). This will require multidisciplinary research on new technologies and large-scale innovation related in particular to digital privacy, interoperability, personalised electronic identification, open data, dynamic user interfaces, citizen-centric public service configuration and integration and innovation driven by users,	It will be essential to promote innovation in order to foster efficient, open and citizen-centric public services (eGovernment). This will require multidisciplinary research on new technologies and large-scale innovation related in particular to digital privacy, interoperability, personalised electronic identification, open data, dynamic user interfaces, citizen-centric public service configuration and integration and innovation driven by users,

including in social sciences and the humanities. Such actions will also address social-network dynamics and crowd-sourcing and smart-sourcing for co-production of solutions addressing social problems, based on open data sets. They will help to manage complex decision-making, in particular the handling and analysis of huge quantities of data for collaborative policy modelling, simulation of decision-making, visualisation techniques, process modelling and participatory systems as well as to analyse changing relationships between citizens and the public sector.	including in social sciences and the humanities. Such actions will also address social-network dynamics and crowd-sourcing and smart-sourcing for co-production of solutions addressing social problems, based on open data sets. They will help to manage complex decision-making, in particular the handling and analysis of huge quantities of data for collaborative policy modelling, simulation of decision-making, visualisation techniques, process modelling and participatory systems as well as to analyse changing relationships between citizens and the public sector. ***Increased levels of complexity, the implications of questions posed by technology, advanced computation, life sciences and bio-engineering impinge upon areas of knowledge traditionally related with human studies, such as philosophy, theology, and legal, political and economic thought should be addressed. It is important to combine art, science and entrepreneuship; new forms of urban expression; knowledge, art and entrepreneurism related to the integration of multiculturalism and integration of migratory flows; multilingualism.***

Or. en

Amendment 152
Proposal for a decision
Annex I – part III – point 6 – point 6.2 – point 6.2.3 – title

Text proposed by the Commission	*Amendment*
6.2.3. ***Ensuring societal engagement in research*** and ***innovation.***	6.2.3. ***Enhanced dialogue between science*** and ***society***

Or. en

Amendment 153
Proposal for a decision
Annex I – part III – point 6 – point 6.2 – point 6.2.3

Text proposed by the Commission	*Amendment*
Enabling all societal actors to interact in the innovation cycle ***increases*** the quality, relevance, acceptability and sustainability of innovation outcomes by integrating society's interests and values. This requires developing specific skills, knowledge and capacities at individual and organisational as well as at national and transnational levels. A scientifically literate, responsible and creative society will be nurtured through the promotion of and research on appropriate science education methods. Gender equality ***will be promoted*** in particular by supporting changes in the organisation of research institutions and in the content and design of research activities. ***In order to improve knowledge circulation within the scientific community and the wider public, the accessibility and use of the results of publicly funded research will be further developed***. An Ethics Framework for research and innovation, based on the fundamental ethical principles including those ***reflected*** in the Charter of Fundamental Rights and all the relevant Union laws and Conventions**,** will be promoted in coordination with relevant international organisations.	***In order to build an effective dialogue between science and society, to recruit new talent for science and to pair scientific excellence with social awareness and responsibility the following activities will be supported:***
	- Attractive scientific and technological careers for young students: Promoting scientific careers in the fields of science, technology and engineering in schools; opening universities for young students; and the promotion by national and regional authorities of interactive and attractive science museums; fostering sustainable interaction between schools and research institutions, and between students and their families, science teachers and researchers.

- Two dimensions of gender equality: ensuring equality in research careers and including gender considerations in the research development: Promotion of gender equality in particular by supporting changes in the organisation of research institutions and in the content and design of research activities.

- Integration of society in science and innovation issues: Enable all societal actors to interact in the innovation cycle ***in order to increase*** the quality, relevance, acceptability and sustainability of innovation outcomes by integrating society's interests and values***; promoting the interest of society in science and innovation issues; monitoring the perception of science by the citizens and supporting their participation in issues related to the development of science and technology***. This requires developing specific skills, knowledge and capacities at individual and organisational as well as at national and transnational levels ***alongside monitoring the perception of science by citizens and supporting the participation of citizens in the research and innovation policy***.

- Science-literate citizens through science education: A scientifically literate, responsible and creative society will be nurtured through the promotion of and research on appropriate science education methods***, contributing to better formal and informal science and technology education, to project-based science activities and to the networking of scientists and non-scientists at national, European and international level. This involves promoting and nurturing science-literate citizens through effective formal and informal science education and the diffusion of science-based activities, namely in science centres and other appropriate media;***

- Open access to scientific results and data in order to augment scientific excellence

and economic competitiveness: Promotion of a single data base with all European funded research projects and scientific results. National and regional funding authorities will be encouraged to share the same information on national/regional projects. The inclusion of scientific results in this database will be promoted.

