



JRC

Implementation

Review

2017

In the context of the interim evaluation
of the Horizon 2020 Programme

July 2017

If you would like to learn more about the activities of the JRC, please contact:

European Commission
Joint Research Centre (JRC)
Adviser for Evaluation and Scientific Integrity
B-1049 Brussels
Belgium

Tel: +32 2 29 60191

Website: <https://ec.europa.eu/jrc>

Email: <https://ec.europa.eu/jrc/en/contact/form>

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The Evaluation Panel

Chair: Patrick Cunningham

Former Chief Scientific Adviser to the Irish Government,
Professor of Animal Genetics at Trinity College,
University of Dublin, Ireland

Ralph Eichler

Former President, ETH-Zürich,
Switzerland

Marja Makarow

Director of Biocenter Finland
Chair of Technology Academy Finland

Diana Ürge-Vorsatz

Director of the Centre for Climate Change and
Sustainable Energy Policy,
Professor at Central European University (CEU),
Budapest, Hungary

Enric Banda

Senior Advisor at the Barcelona Supercomputing Center,
Spain

Krzysztof Jan Kurzydłowski

Former Director of the National Centre for Research and
Development,
Professor at Warsaw University of Technology, Poland

Lena Tsipouri

Professor of Economics at University of Athens,
Greece

Chairman's introduction

Early in 2017, the JRC informed us that they wished to conduct a review of its implementation of the recommendations made in our ex-post FP7 evaluation report of 2015. Furthermore, they wished to use the same team of external experts. Like my colleagues, I was both surprised and pleased and we all responded positively to the call.

This time, the task has been split, with a separate evaluation of the nuclear activities of the JRC. The present report covers all other activities, which amount to approximately 70 % of the JRC's budget and staff.

We are now half way through the EU's Horizon 2020 programme, which is investing almost EUR 80 billion of public funds in scientific research over seven years. As we pointed out in our previous evaluation, almost all of this investment is deployed in Member States through competitive programmes. Less than 2.5 % is used to fund research in the EU's own science-for-policy institution, the JRC.

In the 60 years since its establishment, the JRC has seen three periods of significant change. In *the 1970s*, its mandate was extended to cover non-nuclear work. In *the 1980s* its activities became part of the Framework Programme for Research and late in *the 1990s*, the EU Council endorsed the JRC's broad policy support mission.

I believe that the changes recorded in the present report will also mark a transformative period in the history of the JRC.

I think it is fair to say that we were surprised at the extent and pace of change that we have observed in the two years since our ex-post FP7 evaluation report. Through all of these changes, the scale and quality of the science output, as independently monitored in the world literature, has been maintained. Our report emphasises again how critical this is for the effectiveness of the JRC.

I have been particularly impressed by two important initiatives. The first is the greater clarity and focus around the central mission of the JRC: science for policy. The mandate of the JRC has never been clearer, or more important. It lies at the heart of EU policy formation and execution. The second is the parallel opening of the JRC to greater engagement with the rich spectrum of competence in science that exists in Europe's universities and institutes through the new Centre for Advanced Studies and the Cooperative Doctoral Programme.

I would like to thank our panel members for their commitment to our task, Dr Pieter van Nes for his constant support, and Dr Vladimír Šucha and his colleagues for their excellent preparatory work.

Patrick Cunningham

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Introduction

This report presents an external assessment of the follow-up that the JRC has given to the ex-post evaluation¹ of its direct actions under the Seventh Framework Programme (FP7) conducted in 2015. We carried out the assessment around halfway through the Horizon 2020 programme² as part of the overall interim evaluation process of that programme. As requested in the terms of reference for the evaluation (see Annex), this report particularly addresses the new JRC 2030 Strategy³, and the subsequent adaptation of the organisational structure in the summer of 2016.

Our experience from the previous evaluation made it possible to complete the assessment in a relatively short time. In our method of work we used audio conferences and studied the JRC's detailed written information on the implemented changes.

To go through the current programme and the various changes we asked for a two-day hearing with the management of the JRC, which took place on 30 and 31 May 2017 in Ispra. Following the presentations and discussions there, we were remarkably unanimous in formulating our findings and conclusions during the final meeting on 27 June 2017 in Brussels, which we also used to clarify a few remaining questions with the Director General of the JRC.

The following three chapters reflect our review as follows. Chapter 2 describes what we observed as the actions taken in light of our 2015 ex-post evaluation report. It addresses key questions concerning the extent to which the JRC has implemented the recommendations of that evaluation; to what extent the JRC took account of further suggestions for improvement that were included in our report; and to what extent the performance today is different from what we observed at the end of FP7.

Chapter 3 summarises our critical observations, trying to see whether the change produced means rejuvenation in the organisation; how much substance it has and where we may see things that could be further improved. It responds to the questions to what extent the JRC's activities are of continued relevance and in line with the stated objectives in the Horizon 2020 programme, and to what extent we see unintended effects in the organisation.

Chapter 4 draws conclusions with a look to the future and we present three key recommendations to enhance the strategic orientation of the JRC in the second half of the Horizon 2020 programme.

