



Forward Visions on the European Research Area



## Policy Brief EUROPEAN RESEARCH AREA AT CROSSROADS

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### 1. From 2030 scenarios to 2015 policy options: The VERA approach

Research and innovation policies in Europe need reappraisal. The project “Forward Visions on the European Research Area” (VERA) was set up to provide strategic intelligence for the future governance and priority-setting of the European research and innovation system. VERA developed four contrasting scenarios describing potential evolutions of the system until the year 2030. These are summarised in the box below.

The scenarios helped the VERA team explore the key issues, drivers and interdependencies of future research and innovation landscapes.

#### Scenario 1: Private Knowledge – Global Markets

In this scenario, today’s European Research Area (ERA) gradually evolves into a Global Innovation Area, where research is mainly legitimized by its contribution to innovativeness, competitiveness and growth. As a result of limited public funds, growing inequalities between Member States and the jostling for political influence within Europe, private actors, mainly firms, dominate the financing of the research landscape and thus the setting of research priorities. The coordination and integration of worldwide research, technological development and innovation are primarily managed by global, vertical networks.

#### Scenario 2: Societal Challenges – Joint Action

EU Member States have become increasingly open to collective action to tackle societal challenges such as climate change or health protection. Joint Actions emerge as large programmes with large public investments in R&D complemented by NGO investment and activities and a greater role for regions.. The role of the European institutions becomes increasingly important and this leads to a substantial change in the governance system, with the European Parliament taking a central policy role.

#### Scenario 3: Solutions apart – Local is beautiful

Today’s understanding of progress is transformed into a human-centred rationale, where happiness and quality of life are operationalized into new measures of progress. Research and innovation in Europe are transparent and open to individual or societal needs, in particular regarding new ways of living together, health or data privacy, with active citizen participation and close ties with local societal actors around micro/regional level activities addressing local problems.

#### Scenario 4: Times of Crises – Experts at the Wheel

Climate catastrophes unfold disruptive forces leading to societal transformation. A new sense of ‘deep sustainability’ on which all economic, political and societal activities are based requires targeted scientific adaptation solutions. European-level coordination is key in steering research, technological development and (social) innovation towards this goal. Experts in sustainability play key policy roles becoming heavily involved in policy definition and implementation.

To ‘backcast’ from the 2030 scenarios to the governance and policy questions they raise for today, we first analysed them using “policy lenses” along two dimensions:

1. The policy priorities in relation to three overarching objectives: supporting innovation in the firm, developing the science base, and addressing societal missions.
2. The ways in which policies are defined and implemented depending on the policy functions (strategic orientation, programming, performance), and the mode of Europeanisation (federalised, integrated, coordinated, or juxtaposed) for each of the policy functions.



The scenarios represent different problem perceptions, different forms of dominant policy action, and different roles for the European institutions. Our scenarios highlight profound differences in the political and social priorities that underpin the way in which problems are defined. Such differences result in varying understandings of the role of science and technology in society, and of the institutions involved in generating and applying new knowledge. It is important, therefore to *think twice*, to question our current assumptions on the context, drivers and objectives of research policies. Despite the diversity of the scenarios, there are some issues emerging in more than one scenario; that is, issues that are important in very different economic, social and political contexts. To *act wisely* current policy design should address these key issues.

The scenarios let us also anticipate that the *institutional context* under which European research and innovation policy will be defined and implemented within two decades is likely to be substantially different from the situation we are experiencing today. Yet, to a large extent, our current decisions will shape such context; what we are doing today opens and closes options for the future.

In this regard, a major value-added of the VERA policy-lensing approach lies in the opening up of policy spaces, of choices and their potential consequences in the different political and societal contexts as defined by the scenarios. This is complementary to the outcome of the VERA stakeholder debate, a systematic synopsis of stakeholder views on the future of the European research and innovation system, informing the current discussion about priorities for the ERA (see Popper et al. 2015).

## 2. Think twice

The scenarios illustrate how future societies may regard the role of science and technology in diverse, even divergent, ways. The role of science in society is evolving and several directions of changes are open. Therefore, some of our implicit or explicit assumptions underpinning current science, technology and innovation policy may prove, in the long term, inadequate. We revisit these assumptions, recognizing that we face policy choices that are profoundly political, rather than a consensual ground towards which societies will necessarily converge.