- Governance for the development of responsible research and innovation: Shaping governance for the development of responsible research and innovation by engaging all stakeholders (researchers, public authorities, industry), fostering the role of scientific expertise in decision-making processes, namely the participation of scientists and independent research organisations in societal controversies and in risk-governance related issues. An Ethics Framework for research and innovation, based on the fundamental ethical principles - including those ***enshrined*** in the Charter of Fundamental Rights and all the relevant Union laws and Conventions - will be promoted in coordination with relevant international organisations. ***The opinion of the European Group of Ethics in Science and New Technologies should be considered.***

- Knowledge on science communication: In order to improve knowledge circulation within the scientific community and the wider public, the accessibility and use of the results of publicly funded research will be further developed. This will increase knowledge on science communication in order to improve the quality and effectiveness of interactions between scientists, the media and the public and promote wider participation of citizens as active stakeholders and, whenever possible and appropriate, as participants of research.

Or. en

Amendment 154
Proposal for a decision
Annex I – part III – point 6 – point 6.3

Text proposed by the Commission	*Amendment*
6.3. [...]	***deleted***

Or. en

Justification

Text moved to section 6a. in Annex I - part III - Societal Challenges

Amendment 155
Proposal for a decision
Annex I – part III – point 6 a (new)

Text proposed by the Commission	*Amendment*
	6a. Secure societies - Protecting freedom and security of Europe and its citizens
	The European Union, its citizens and its international partners are confronted with a range of security threats like crime, terrorism and mass emergencies due to man-made or natural disasters. These threats can span across borders and aim at physical targets or the cyberspace. Attacks against Internet sites of public authorities and private entities for instance not only undermine the citizen's trust but may seriously affect such essential sectors as energy, transport, health, finance or telecommunications.
	In order to anticipate, prevent and manage these threats, it is necessary to develop and apply innovative technologies, solutions, foresight tools and knowledge, stimulate cooperation between providers and users, find civil security solutions, improve the competitiveness of the European security, and services industries and prevent and

combat the abuse of privacy and breaches of human rights .

The coordination and improvement of the security research area will thus be an essential element and will help to map present research efforts, including foresight, and improve relevant legal conditions and procedures for coordination, including standardisation activities.

Activities will follow a mission-oriented approach and integrate the relevant societal dimensions. They will support the Union's policies for internal and external security, defence policies, and the relevant new provision of the Lisbon Treaty, and ensure cyber security, trust and privacy i . The following specific objectives will be pursued:

6a.1. Increase security of citizens protection - Fighting crime and terrorism.

The ambition is both to avoid an incident and to mitigate its potential consequences. This requires new technologies and capabilities (including against cyber crime and cyber terrorism) for the support to health, food, water and environmental security which are essential for the good functioning of society and economy. New technologies and dedicated capabilities will help to protect critical infrastructures, systems and services (including communications, transport, health, food, water, energy, logistic and supply chain, and environment). This will include analysing and securing public and private critical networked infrastructures and services against any type of threats. Additional topics aimed to improve the protection of citizens will foster the development of secure civil societies.

6a. 2. Protect and improve the resilience of critical infrastructures

New technologies and dedicated capabilities will help to protect critical

infrastructures, systems and services (including communications, transport, health, food, water, energy, logistic and supply chain, and environment). This will include analysing and securing public and private critical networked infrastructures and services against any type of threats.

6a.3. Strengthening security through border management and maritime security

Technologies and capabilities are also required to enhance systems, equipments, tools, processes, and methods for rapid identification to improve border security, including both control and surveillance issues, while exploiting the full potential of EUROSUR. These will be developed and tested considering their effectiveness, compliance with legal and ethical principles, proportionality, social acceptability and the respect of fundamental rights. Research will also support the improvement of the integrated European border management, including through increased cooperation with candidate, potential candidate and European Neighbourhood Policy countries.

The full range of maritime security aspects will be addressed. This includes blue border management aspects as well as protection and control of water transport.

6a.4. Providing and improving cyber security

Cyber security is a prerequisite for people, business and public services in order to benefit from the opportunities offered by the Internet. It requires providing security for systems, networks, access devices, and software and services, including cloud computing, while taking into account the interoperability of multiple technologies. Research will prevent, detect and manage in real-time cyber-attacks across multiple

domains and jurisdictions, counteract misuse of cyber technologies prevent privacy violations and to protect critical ICT infrastructures.