¹ [Ex-post Evaluation of the direct actions of the Joint Research Centre under the Seventh Framework Programmes 2007-2013](#)

² [Horizon 2020: the EU Framework Programme for Research and Innovation](#)

³ The European Commission's science and knowledge service: [JRC Strategy 2030](#)

2

Follow-up given to the ex-post evaluation - What has changed

Since the presentation of our final report of the ex-post FP7 evaluation, the JRC has undertaken far-reaching reforms in the spirit of our suggestions. We are impressed by the rapid and tightly implemented transformation of the JRC from a 'research-and-services' identity towards a more 'science-and-knowledge-service' identity.

At the top-level, the implementation of the recommendations has created a new look with accelerated programme renewal, characterised by:

- Increased focus on linking research to explicit EU policy goals;
- An increasing anticipation culture with focus on emerging and urgent policy areas like security, social change, sustainability and competitiveness;
- Breaking silos, multidisciplinary, social science, humanities involvement;
- Institutionalised attention to exploratory, anticipatory and foresight research, attention to megatrends and setting up the 'policy lab';
- A rapid and thorough restructuring carried through without disruption.

The 'Strategy and Implementation progress reports' that we received testify that the JRC has embraced the challenge of modernisation, while it is monitoring the implementation process closely.

The ambition to function as a strategic partner at the core of the European Commission is clearly visible in a rejuvenated JRC. We will underpin this finding with a series of observations in the

following sections, listing the more striking innovations that we noticed during the assessment and in which we recognise the spirit of our recommendations.

2.1 The JRC 2030 Strategy

The JRC 2030 Strategy is the leading innovation identified in this review. Adopted within one year after the publication of our recommendations, it probably represents the biggest change for the JRC since the Fifth Framework Programme introduced its explicit policy-support mission in 1998.

We commend the JRC 2030 Strategy, developed with extensive involvement of the Commission, JRC staff and the Board of Governors. It entails a series of important improvements in the organisation and brands the JRC as the European Commission's Science and Knowledge Service, which gives a clear idea of the main purpose and occupation of the organisation.

A new mission and vision: The strategy introduces a new mission ('to support EU policies with independent evidence throughout the whole policy cycle') and a new vision ('to play a central role in creating, managing and making sense of collective scientific knowledge for better EU policies'). Integrity is the central value and by making its scientific integrity statement an integral part of its strategy, the JRC also institutionalised scientific integrity of the work of its staff. Moreover, the 2030 Strategy itself pledges 'corporate integrity' for the tasks that it accepts. All this fully matches our recommendations in the ex-post FP7 evaluation.

Knowledge and Competence Centres: The Juncker Commission is strongly attached to teamwork, overcoming silo mentalities and harnessing synergies between portfolios. It makes the strategic use of data, information and knowledge an essential part of its way of working and presented a formal Commission-wide initiative⁴ on this. The responsibility for knowledge management in the Commission is now shared among all the departments that play a role in knowledge accumulation, creation, sharing and use. The JRC, with its initiative to set up specific Knowledge Centres and Competence Centres for issues that fall under the policy priorities of the Commission, responded actively to this Commission-wide approach to data, information and knowledge.

Knowledge Centres bring together experts and knowledge from different locations inside and outside the European Commission with the purpose to provide access to all the relevant data, knowledge and intelligence in a specific policy field.

Competence Centres focus on the provision and application of specific scientific methods and analytical tools for policy-making, in direct contact with the policy departments to use the tools for the policy problems in hand. They are a useful construction to make top-class expertise of the JRC visible to the other parts of the Commission and outside.

The JRC is currently running four Knowledge Centres on: Disaster Risk Management, Bioeconomy, Territorial Policy, Migration and Demography, while two more are expecting approval soon, i.e. on Global Food-and-Nutrition Security, and on Water and Agriculture. It is running three JRC Competence Centres on: Composite indicators and

scoreboards, Microeconomic evaluation, and Text mining and analysis. A further one on Modelling has the status 'approved'.

The creation of these new structures is a rational reorientation to the clearer service-to-policy role of the JRC. We asked for, and received, assurance that they do not represent an additional layer of structural and administrative burden.

2.2 The structure of the JRC

The second most striking innovation identified in this review is the complete restructuring of the JRC organisation with the associated measures for management and HR policy.

In July 2016, the JRC was completely restructured into four functional entities: 'Strategy and coordination', 'Knowledge production', 'Knowledge management', and 'Resources', as shown in Figure 1. The reorganisation envisaged:

- reorientation of the JRC towards a broader role of knowledge production and knowledge management;
- creation of knowledge-production directorates with streamlined portfolios by re-allocating research teams and units out of the former JRC Institutes; and
- enhancing the efficiency of its support services.

As a result, instead of the former institute structure based on geographical location, we are pleased to see a reoriented structure with six thematically driven knowledge-production directorates.