### 2.1. The role of European institutions

Often, in policy discussions, the institutional architecture of the EU is taken for granted. But, as the scenarios show us, this situation can change. We cannot assume that there is a natural evolution towards, for instance, European-wide institutions. The role of the EU and its institutions differs across scenarios. In Scenario 1 public sector institutions are

generally weak and fragmented, national authorities have struggled to retain a degree of influence over the political process and of control over economic resources, and the EU institutions have seen their remit limited to setting regulatory structures and other framework conditions. Scenarios 2 and 4 present a very different situation. In them, the EU and its institutions have become a key player, growing in size and legitimacy, and taking over responsibilities that currently are the remit of national and regional authorities. Yet, the political configuration of the EU institutions will depend on the political context. In scenario 2, European societies come together to deal with policy problems whose solution exceeds the capacity of any single State. This transfer of authority to supranational organisations comes accompanied by the development of instruments of democratic oversight at European level: a strong European Parliament provides the source of democratic legitimacy. In scenario 4 the EU and its institutions are also playing a key role but there is a focus on a single set of problems leading to a less diversified political environment. Finally, scenario 3 is dominated by local and regional interests, and the role of the EU institutions is limited to that of a facilitator, supporting policy learning and information sharing across policy and scientific communities.

What is the future role we envisage for European institutions? The evolution of the ERA, and of the role of the EU in an evolving European research and innovation system can take differing paths, and such paths are associated with the development of different European governance structures. The balance among the policy levels is subject to big uncertainties: The regional level is, together with the local, the central locus of science, technology, and innovation policy in scenario 3, and it is also important for the experimentation and eventual deployment of innovations in scenario 4. European institutions are dominant in scenario 2 and national governments have retained a degree of influence and relevance against the general retrenchment of the State in scenario 1. There is therefore a choice among different institutional architectures and this choice is not neutral in relation to political objectives. For instance, a strong role for European institutions fits with a scenario in which national authorities have agreed to pursue a variety of societal goals requiring international coordination, but cannot be sustained by a scenario characterised by budgetary restriction in the public sector and a focus on private firms as the engine of competitiveness and economic growth.

### 2.2. A single ERA or a common, yet diverse and open area

It is an implicit assumption of most European policies, that a “common area” will, and should, deliver a single and integrated European research and innovation system. This,

the argument goes, is a precondition for more efficient and effective research systems. Free mobility of resources in a single integrated system is the best way to allocate resources, as in any other “market”. In many scenarios, however, system integration is replaced by different forms of connectedness. Often the scenarios focus on policy approaches that fit with local conditions and in the development of capacities that can deal with the local and regional qualities of more general social challenges (like for instance in Scenario 3). The nurturing of local capacities and their fit with the local contexts and needs is unlikely to be served by an unrestrained focus on objectives that do not take this diversity into consideration. *The policy challenge for today lies in balancing the development of both, a research area that is inclusive of and relevant to all European regions and the support for research capabilities allowing Europe to become a hub in global knowledge networks.*

### 2.3. The pursuit of excellence

One of the beliefs at the centre of many current policies is that the promotion of “excellence” should be the natural overriding objective of research policy. Clearly, it is difficult to argue against excellence. Yet, except for Scenario 1, the highly selective ethos of this approach is not present in any of the other scenarios. Instead, the concern with systemic effects and the application of research to address societal problems are the overriding concern in two of the scenarios. *Therefore, the policy challenge we are facing in 2015 is how to balance this pursuit of scientific excellence with the other functions of research organizations that make them, for instance, relevant to their local and regional contexts.*

From a higher education perspective, many of the current practices (from funding mechanisms to the popularity of some ranking systems) are based on the implicit assumption that universities should aspire to excellence by improving their research capacity and outputs. Yet again, the role of universities varied across scenarios. This is a reflection of the increasingly different functions that universities play in our societies. Scenario 3 for instance focuses on the local role of universities and their teaching function. *The policy challenge we are now facing is how to help Higher Education find a proper balance among its different functions.*

### 2.4. The role of science in supporting social progress and welfare is undisputed

It is a widely shared belief among policymakers and stakeholders that ‘science’ plays a crucial role in modern societies. Modern technology and the improvements in the human condition it has made possible could not have taken place without the knowledge generated by scientific research. Yet the societal attitudes towards the various sciences (natural, technical, social) are far from homoge-

nous, and the scenarios illustrate situations where scientific goals are considered secondary to other social objectives. In scenario 1, science is purely seen in an instrumental way rather than an activity that is valuable in itself. Scenario 3 presents an environment that is more concerned in harnessing current capabilities for welfare than in supporting scientific research. In all scenarios academic science is only one element among diversifying modes and actors of knowledge production and innovation. *The current policy challenge is to define how European policies can help in the experimentation and establishment of flexible but robust modes of distributed knowledge production.*

### 3. Some areas for action (but act wisely)

Reconsidering our assumptions can modify the way in which we define policies, but there are specific policy areas that need attention, in all circumstances. In our scenario analysis, when an issue appeared in more than one scenario we consider it a warning sign of the existence of a policy problem that would be relevant in very different contexts. An important (and somewhat unexpected) outcome of this analysis is the importance that framework conditions (such as intellectual property rights, standards, regulatory activity focused on public procurement) and communication infrastructures have in most scenarios.