6a.5. Increasing Europe's resilience to crises and disasters

This requires the development of dedicated technologies and capabilities to support different types of emergency management operations (such as civil protection, fire fighting and marine pollution, humanitarian aid, civil defence, conflict prevention, development of medical information infrastructures rescue tasks and post-crisis-stabilisation) as well as law enforcement. Research will cover the whole crisis management chain and societal resilience, and support the establishment of a European emergency response capacity.

Activities across all mission areas will also address the integration and interoperability of systems and services including aspects such as communication, distributed architectures and human factors. This also requires integrating civilian and military capabilities in tasks ranging from civil protection to humanitarian relief, border management or peace-keeping. This will include technological development in the sensitive area of dual-use technologies to guarantee interoperability between civil protection and military forces and amongst civil protection forces worldwide, as well as reliability, organisational, legal and ethical aspects, trade issues, protection of confidentiality and integrity of information and traceability of all transactions and processing.

6a.6. Enhancing the societal dimension of security and ensuring privacy and freedom in the Internet

Any new security solution and technology needs to be acceptable to the society, comply with Union and international law,

be effective and proportionate in identifying and addressing the security threat. Better understanding the socioeconomic, cultural, and anthropological dimensions of security, the causes of insecurity, the role of media and communication and the citizen's perceptions, are therefore essential. Ethical issues and protection of human values and fundamental rights will be addressed.

Safeguarding the human right of privacy in the digital society will require the development of privacy-by-design frameworks and technologies since the conception of products and services. Technologies will be developed allowing users to control their personal data and its use by third parties; as well as tools to detect and block illegal content and data breaches and to protect human rights on-line preventing that people's behaviours individually or in groups is limited by unlawful searching and profiling.

6a.7. Support to the Union's internal and external security policies

Since the dividing line between external and internal security is increasingly blurred, conflicts outside of Europe and their consequences can rapidly have a direct impact on Europe's security. Furthermore the interface between civil and defense oriented activities and policies requires particular attention as there is a large opportunity to exploit synergies between civil protection, situation assessment, conflict management and conflict prevention, peace-keeping and post-crisis stabilisation operations. Investment in the development of crisis management capabilities shall be encouraged where complementarities have been identified, so as to quickly close capability gaps whilst avoiding unnecessary duplication, creating synergies and supporting standardisation.

6a.8. Specific implementation aspects

Whereas research will have a civil security orientation, coordination with the activities of the European Defence Agency (EDA) will be actively pursued in order to strengthen cooperation with EDA, notably through the already established European Framework Cooperation, recognising that there are areas of dual use technology relevant for both civil and military applications. Coordination mechanisms with relevant Union Agencies, such as e.g. FRONTEX, EMSA and Europol, will also be further strengthened in order to improve the coordination of Union Programmes and policies in the field of both internal and external security, and of other Union initiatives.

Taking into account the particular nature of security, specific arrangements will be put in place with regards to programming and governance, including arrangements with the Committee referred to in Article 9 of this Decision. Classified or otherwise sensitive information related to security will be protected and particular requirements and criteria for international cooperation may be specified in work programmes. This will also be reflected in the programming and governance arrangements for Secure Societies (including the comitology aspects).

Or. en

Amendment 156
Proposal for a decision
Annex I – part IV – point 1

Text proposed by the Commission	*Amendment*
The JRC will carry out research to enhance the scientific evidence base for policy	The JRC will carry out research to enhance the scientific evidence base for policy

making, to promote understanding of natural processes underlying societal challenges, and to examine emerging fields of science and technology, including through an exploratory research programme.	making ***at European***, ***national, regional and local level,*** to promote understanding of natural processes underlying societal challenges, and to examine emerging fields of science and technology, including through an exploratory research programme.

Or. en

Amendment 157
Proposal for a decision
Annex II – introductory part

Text proposed by the Commission	*Amendment*
The following table specifies for the specific objectives of Horizon 2020 a limited number of key indicators for assessing results and impacts.	***Additionally to the performance indicators for assessing progress against the general objectives of Horizon 2020, set out in Annex I of Regulation (EU) No XX/XX [Horizon 2020],*** the following table specifies for the specific objectives of Horizon 2020 a limited number of key indicators for assessing results and impacts.