In addition to this restructuring, the JRC has implemented various mobility measures, including new Commission rules on mobility of Heads of Unit, with the result that every director and the majority of the JRC middle management staff, i.e. 67 Heads of Unit, are in new positions compared to 2015. In addition, and more generally, the JRC has followed our recommendations for improvement in its HR policy:

⁴ COMMUNICATION TO THE COMMISSION Data, Information and Knowledge Management at the European Commission, C(2016) 6626 final and the accompanying COMMISSION STAFF WORKING DOCUMENT SWD(2016) 333 final with the rolling plan 2016-2017

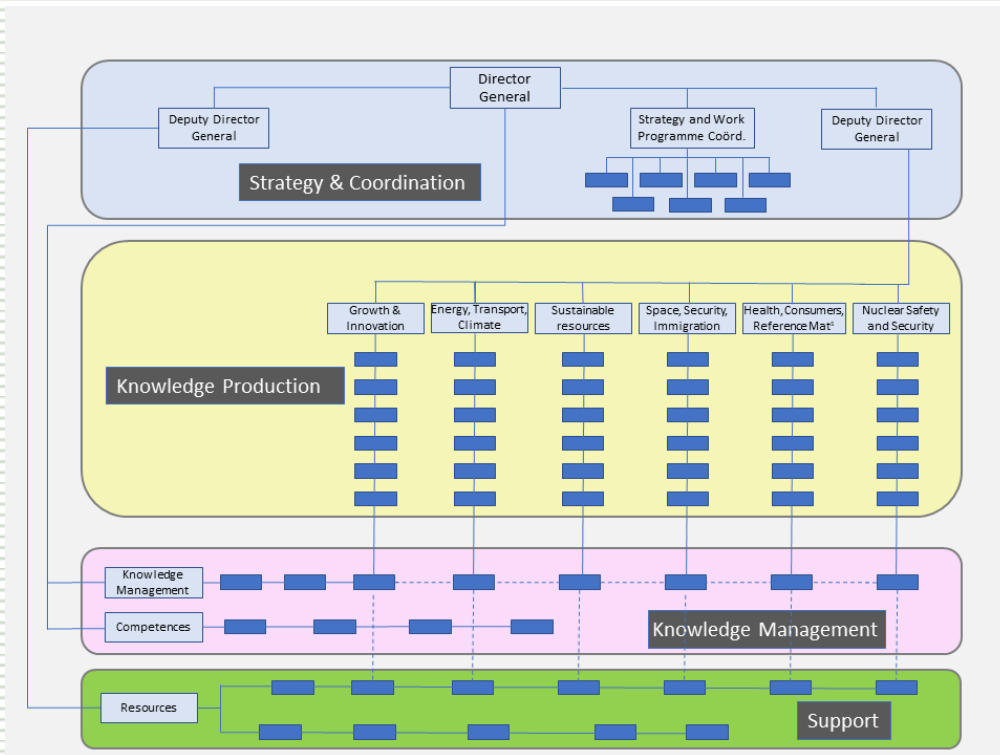


Figure 1. New organisational chart of the JRC (schematic)

Gender balance: The JRC has proven its commitment to improving the gender balance in science and in the European Commission as shown in the following figures that apply for the JRC in 2017:

- More than 39 % of all staff members are women compared to 37 % in 2013;
- Particularly commendable is the 38 % share of women in senior management, a significant increase compared to 18 % in 2013;
- The 33 % women with a permanent position in the Commission's 'administrator' grades (that include scientific staff) means a marginal increase on the 32 % in 2013;
- 18 % of the middle-management positions are occupied by women today, compared to 20 % in 2013; the difference is one middle manager, and the result can be interpreted in light of the comparatively rapid rise in the number of women in senior management;
- Women belonging to the next generation of scientists represent 45 % of the participants in the JRC Young Scientists initiative.

EU-13 staff: The number of staff from EU-13 countries has increased steadily over the last ten years. While in 2007 about 7 % of total staff members were nationals of one of the EU-13 countries, today this percentage had increased to 12 % (9 % of the permanent staff and 16 % of the temporary staff).

2.3 New initiatives for 'Science development'

The JRC has taken a number of initiatives to promote transdisciplinary thinking and scientific excellence.

- **Centre for Advanced Studies:** A new instrument designed to enhance the sharpness of JRC's science by well-chosen linkages to outside institutions.
- **Exploratory Research programme:** Designed as a 'bottom up process' to engage in exploratory thinking, which may challenge accepted paradigms, with a target of 5 % of the JRC's projects.

- **Collaborative Doctoral Partnership programme:** A new initiative to promote partnership with Europe's best universities and research institutions. The Collaborative Doctoral Partnership programme is part of this. PhD students will be invited to spend 1-3 years in the JRC. We commend the proposed criteria for supervision of the students.
- **Open Access and Joint Laboratories:** In a new approach across all sites there is now open access to the JRC research infrastructures with nuclear and non-nuclear facilities in a relevance-driven or market-driven mode.

We welcome these measures, which picked up the spirit of our recommendations and hold great potential for the mission of the JRC, and for the benefit of EU science and policies. We commend the JRC's intention to evaluate the effectiveness of each of these instruments, after the start-up period and we look forward to the evaluation results. However, the JRC should allow a flexible lapse period, rather than the proposed one year; some of these instruments need a year just to get started.

2.4 More follow-up observed

Continued good scientific performance: As noted in our previous report, the 'scientific excellence' of the JRC is documented annually in the bibliometric data for the world's leading science institutions. The extent to which its work is cited provides an independent external measure of the quality of the JRC's science. Between 2007 and 2016 the JRC achieved⁵ double the world average in the number of publications in the

top 10 %. The JRC's share of top 1 % highly cited publications per field is more than three times the world average in recent years. The JRC can be complimented on maintaining this good record in producing scientific results that are highly ranked for their science as well as being relevant to policy.

