



*Position Paper:*  
Recommendations for the  
European Union's  
9<sup>th</sup> Framework Programme for  
Research and Innovation

Final version  
2 February 2018



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement No. 603860.

# 1 Introduction

RECREATE is an FP7 Coordinating and Support Action, running from July 2013 to June 2018. Its overall objective is to support the development of the European Union's future research and innovation policies in the fields of Climate Action, Resource Efficiency and Raw Materials. It involves a core of 16 key partners from across Europe representing research, industry and consulting as well as a much wider stakeholder network including several hundreds of organisations of all types.

During the last four and a half years, the project has developed, tested and applied a variety of new tools and methods, including the development of the RECREATE Green Horizons Scoreboard, the evidence-based narratives (EBNs) as well as the RECREATE scenarios. All of these tools have the ultimate goal of supporting the policy-making and programming in the mentioned areas. In the opinion of the RECREATE team, these new methodological developments in themselves are in fact among the most important outcomes of the project so far. By being more tuned and tailored to the specific context and by providing more flexibility, they offer a number of advantages over existing tools.

The purpose of this position paper is to present a number of key recommendations that the RECREATE team can make with regard to the European Union's next Research and Innovation Framework Programme ('FP9'), on the basis of the work carried out so far. Following the above, these recommendations shall be grouped into two types: (a) methods and tools to support the policy-making and programming process; (b) specific topic areas and their representation.

## 2 Recommendations concerning methods and tools to support the policy-making and programming

### 2.1 Evidence-based narratives (EBNs) as a new tool to support research and innovation programming

One of the core activities of RECREATE has been the development, testing and application of a new method that is able to support research and innovation programming by effectively capturing main ideas of an innovation. Evidence-based narratives (EBNs) describe the potential future trajectory and impact of specific innovations, based on evidence from the past and present. Their main advantage is to reduce complexity by providing a storyline rather than compiling a large amount of data presented in quantitative models or other non-narrative ways. Based on Hekkert's Technical Innovation System (TIS) analysis, the method provides more flexibility allowing for qualitative judgments and looking at innovation system dynamics beyond simple cause-and-effect relationships. Last but not least, EBNs match very well with the idea of mission-oriented policies, which are currently being debated as one of the potential cornerstones of FP9. Both EBNs and mission-oriented policies are based on a holistic approach, across policy domains, integrating visions for the future.

In combination with other tools of better regulation like mission-based programming, EBNs could be further developed complementing more complex and standardised methods such as impact assessments and modelling which would apply further downstream in the policy development.

### 2.2 Development of indicators for a better tracking of changes in innovation systems over time

Both the EBN and the Scoreboard tasks within RECREATE have analysed innovation systems based on Hekkert's Technical Innovation System (TIS) analysis. The latter is based on the central idea that the analysis of the targeted dynamic innovation diffusion should systematically map the activities that usually take place in innovation systems and finally result in the innovation diffusion. The approach focuses on the following seven innovation system functions: entrepreneurial activities; knowledge development; knowledge diffusion through networks; guidance of the search; market formation; resource mobilisation; creation of legitimacy.

While the above approach has proven to be very useful for capturing the current strengths and weaknesses of a given innovation systems (as for example shown in the RECREATE EBNs), the work on the RECREATE Scoreboard task has revealed that indicators useful for tracking these systems over time are underdeveloped and often non-existent, particularly those that could capture changes in private sector and citizen/ consumer behaviour.

Programming in FP9 has an opportunity to address this gap by setting up calls for the development of such indicators in consortia including both academic and industrial participants. For this, it is important to define terms for the engagement of private sector actors that are acceptable to all.

### 2.3 Integration of trend analysis and long-term scenario development

In its original project design, RECREATE included two separate forward-looking tasks, one focussing on the analysis and assessment of short- to mid-term trends and the other one focussing on the development of long-term scenarios (up to 2050).

With regard to the trend analysis, there was very soon a consensus that the analysis of short- to medium-term trends is problematic as a policy guidance tool, as trends in technology and behaviour move faster than programmatic guidance and development. It was thus decided to analyse the trends as contributing factors to long-term scenarios. Consideration of how trends could shape the long-term future may help the development of a portfolio of options in research and innovation programmes.

With regard to the long-term scenario development, the link with shorter-term policy decisions is difficult to make, as these scenarios tend to be too abstract or too speculative to be relevant. Our recommendation is therefore that scenario methodologies in future programming should work on analysis of alternative pathways, rather than end states, for example using ‘Transition Scenarios’ to examine the dynamics that could contribute to alternative socio-technical configurations.