Or. en

Amendment 158
Proposal for a decision
Annex II – part 2 – point 3 –indent 1 a (new)

Text proposed by the Commission	*Amendment*
	- Number of start-ups created

Or. en

EXPLANATORY STATEMENT

Context

The forthcoming Horizon 2020 programme will reinforce Europe's leading position in an environment in which Europe has lost ground in many areas. Achieving this, supposes accurately identifying the strengths that Europe possesses but also entails recognising and correcting Europe's weaknesses.

As for its strengths, Europe has world leading researchers, entrepreneurs and companies; a set of deeply embedded values and traditions, a dynamic culture of creativity and diversity and the largest internal market in the world. Finally, European civil society is actively engaged in emerging and developing economies across the globe.

However, at the same time, Europe has a number of weaknesses: under-investment in our knowledge base; unsatisfactory framework conditions (ranging from poor access to finance and the high costs of IPR to slow standardisation and ineffective use of public procurement); and finally, too much fragmentation alongside excessive bureaucracy and red tape.

The Commission proposal for Horizon 2020 draws on and builds upon work that has already been developed in Parliament in such contributions as the reports Simplifying the Implementation of the Research Framework Programmes ("the Carvalho Report"), the Mid-term Review of the Seventh Framework Programme of the European Union for Research, Technological Development and Demonstration Activities ("the Audy Report") and the Green Paper: From Challenges to Opportunities towards a Common Strategic Framework for EU research and Innovation Funding ("the Matias Report").

As such, the proposal represents a real step forward: it strikes an appropriate balance between the three pillars – "Excellent Science", "Industrial Leadership" and "Societal Challenges" – and in addition to the contribution from Parliament, it effectively integrates input from a whole range of stakeholders. However, some work remains to be done. As the *rapporteur* sees it, the main contributions of this report break down four main elements:

a) excellence as a major driver for Horizon 2020

b) building synergies between Horizon 2020 and the structural funds

c) competitiveness of European industry

d) horizontal issues such as scientific coordination and leadership across Horizon 2020 for each thematic area

1. Excellence as a Major Driver for Horizon 2020

Excellence should be the main driver for Horizon 2020 as a whole. This supposes that excellence is defined independently of any geographical or other precondition. The report promotes the widening of participation in order to stimulate excellence across Europe on the

one hand, and the widening of bottom up scientific excellence across the three pillars of Horizon 2020, on the other hand.

With regard to the widening of participation, Horizon 2020 should include the concept of "stairway to excellence" something that will further encourage the participation of strong units of embryonic excellence such as small research groups and highly innovative start-ups. The Commission has already taken a series of significant steps in this direction such as the "twinning schemes" and the "ERA chairs" scheme. However, we must go even further and a number of additional instruments have been foreseen in the present report: for example, the creation of ERC *return grants*. ERC return grants could be attributed to researchers currently working outside of Europe and who wish to work in Europe or to researchers already working in Europe who wish to move to a less developed region.

As for the widening of excellence across Horizon 2020, usually, excellence in science is fostered by a bottom-up, scientist driven research agenda, one that allows novel ideas and technologies to flourish. In the COM proposal, the first pillar is the main instrument for the promotion of excellence in bottom up research at a European level. Moreover, for the Commission, the Future Emerging Technologies (FET), which is also a bottom up research instrument, is confined to the first pillar. In the report, by contrast, the Future Emerging Technologies instrument has been widened to include science (giving the acronym FEST) and has also been spread across all three pillars.

2. Building Synergies between Horizon 2020 and the Structural Funds

Building greater synergy and as much complementarity as possible between Horizon 2020 and the structural funds is urgently required. There are two wholly distinct programmes. On the one hand, there is Horizon 2020, in which excellence and the stairway to excellence is the main driver. On the other hand, there are the structural funds, whose main driver is capacity building and smart specialisation.

It is essential that these programmes are complementary and that bridges are built in both directions, linking the two programmes. As such, the structural funds have a role to play – both upstream and downstream – with regard to the Horizon 2020 objectives.

Upstream from Horizon 2020, the structural funds can be used for capacity building and a number of amendments have been tabled covering the following:

- The structural funds could be used to finance equipment, human resource development, the creation of clusters in the priority areas of Horizon 2020 and as a source of small grants given for the preparation of proposals to be submitted to Horizon 2020;

- National and regional funds might be used to contribute to the funding of ERC, Marie Curie or collaborative projects that meet the criteria of excellence but cannot be funded due to lack of European funds. Horizon 2020 could confer a "seal of excellence" on positively evaluated projects that have not otherwise been able to achieve funding because of budgetary limitations.