Improved web presence and activities related to social media: The JRC has made significant improvements in its web presence, presentation and web-based services, as well as activities related to social media, with much more visibility and clearer display. In 2016, it published 200 - 400 articles in the mainstream media with an increasing number of downloads, now at around 28 000 per year. With 7 million views and 2.5 million unique visits per year the EU Science Hub gives the JRC a noticeable web presence.

Sectoral evaluations: In our 2015 report we recommended more sectoral evaluations. In the short period since then, the JRC has carried out three dedicated assessments: an evaluation of its activities related to reference materials, a mandatory evaluation of its nuclear activities and an evaluation of its relations with industry, which is currently being finalised by a group of top-level industrialists.

Clear terminology: We noted and welcome the following improved terminology:

- Actions are now called → Projects
- Competitive activities are now called → Work under contract
- Customers are now called → Partners

⁵ The research performance of the European Commission's Science and Knowledge Service, Joint Research Centre (2007-2015) - [A bibliometric analysis](#), ISBN: 978-92-79-69557-5, ISSN: 1831-9424, Other Identifiers: EUR 28647 EN

3

A critical look at the deep changes

The speed of the changes and the enthusiasm of the leadership may suggest that the JRC is now fully transformed into the European Commission's Science and Knowledge service. While we welcome the broad, thorough and fast developments in the JRC, it is not realistic to count on a completed transformation within a year. Therefore, we use this opportunity to take a step back and to look at what has been achieved so far, to better see the uncertainties in the new setting and to highlight points that need further attention.

This chapter therefore summarises the issues where we believe the JRC should stay alert, based on our critical considerations of what has been achieved. This includes the forward look to help in identifying potential bottlenecks in the process of becoming an increasingly efficient Science and Knowledge Service to the Commission.

3.1 General comments

The well-prepared and often enthusiastic presentations during the hearings were highly appreciated, and we learned much from the very open discussions. However, looking at the consistency between the different levels, the prevailing impression is that there is a strong gradient in the assimilation of the new organisation and the familiarity with the strategy across the JRC. We know that such transformations are challenging, demanding and take time to settle down. Therefore, we see no strong reason for concern at this relatively early point in the development of a new balance. We recognise that rapid change on this scale brings great and varying challenges for all staff. It can take quite a long time to achieve cultural change, even when there are measures in place to facilitate this.

Not all directorates have adapted equally quickly and enthusiastically. Some seem to be less prepared than others to pick up the new challenges: to integrate external and internal knowledge or to find a new balance between analytical activities and the simpler mapping or collecting of data. We sometimes noted a tendency to go for the latter, but this may not always be in the best interest of the JRC. Continuous efforts are needed in managing the change.

The traditional research-intensive core scientific fields need to receive particular attention regarding their (strategic) integration between the new Knowledge Centres and Competence Centres and their existing skills and expertise.

Finally, the implementation of the strategy is being monitored using a set of indicators, and the Board of Governors closely follows the implementation through a dedicated ad-hoc group. It was reported that 80 % of the actions for strategy implementation are completed at this point, and are expected to be 100 % in 2018. However, this is a major exercise, involving people, corporate culture, sentiments and behaviour, like acceptance, rejection, and assimilation of ideas. We therefore recommend more attention for these aspects in monitoring and reporting on the strategy implementation, e.g. by surveying the buy-in of staff in the mission, vision and values of the JRC.

3.2 Specific observations

The many structures of the JRC: The JRC presents itself in many different structures to the outside world and we have the impression that there are more today than in the past. That there is some confusion around these structures is undoubtedly an unintended effect of the new strategy and the reorganisation.

We note a new structure of 10 nexus for the JRC in its 2030 Strategy. There is a further list of the 10 Commission priorities, which group the 26 or more 'key orientations' of the work programme, the 130 projects, and 600 work packages. The organisational chart distributes its knowledge-production work over six thematic directorates (cf. Figure 1).

Many of these units gather expertise and staff from diverse management entities for particular tasks or programme objectives. This gives the JRC the flexibility to respond to the evolving demands of the Commission's policy departments. Figures that we have seen show considerable shifts in the deployment of staff resources between 2014 and 2017.

Despite this complexity, and the many new elements, there is continuity with the past. The themes of the newly created directorates largely correspond to the five themes plus the 'nuclear' that we have used to structure our ex-post FP7 evaluation. We commend the JRC for having maintained a rather stable thematic structure for more than two framework programmes. From that viewpoint, the JRC is well-structured and rather coherent for an organisation of its size.

Knowledge Centres and Competence Centres:

During the hearings, staff responded with insufficient clarity about the role of the centres, the criteria for their creation or closing, or the strategy behind them. Since the Knowledge Centres are top-down driven by the Commission's Data, Information and Knowledge Management policy, the risk of unrestrained proliferation seems to be under control here. Because they are likely to be set up by regrouping existing staff and resources, little additional cost may be involved. However, care is needed to ensure that well-justified task groups do not outlive their usefulness. Regarding the competence centres we would prefer reference to them more accurately as a 'JRC-competence Centre'.