Framework conditions play an important role, but they do so in very different ways depending on the scenario. IPR, for instance, is prominent in scenario 1 as a condition for greater competitiveness of firms, and this scenario foresees the achievement of a full system covering ‘one stop shop’ for granting patents and a European-level enforcement system. In contrast, scenarios 2 and 4 are characterised by large public investments to address societal problems and here IP policies seek to ensure that the results of such research are publicly available. There are similar differences for standards: they serve the opening of markets for firms in scenario 1, while they are an instrument to reduce the environmental impact of goods and services in scenario 4. Similar differences in focus apply for regulations surrounding procurement policies.

Although these issues are often seen as a purely technical matter, the scenarios alert us to their importance and to their profoundly political nature. In other words, *the framework conditions posed by IPR regulations, standards, and procurement regulations are in need of further development, which will be aligned with specific political objectives.*

Another theme calling for both regulatory and direct intervention is the *need to develop a comprehensive and efficient communications infrastructure, both in terms of physical transport and internet-based telecommunications.* The

transfer of physical goods is anticipated to be a central concern when the position of Europe in global supply networks is of paramount importance (scenario 1), whereas the notion of what can pass for an “efficient” mode of communication will rely more heavily on telecommunications and internet infrastructures in the remaining scenarios.

There are additional interventions noted in our scenarios, but these are unique to each kind of scenario. The pursuit of economic competitiveness in scenario 1 focuses the limited budgets available for public research on the conduct of frontier research and technology. In this scenario investments are to be carried out in partnership with the private sector; the *spread of Public-Private Partnerships in research and technological development will require a re-definition of the competition rules*, as private investors will seek assurances that their R&D investments will be rewarded through guaranteed access to sufficient markets for the resulting products and services. When the driving focus is on addressing societal problems (scenarios 2 and 4), research programmes are system-oriented; that is, they see the application of new knowledge within a complex social system as one of the main challenges of research. *This requires special attention to be paid to experimentation, real size demonstrators and “bottom-up” stakeholder participation.*

#### 4. Anticipate institutional change

All scenarios anticipate shifts in the institutional architecture underpinning research and innovation policies. First, the *importance of agencies* will grow. Agencies are semi-autonomous public sector organisations that contract for a service with a government organisation. They are ad-hoc structures to implement specific policies and are designed specifically for the purpose for which they have been created. European agencies are already present in today’s ERA strategies; the management of research programmes is being transferred to specialised agencies like the European Research Council Executive Agency and the Research Executive Agency. So far, their role has been instrumental, offering a way of carrying out policy implementation tasks without drawing on European Commission functionaries. Our scenarios describe a broader and differentiated view of agencies: they deal with specialized activities, but can also be a flexible tool to implement policies at the local and regional levels accounting for the specific local context of application. The flexibility that can be afforded by national and regional agencies fits an environment where the main policy lines and objectives are set at European level, but national and sub-national actors play key programming and performing functions. This will lead to a *proliferation*

*of smaller agencies with limited geographical scope* with the EU helping in their coordination, further developing current instruments like ERA-Nets, Joint Programming Initiatives, and Article 185 initiatives.

We also anticipate the growth in the research arena of Civil Society Organisations (CSOs: foundations, NGOs, learned societies, university associations, etc.). CSOs are gaining influence within the policy processes and becoming an avenue of quasi-democratic representation. They are proposing research directions and starting to contribute to the programming and even performance of research. *CSOs will become a central set of actors* to add to government institutions and private sector firms. Yet, our scenarios caution us that the functions they will perform are not predetermined and can evolve into different directions. Private philanthropic organisations can cover some of the gaps left by the reduction in public sector interventions (scenario 1), can form part of a broader collection of public and private bodies performing research (scenario 2) or can complement the research programming and performing roles of the public sector (scenario 4). CSOs are going to be engaged in more direct and operational ways than merely being the interlocutors in a diffuse “dialogue with society” and this will require changes in policy practice.

#### 5. Challenge your assumptions

The VERA analysis reveals that the landscape of actors and institutions of European research and innovation will change in the coming decade, and quite likely it will become more complex. Policymakers today need to *anticipate such changes* and to reflect about the assumptions underlying present-day research and innovation policies (ERA and otherwise). Dimensions, concepts and approaches currently taken for granted can rapidly become irrelevant.

#### Reference

Popper, R./ Edler, J./ Velasco, G./ Amanatidou, E. (2015): ERA Open Advice for the Evolving Dimensions of the European Research and Innovation Landscape. Policy Brief of the Forward Visions on the European Research Area (VERA) project. Manchester.

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