Downstream from Horizon 2020, the structural funds could be used to help smooth the

passage from conception to market. One again, two areas have been singled out:

- The structural funds could be used to finance or co-finance the follow up to Horizon 2020 research projects (e.g. pilot scale and demonstration projects);

- Structural funds could be used to valorise research results in such a way as to encourage easy access to knowledge or to facilitate the deployment of the resulting knowledge in terms of its direct economic or societal use.

Finally, two modifications have been made at a more general level:

- EU funding for Research and Innovation is of key significance and should be exploited for leverage. Horizon 2020 should attract additional financing from the Structural Funds, the EIB and from the private sector, something that supposes adopting a multi-fund approach;

- The interoperability between the instruments of Horizon 2020 and the structural funds should be enhanced. This supposes designing compatible rules and procedures; coherent application formats and evaluation criteria; common entry points; synchronising priority setting through smart specialisation and using common cost definitions and other administrative and financial criteria. It would also involve synchronised roadmaps and administrative cycles including, for example, the need to respect the academic calendar, especially for universities.

3. Competitiveness of European Industry

In the current economic climate, it is essential that Europe's industrial base is strengthened. Industrial participation in Framework Programmes for Research has dropped significantly over the last few years: it was 43% in FP4, 37% in FP5, 29% in FP6 and has risen, but only slightly, to 31% in FP7.

In addition, Europe has difficulty in ensuring that research results are effectively converted into innovative products and services that reach the market. The ability to innovate but also to see innovation through to viable market solutions is central to competitiveness.

To counter this difficulty, four areas have been amended:

- Firstly, Horizon 2020 must be designed in such a way as to provide industry with an incentive to participate in European projects. However, industry participation should not be narrowly restricted to consideration under the Industrial Leadership pillar. Innovation flourishes best when it strives to attain excellence but also when it offers real solutions to existing societal challenges;

- Secondly, Horizon 2020 has been designed to cover the whole innovation cycle. In particular, innovation should be fostered from the earliest stages of the passage from concept to market. At the same time, the Commission proposal concerning the later stages of the innovation cycle might include different forms of innovation beyond technological innovation;

- Thirdly, SMEs are central to reinforcing the competitiveness of European industry as a whole and their participation in European projects should be fostered across the three pillars. The Commission proposal with regard to the SME instrument is a very welcome initiative. It is also necessary to develop a mechanism that is at once simpler, faster and more efficient. In this respect, an innovation voucher system has been proposed;

- Fourthly, standardisation should be built into technological development projects and should be present throughout the different stages of these projects.

4. Horizontal Issues

Horizon 2020 should be designed in such a way that it will contribute actively to building the European Research Area (ERA). Horizon 2020 should be more than a funding programme: it should have a beneficial structural effect on the organisation of research at European level. In this respect, there are eight specific measures that might contribute to building a strengthened and more efficient ERA:

- Governance: inside Horizon 2020, each research area should be equipped with robust governance mechanisms. The objective of these mechanisms is to implement Horizon 2020 but also to enhance communication, the exchange of data and good practice. These objectives are fundamental to the acceleration of the research and innovation process in various research areas such as health research;

- Project size and type: collaborative research should be a central element across Horizon 2020, mainly in the Industrial Leadership and Societal Challenges pillars. Within these pillars, a balance should be struck between small focused projects and large integrative projects;

- Barriers to entry: smaller research units have difficulty in participating in the existent European networks. In particular, outsiders from these networks encounter barriers in participating in large consortia and measures should be taken to remedy this.

- Gender balance: the promotion of the general participation of women in the different projects – including as team coordinators – should be encouraged. For example, the dissemination actions of Horizon 2020 should target women scientists. Gender balance should be ensured for the Programme, Expert and Advisory Committees.

- Youth employment: the participation of young scientists in project teams in the context of collaborative research activities by industry and science organisations should be furthered. The rules deployed should facilitate the recruitment of staff to universities in order to work on Horizon 2020 projects with the aim of keeping young researchers in gainful employment.

- Dissemination and exploitation; the results of research and demonstration projects should be disseminated more effectively, whilst still respecting issues relating to innovation and protecting commercial sensitivities.

- Enhanced dialogue between science and society: Horizon 2020 should promote

effective dialogue between the different stakeholders involved and seek to stimulate interest and enthusiasm for science amongst the general public.

- International cooperation: in order to strengthen collaboration in strategically defined priorities with key international partners, international cooperation should be present throughout Horizon 2020.