Centre of Advanced Studies: While we believe in initiatives that can enable the JRC to engage with the best of the external world of science in a planned and structured way, it is too early to pass any judgement on the Centre of Advanced Studies. It would be good to establish upfront criteria to measure success. How many excellent external scientists will be ready to spend their sabbatical of

the order 3 - 6 months at a JRC site? What will be the benefits for them? The conditions explained have a good chance of success and we see that the Centre of Advanced Studies can have an important impact in strengthening and maintaining the JRC's presence at the frontiers of science.

Exploratory research: In 2015 the target for the subdivision between research projects respectively for core business, improvement of core business, and exploratory research was a ratio of 70:20:10. The JRC 2030 Strategy aims for a ratio 80:15:5. Moreover, in our briefings the JRC reported an engagement in exploratory research projects of around 3½ % per year in terms of staff allocation, which is lower still and disappointing compared to the 10 % intentions in 2015.

While these numbers and classification are arguable, they might be an early indication that the JRC risks losing its edge on frontier research and they made us particularly mindful of further signals. Unless the JRC maintains its credibility as a world-class scientific institution, its mission as the science-for-policy service of the Commission will be compromised.

Science and Knowledge Service: The emphasis on knowledge service in the brand name of the JRC could be one such further signal of a decreasing importance attached to frontier research. It reflects a strengthening of the demand-driven character of the JRC. The focus on a service to the Commission could be at odds with the ambition to be also a world-class organisation in knowledge generation. While Knowledge Management as a service to the Commission makes good use of the talent in the JRC, it probably does not fully exploit the potential of its many eminent scientists.

A cutting edge science-and-knowledge service should continue to strengthen its own excellence in science and research through staff who are embedded in the frontiers of science and knowledge production. That requires a strong and relevant in-house frontier research programme. In addition, the laudable initiatives for science development in the JRC with the Centre for Advanced Studies and the Doctoral Partnership Programme can provide critical linkage to the best minds and centres of excellence in the wider world of science.

This internal and external strengthening of the JRC's presence at the frontiers of science will in turn help to deliver on its mission, ensuring that EU policies are informed and underpinned by a reliable knowledge base. The JRC must pay particular attention to sustaining its place and reputation as a world class scientific organisation.

Governance: In our discussions, the science-and-services issue (see above) eventually took us back to the governance of the JRC. We believe that monitoring this balance between science and services is a task for the governance of the JRC. Whereas the governance should have been at least subject of some open reflection, as we proposed in 2015, it has been left untouched in the transformation of the JRC.

'A modern JRC in a modern Commission' needs modern governance. The JRC is a service of the Commission. It receives its budget largely from the framework programmes and it has to benchmark its governance, compare it with other parts of the Commission, with other parts of the framework programmes and with peer organisations.

Modern governance in the JRC will effectively help in monitoring and evaluating the implementation of the new strategy in connection with the Member States, with the scientific community and with industry. This is more significant today than in 2015. While we fully endorse the introduction of a scientific advisory panel (see below), this brings a partial solution. In addition, the relationship with the Scientific and Technical Committee of the Euratom research programme and the set of panels, committees and boards makes clear why we believe, as in our ex-post FP7 evaluation, that the governance of the JRC will benefit from an update.

Advisory panel for JRC scientific-technical activities: This newly proposed panel is intended to structure the JRC's links to the wider world of science, ensuring complementarity with research carried out in the Member States. We support the initiative to establish this external Panel of twenty-five experts (in five thematic subgroups). The purpose of the advisory panel according to its terms of reference would be (a) to help guide the further development of the JRC's scientific activities and (b) to complement the general evaluations under the Framework Programme for

Research. To this we would add (c) to ensure that the JRC maintains world-class scientific capabilities, while delivering the highest standards on policy advice. Moreover, the advisory panel should complement - not compete with - the functions of the Governing Board.

In the strategy implementation, this proposal is listed as part of the action for 'breaking silos', which in our view is in the wrong part of the script. The draft terms of reference for the panel do not refer to silos. The panel fits well under the 'redefining scientific excellence' chapter with proposals for performance-evaluation structures.

Beside this positive reaction, we are concerned about the detailed structure of the panel and the selection process for panel members. Availability, preparedness to do a serious job, nominations based on personal merit, balances in diversity, disciplines, affiliation, organisation, nationality, are all delicate issues. In the proposed unlimited three-year renewable appointment we see an institutionalised membership of this panel on the horizon. In our view, staggered two-year periods, renewable once, would make the panel more effective.

Industry: Making contributions to the competitiveness of European industry is a longstanding legitimate goal for the JRC. From our side, we do notice that the JRC has numerous activities for and with industry, but we find few references to these interactions with industry. Each project/activity should explicitly define its relevance or consequence to the industry concerned and describe its mode of interaction with industry. Aware of an ongoing evaluation of the JRC's relation with industry by a group of leading business people, we believe that their judgements will be appropriate to emphasise the right issues, and to help the JRC to develop a structured approach in its relations with European industry and business.

We welcome the fact that the JRC looks at the European Institute for Innovation and Technology (EIT) as a strategic partner and has concluded an MoU to facilitate coordination and cooperation. There are synergies to be captured with this European body, in particular with its Knowledge and Innovation Communities (KICs). The JRC should use these institutional pillars to build bridges towards European business and industry.