## 3 Recommendations concerning the content of future calls

### 3.1 The ‘circular economy’ as a conceptual frame for the successor of ‘Societal Challenge 5’

One of the key objectives of RECREATE was to create synergies between three of the fields covered by so-called ‘Societal Challenge 5’ in Horizon 2020, i.e. raw materials, resource efficiency and climate action. It goes without saying that for all parties involved, this objective was not at all an easy one to tackle. Disciplinary thinking is very deeply enrooted in today’s scientific world. From an industrial point of view, the linkages between the worlds of raw materials and resource efficiency may be more evident, but less so the link with climate action.

During the course of the project, the concept of the ‘circular economy’ became prominent in social and political debate. It offered itself as a conceptual umbrella over the three RECREATE areas and also made the interest in bringing these three fields together much more tangible. In principle, the RECREATE team therefore highly appreciates the use of the concept, also as a means to frame to potential successor of Societal Challenge 5 under FP9.

At the same time, the RECREATE team suggests a sharpening of the term and more concrete definition of the ‘circular economy’. While a large number of excellent examples of the circular economy exist and/or are being developed, one must be wary of cases where the term is used for not so ambitious projects. Work must be done to look at a range of impacts within circular economy related projects. Also the differences, overlaps, synergies and trade-offs with and between related concepts such as industrial symbiosis, material recycling, servitisation/ functionalisation, and sharing should be clarified. Initiatives that combine several of these approaches in a synergetic way should be particularly encouraged. There is a need to create visions and guiding strategies, probably at the sectoral level, to better understand which circular strategies should play which role, and how they do or do not complement one another.

Furthermore, it should be kept in mind that the circular economy concept can only work in combination with a range of other facilitators. One of them is more *lean and frugal design*. Recycling or reconditioning

smartphones, for example, will not be very important if they are designed in such a way that their individual components cannot be used for the subsequent model any more. Another facilitator is the *Internet of Things*, which can allow for very sophisticated systems of tracking and tracing materials flows in products and supply chains. Third, a *sustainable environment for investors*, based on public-private partnerships (e.g. to cope with large fluctuation in the price of raw materials), could give a further push to the circular economy.

Examples of concrete research and innovation needs that could be identified based on various RECREATE deliverables which are directly related to the circular economy:

- New circular economy business models: what is hype and what is reality? (Or: Pitfalls and promises of new circular economy business models)
- Finding finance for the circular economy
- What are possible benefits of social innovation (e.g. local economies) for circular economy?
- Promises and limitations of the 'Internet of Things' for the circular economy

### **3.2 Alignment of R&I policies with policies in other domains**

One very important finding which results from a number of analyses made in RECREATE and which cannot be overstated is the fact that R&I policies must be aligned with actions in other policy domains, i.e. there must be coherence between them. Very often, new rules or incentives set by other policies (e.g. the banning of certain 'old' and environmentally harmful technologies or fiscal incentives for newer ones) trigger more innovation than funding programmes that aim at directing R&I into a certain direction. A second aspect is the fact that in many cases, new technological solutions already exist, but they are not applied at large scale. The reasons for the continued use of 'old' technologies while newer, better, technologies already exist are often rooted in regulatory framework conditions, systemic interdependencies, fiscal rules and/or simply human habits. All these factors can be changed by policies other than R&I. Many examples of this have been discussed in various of the evidence-based narratives (EBNs).

It is acknowledged that the concept of mission-oriented policies, which has been put forward as one of the potential cornerstones of FP9, is likely to take the above points into account. This is very much welcomed. The RECREATE consortium, whose coordinator The Joint Institute for Innovation Policy (JIIP) is at the same time coordinating two studies on mission-oriented policies for DG RTD, will be very pleased to provide further insights and analyses concerning these aspects.

### **3.3 Action to integrate, cross-analyse and update the results of related policy support projects**

RECREATE is just one out of a number of ongoing or recent EU-funded projects that have (or have had) the objective of providing support to policy-making and programming in the fields covered by "Societal Challenge 5". Examples of such projects are CASI, Green.eu and OPERAs, to name but a few. These projects have developed a large and valuable body of knowledge that is of relevance not only to the European Commission itself but also to national and regional policy-makers as well as to industry and civil society organisations. However, while the output of these projects will remain accessible for a certain number of years, it is currently quite dispersed, with no or only few visible links between them, no real cross-analysis being made and no real prospect of being updated, which means that they will lose their value and the investments made achieve a suboptimal return. For this reason, the RECREATE team (also based upon requests of these projects) suggests to define a call for a support project that will build upon the strengths of these projects by selecting the most valuable assets, organising and cross-analysing them, as well as updating those key outputs in function of supporting policy making and the policy process. In other words, this new project would provide a new and well-organised home for the knowledge that has been produced in these projects and thus ensure to further valorise the available material.

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