This can help in strengthening their innovative and competitive capacity, with mutual interest in the exploitation of the JRC's knowledge-management. We encourage the JRC to seek active cooperation, which goes beyond the conclusion of the MoU. There is scope for effective interactions with concrete exchange of knowledge and information in the many overlapping areas of activity (climate, energy, ICT, health, food, raw materials).

Handover policy: More than before we heard about the 'handover' of activities, like passing tasks on to Eurostat, returning tasks to a policy DG which directs them to Member States, or spinning off activities to the private sector. The JRC would benefit from a more explicit handover policy (a) with criteria for deciding on a handover and (b) a duty on project leaders to justify why the activities should continue to be kept in-house. Certain activities ended up in the JRC because of the enthusiasm of individuals and for specific time-bound reasons. Every new project today should include a projected life-cycle, including an exit strategy.

Impact: We received convincing reports with impact analyses of JRC activities for the 2015 ex-post evaluation. For the present evaluation we received a special report providing analyses of JRC activities and their impact in Horizon 2020, which was an amalgamation of useful achievements, output, outcome and results. With a Centre for Research on Impact Evaluation in its ranks, the JRC can certainly prepare convincing narratives describing the impacts of the broad range of activities, for a better understanding of the importance of the work of the JRC.

Synergy nuclear/non-nuclear research: The information we received on synergy between the nuclear research for Euratom and the policy-orientated work under Horizon 2020 fell short of clear orientations. We share the impression of the Euratom evaluation panel⁶, that the 2030 Strategy is rather brief on the intentions for the Euratom's 30 % share in the JRC budget.

⁶ Interim evaluation of the direct actions under the Euratom research and training programme (2014 - 2018), Final Report May 2017.

Terminology: While we have seen some old terminology abandoned, the many changes bring along new terminology. Since 2014 we noticed a proliferation of 'centres'... and in one of them we even found a centre within a centre⁷. A reduced, more accurate title for the various structures would alleviate concern that these structures have an indefinite lifetime with the risk of outliving their usefulness.

3.3 The Knowledge-Production Directorates

To complete this critical look at the JRC following the major reform in conjunction with the 2030 Strategy, we considered the knowledge-production directorates, excluding the nuclear⁸, which presented their activities during the hearings in Ispra. The idea behind the hearings was to probe the five knowledge-production directorates on the differences compared to our assessment of two years ago.

Comparing the five presentations showed the limits of the tool; it will not allow a homogeneous assessment. The depth and substance in the presentations varied considerably, showing the full spectrum of experiences, from recognition of the new approach, via 'change is in preparation', to areas where little has changed. This is most likely a good reflection of the reality, but the indicators are too weak to label the different areas. Hence some general observations follow.

- The demand-driven component in some directorates appears larger than we consider reasonable (80 %). There should be enough room to allow for applied and exploratory research as well.

⁷ The Centre of Advanced Studies, six Knowledge Centres, four Competence Centres amongst which the centre on Microeconomic Evaluation hosts in itself the Centre for Research on Impact Evaluation.

⁸ We requested some reflections from the nuclear directorate regarding possible synergies between nuclear and non-nuclear activities. The explanation given during the hearings did not open any new viewpoints. Having addressed the nuclear part in our ex-post FP7 evaluation, we feel enough informed about this part of the work to appreciate the findings presented in the thorough Euratom interim evaluation report regarding this and other issues.

- In the 'facts and figures' provided for the review we found significant staff decreases of respectively 40 % and 30 % for the health and food safety area and for the environment area, while none of the presentations reported any significant reduction on that scale.
- The stronger knowledge-management orientation of the JRC de-emphasises the need for laboratory work. Hence, existing and new investments in infrastructure have to be handled with care. Opening the infrastructure to external users as foreseen is a good start, but it is time to start thinking in terms of exit strategies for specific laboratory infrastructure.
- We appreciated a number of positive examples where the JRC is trying to break silos e.g. in connection with the 'circular economy' where strict regulation for handling waste can be an obstacle for the recycling of waste materials.
- We have seen good examples of the JRC combining the collective knowledge of the ESA, FAO, World Bank, industry, academia, UNEP, WFP for policy making, but we believe there is room for more effort on this front. This reinforces our idea that the JRC needs to manage its external scientific relations very actively, using systematic scanning of external knowledge, to absorb, to avoid replication, but also to enhance external collaborations with the additional benefit of cross-fertilisation and synergies.
- Contact with the external world remains crucial to leadership in scientific thinking, and to avoid becoming locked in to the existing models with the unchanging parameters, or to the circle of the JRC and the European Commission. The JRC should be more proactive, e.g. in expressing growth 'beyond GDP', challenging the models in use, and cooperating with the external world. It is important that the JRC stays at the forefront of understanding these issues, in particular since it is itself already so much dependent on the wider world for its knowledge production and management.
- The impression is that the JRC does significantly more data mapping than data analysis, i.e. less 'making sense of data' than promised in the strategy. Data mapping is more a routine job and a science organisation loses focus doing such work. If it is work under contract, then there can be good reasons to hand it over to private providers.

4

Conclusions and recommendations

We have revisited the JRC two years after the major ex-post evaluation of its performance in the Seventh Framework Programme and one year after the JRC adopted a new strategy and underwent a major reorganisation. In this relatively short time the JRC went through the biggest change since the introduction of its policy-support mission in the Fifth Framework Programme in 1998.

We have seen the enthusiasm and the impressive speed with which the JRC has implemented a large number of improvements (described in Chapter 2). These included most of the changes that we proposed. We wish to compliment the organisation and its leadership on their work in the design of the strategy, in gathering the support and adapting the organisational structure for the implementation of the strategy.

We believe that many of the changes have the potential to become transformative for the JRC. We are impressed by the progress that has been made in implementing the strategy, and by the level of support it has received within the JRC and from within the European Commission. Nevertheless, more time has to pass before the result of the deep changes in the JRC can be fully assessed.

In our view, the JRC clearly is on a fast track of change and improvement. Having seen so many parts of the renewed organisation, we have also had a critical look at the change (described in Chapter 3), and recommend the suggestions made there.

Furthermore, we believe that after so many changes the JRC needs a period of consolidation to meet its responsibilities in the new setting.

Rather than proposing further change and improvement, we make **three headline recommendations** aimed at firming up the new arrangements and structures for the JRC to become fully operational as the European Commission's Science and Knowledge Service.

Keep focus on excellence in science

While we welcome the strategy as an important step towards the future of the JRC and a highly effective response to our recommendations, we picked up signals that a true focus on research excellence may be losing out. More emphasis on service and a high demand for support put pressure on the target of 20 % research (15 % improvement and 5 % exploratory). Contacts with the best scientific partners in the EU and indeed the wider world are a good way to ensure excellence. It adds flexibility and skills to the organisation, but also requires a continued emphasis on in-house research.

The JRC will complement its research work by 'managing' knowledge available from other sources. This means, inter alia, collating and analysing it, and communicating it to policy makers, in a systematic and digestible manner, from a source they trust. A better balance between data assembly and data interpretation and research is the objective. Above all there is a need to sustain a scientifically credible core of research outputs to underpin the renewed emphasis on science for policy. Hence, we recommend that the strategy's target figures of 80 % science-based service sustained by 20 % research should remain the firm goal.

Connect the whole organisation to the transformation

The JRC is going through a rapid transformation and needs to have some time now to adapt and consolidate. Deep changes place challenges on all staff. These changes do not always work out equally well for every person, and can lead to varied sentiments and behaviour, like acceptance, rejection, and assimilation of ideas. Hence, we recommend to pay attention to these aspects in the strategy implementation plan. It should for instance include some tools to monitor the buy-in of staff in the mission, vision and values of the JRC, and propose remedial actions to bring out the best in all staff. Human resources management needs to be given a prominent position during this challenging transition.

A modern JRC merits modern governance

We endorse the plan of the JRC to establish a scientific advisory panel, which will complement the existing structures. However, without further adjustments it will create multi-layered governance. Therefore, we believe that there is scope for benchmarking the JRC's governance, comparing it with other parts of the Commission, with other parts of the framework programmes and with peer organisations. Eventually, modern governance in the JRC will effectively help in monitoring and evaluating the implementation of the new strategy in partnership with the Member States, with the scientific community and with industry.

ANNEX

Annex

Terms of reference

Terms of reference for an external assessment of the follow-up given to the JRC's ex-post FP7 evaluation

1. Background

During the year 2017 the Commission is required to carry out an interim evaluation of the Horizon 2020 framework programme for research and innovation (H2020) and of the Euratom programme for research and training, both with the assistance of independent experts.

In accordance with the provisions of the Euratom Regulation the JRC has initiated a dedicated interim evaluation of the direct actions of the Euratom programme with the assistance of independent experts, which is in full progress. The H2020 Regulation has no equivalent provision for a full-scale external evaluation of the JRC's direct actions.

Under the general obligations of the H2020 Regulation the JRC shall feed the relevant indicators and results into the H2020 interim evaluation to account for its achievements under the programme. Over and above this and as part of good evaluation practice, the JRC has decided to include an external assessment of its follow-up to the JRC's ex-post FP7 evaluation, which includes the new JRC 2030 strategy and the adaptation of the organisational structure.

This document describes the terms of reference for this external evaluation and for the evaluation panel.

2. Purpose of evaluation

The purpose of the evaluation is to produce an independent external view on the effectiveness, efficiency, coherence, EU-added value and relevance of the JRC activities by examining the follow-up that the JRC has given to the ex-post

FP7 evaluation of the direct actions by the JRC. The evaluation should also provide a forward look with recommendations for further strengthening of the JRC.

3. Scope

The evaluation addresses the JRC's implementation of its scientific and policy-support activities in the context of its renewed mission carried out under its H2020 responsibilities.

The evaluation may address projects in general but it will not address in detail at project level.

The evaluation may address the JRC's activities under contract against payment where that work affects the institutional operation of the JRC.

4. Evaluation questions

The questions to address in this evaluation are the following:

- To what extent are the activities of the JRC of continued relevance and in line with the stated objectives in the Horizon 2020 programme?
- To what extent has the JRC implemented the improvements proposed in the recommendations of the JRC ex-post FP7 evaluation?
- To what extent did the JRC take account of further suggestions described in the ex-post FP7 evaluation report?
- To what extent is the performance today different from the performance under FP7? This could include the following issues:

- The substance and the programming of the JRC's work.
 - Respectively, the effectiveness, the efficiency, the coherence, the EU-added value and the relevance of the JRC;
 - The visibility and recognition of positive impacts from policy-support deliverables.
- To what extent are there unintended effects in the follow-up?

In addition, there are two questions remaining from the ex-post evaluation, i.e.:

- Identify one or two key options to be explored for further strategic orientation of the JRC in the second half of the decade;
- Give some pointers and options for the future evolution of JRC's work under contract.

5. Evaluation and Panel, method, deliverables and timetable

Since the evaluators in this specific task need to have an excellent capability to make a comparison with the performance under FP7, the Director General of the JRC decided to call upon the "non-nuclear" high-level experts who conducted the ex-post FP7 evaluation under the chairmanship of Professor Patrick Cunningham.

The newly constituted Panel will build its assessment largely on written information provided by the JRC, complemented by its impressions from JRC presentations with some targeted interviews and/or site visits to investigate specific issues. The evaluators should complete their assessment during one or two central meetings (in total 2 or 3 days), which could benefit from a telephone conference for preparatory discussion on the working method. The Panel should deliver its final report around July 2017.

The final report should count not more than 12 pages - excluding annexes - with an analysis of the findings and a set of conclusions and recommendations.

The JRC's Adviser for Evaluation and Scientific Integrity assists the Panel in organising all aspects of the evaluation, makes available a

secretariat to the Panel and assists in the preparation of the final report.

The JRC will make the final report available to its stakeholders and the public. The findings of the report will be included in the JRC's contribution to the Commission's interim evaluation of the Horizon 2020 programme.

6. Available sources

Reference Documents

- [Horizon 2020, the EU Framework Programme for Research and Innovation](#)
- [Ex-post FP7 evaluation of the direct actions of the Joint Research Centre](#)
- [The European Commission's science and knowledge service: JRC Strategy 2030](#)
- Official reports and reports on progress (e.g. Annual report, Annual Activity Reports)

Specific evaluation data from the JRC

- An account of the follow-up given to the recommendations of the ex-post FP7 evaluation panel.
- JRC Interim evaluation of the direct actions of the Joint Research Centre under the Euratom Programme for Research and Training (report 2017)
- [Evaluation of the JRC's activities related to Reference Materials, Final report, August 2016](#)
- The research performance of the European Commission's Science and Knowledge Service, Joint Research Centre (2007-2015) - [A bibliometric analysis](#), EUR 28647 EN
- Auto evaluation achievements 2014 - 2016 (JRC self-assessment/excellence report) with:
 - Statistical information on the research activities
 - Factual information (e.g. staff tables, budget implementation) provided by the JRC
 - Excerpts of projects' output and impact during the reporting period
 - Publication data from the JRC corporate publication repository (PUBSY)

7. Standards

The Commission's evaluation standards aim to ensure relevant and timely evaluations of high quality and that their evaluation results are communicated to decision-makers and other relevant stakeholders in a clear and transparent manner to facilitate the use of evaluation results. These standards are an integral part of the Commission's Internal Control Standard n°14 on evaluation, which means that they are binding and that the way they are implemented may be audited on this basis. The process and requirements for evaluation are elaborated in the Commission's financial regulations and associated rules of application. In Chapter 7 (Principle of Sound Financial Management) of the Commission's Financial Regulations, Article 30.4 states that '*... evaluations shall be applied to all programmes and activities which entail significant spending and evaluation results shall be disseminated to the European Parliament, the*

Council and spending administrative authorities'. Details on the arrangements and scope of evaluations are provided in Article 18 of the Rules of Application.

8. Administrative and financial aspects

The JRC will reimburse travel costs according to the standard rules applied by the Commission. The total budget for the members of the panel (expert fees) and the costs of travel and daily/accommodation allowance are provided in the JRC's institutional budget for 2017. Members of the panel can be offered an expert contract in accordance with the Commission's arrangements for very high-level evaluation experts. The contract will provide the payment of fees for a maximum number of 12 days for the chairperson and 8 days for the other panel members. The preparation of the contract will require the registration of the experts concerned in the Commission's relevant expert database.

JRC Implementation Review 2017 in the context of the interim evaluation of the Horizon 2020 Programme

Abstract

This report presents an external assessment of the follow-up that the JRC has given to the ex-post evaluation of its direct actions under the Seventh Framework Programme (FP7) conducted in 2015. The report addresses the new JRC 2030 strategy and the adaptation of the organisational structure in July 2016.

The evaluation panel compliments the organisation and its leadership on the work in the design of the strategy, in gathering the support and adapting the organisational structure for the implementation of the strategy. In relatively short time the JRC went through the biggest change since the introduction of its policy-support mission in the Fifth Framework Programme in 1998.

The panel notes the enthusiasm and the impressive speed with which the JRC has implemented a large number of improvements (Chapter 2). Having seen so many parts of the renewed organisation, the panel also had a critical look at the change (Chapter 3), and gives three general recommendations for further development of the JRC (Chapter 4).

- Keep focus on excellence in science
- Connect the whole organisation to the transformation
- A modern JRC merits modern governance

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Contact information

Address: JRC.ADV02, B-1049 Brussels
Email: pieter-van-nes@ec.europa.eu

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JRC Mission

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