

ERAC 1212/19

NOTE

From: ERAC Secretariat
To: ERAC delegations

Subject: Draft Report on Monitoring ERA PRIORITIES WITH ERA ROADMAP
National Action Plans

Delegations will find attached to this Note the draft report on Monitoring ERA PRIORITIES WITH ERA ROADMAP National Action Plans with a view to its adoption under item 4.2 of the agenda of the ERAC plenary on 2 October.

**FINAL REPORT ON MONITORING ERA PRIORITIES WITH
ERA ROADMAP NATIONAL ACTION PLANS**

Version: ERAC Plenary, 2 October 2019

CONTENTS

Introduction.....	3
Mandate.....	5
Process and coverage	6
Process	6
Coverage.....	8
Analysis of quantitative information.....	9
Degree of execution and assessment	9
Analysis by typology	10
Conclusions regarding the era priorities	13
Priority 1. Effective national research systems	13
Priority 2a. Jointly addressing grand challenges	14
Priority 2b. Research infrastructures	14
Priority 3. Open labor market for researchers	15
Priority 4. Gender equality and mainstreaming in research	16
Priority 5. Optimal circulation, access to and transfer of scientific knowledge	17
Priority 6. International Cooperation.....	17
Final recommendations: Some lessons learned	18

INTRODUCTION

ERA as defined in the Lisbon Treaty and European Council Conclusions is: *a unified research area open to the world based on the Internal Market, in which researchers, scientific knowledge and technology circulate freely and through which the Union and its Member States strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address grand challenges*. In order to reinforce the partnership of ERA and to achieve its objectives, the **ERA Roadmap 2015-2020** was elaborated in 2015. It is important to underline that the Roadmap (like the ERA itself) covers both research and innovation.

The purpose of the Roadmap is to identify a **limited number of key priorities** which are likely to have the biggest impact on Europe's science, research and innovation systems if all the members of the ERA Partnership get them right. Nevertheless, the ERA Roadmap was drawn up in **full recognition that national research and innovation systems across Europe** have different characteristics and that this variety is an asset which Europe needs to exploit to the full.

The Roadmap also proposed a number of specific key actions which might be taken to implement these priorities, whilst acknowledging that these do not necessarily represent priority actions for all Member States.

Member States obviously have full autonomy in **identifying the approaches most suited to the structures and dynamics** of their national research and innovation systems when it comes to executing these actions (or other relevant priority actions at national level). The overall objective nevertheless is to implement **ERA through these initiatives**.

Almost all countries have developed **ERA Roadmap National Strategies and Action Plans (NAPs)**, which are important instruments to implement ERA, as recognized by the Council Conclusions. They are comprised of a set of measures, actions and initiatives which include the top action priorities of the ERA Roadmap, but also other actions that are country and context specific.

It should be noted that progress of ERA, the **ERA Roadmap and the top key actions are monitored by the European Commission** and reported every two years in the ERA Progress Report. The report shows the progress of ERA, measured by specific set of 24 indicators –that include eight headline indicators- called the **ERA Monitoring Mechanism** as defined by ERAC. These indicators were agreed to be used to measure the top actions of each priority of the Roadmap (indicators for input, outcome and impact). The headline indicators were also endorsed by the Council.

The progress of the implementation of the ERA priorities through **the ERA Roadmap National Strategies and Action Plans (NAPs)** is responsibility of ERAC and the ERA related groups, as follows:

- **Priority 1:** More effective national research systems (ERAC). Top action priority: Strengthening the evaluation of research and innovation policies and seeking complementarities between, and rationalization of, instruments at EU and national levels.
- **Priority 2a:** Jointly addressing grand challenges (GPC). Top action priority: Improving alignment within and across the Joint Programming Process and the resulting initiatives (e.g. Joint Programming Initiatives (JPIs)) and speeding up their implementation.
- **Priority 2b:** Making optimal use of Research infrastructures (ESFRI). Top action priority: Making optimal use of public investments in RIs by setting national priorities compatible with the ESFRI priorities and criteria taking full account of long term sustainability.
- **Priority 3:** An open labor market for researchers (SWG HRM). Top action priority: Using open, transparent and merit based recruitment practices with regard to research positions.
- **Priority 4:** Gender equality and gender mainstreaming in research (SWG GRI). Top action priority: Translating national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrating the gender dimension better into R&D policies, programs and projects.

- **Priority 5:** Optimal circulation, access to and transfer of scientific knowledge (SWG OSI).
Top action priority: Fully implementing knowledge transfer policies at national level in order to maximize the dissemination, uptake and exploitation of scientific results. Research Public Organizations and Research Funding Organizations should make knowledge transfer second nature by integrating it in their everyday work.
- **Priority 6:** International cooperation (SFIC). Top action priority: Develop and implement appropriate joint strategic approaches and actions for international Science, Technology and Innovation cooperation on the basis of Member States' national priorities.

It has been noted by ERAC Recommendations in the recent ERA Action Plan that monitoring the ERA priorities requires a coherent and lean monitoring tool so that it could accommodate the different national roadmaps. It recommended that it be simple, to accommodate the different national systems and situations with minimal administrative burden.

This exercise has served to monitor the **progress of ERA and its priorities based on the ERA Roadmap National Strategies and Action Plans (NAPs)**. It has been a collective work responsibility of all ERA related groups which have made the efforts to collect the information, analyze and report the progress.

MANDATE

The ERAC Work Program 2018-2019, as adopted by ERAC at the plenary on 5 December 2017, established that the ERAC would continue to work on its 'regular' strands, in particular the follow-up and monitoring of the implementation of the ERA NAPs, to achieve the objective of implementation by 2020, as set out in the ERA Roadmap and the NAPs. Then, the ERAC agreed at the 40th ERAC plenary meeting on 6 December 2018 in Brussels that:

- All ERA-related groups would report on the progress of their respective ERA priority by the end of March 2019. They would use (at least) an adapted the High Level Group on Joint Programming (GPC) monitoring tool for this purpose.
- Individual countries may opt out from participating in the exercise.

- ERAC itself would take stock of the progress for Priority 1 by June 2019. For this work a Rapporteur was designated.
- The results of the monitoring exercise would feed into the reflections on future ERA priorities and would also be taken into account in the elaboration of the ERAC Annual Report.

Following, the ERAC Steering Board agreed on 7 May 2019 that the Rapporteur would provide guidance on the ERA-related groups for harmonized presentation of each priority, collect final input of ERA-related groups before end of May, make an oral report at the ERAC plenary on 6 June 2019 and finally present a written report at the Steering Board meeting on 2 July 2019 which would contain facts and figures but also main qualitative key messages.

PROCESS AND COVERAGE

Process

Since a common work plan for all priorities was not previously defined, **the scope and depth of the monitoring process differs across priorities**: different timelines, number of updates, number of reminders in each round of collection of data and extent of the analysis (e.g. the Standing Working Group on Gender in Research and Innovation (SWG GRI) identified examples of good practice and provided factsheets about these good practices).

The monitoring tool developed by the task force of the GPC served as the model for monitoring the rest of the priorities. In some priorities the monitoring tool developed by the task force of the GPC (Figure 1) was adapted to fit to each priority needs:

- Priorities 1, 2b and 3 used a simplified version of the model that only gives three options to assess the progress of each action: Finished, ongoing and cancelled. However, their template includes a question on whether the action has been assessed (Figure 2).
- SWG GRI members have cooperated with the GENDERACTION Project and answered a detailed questionnaire survey on NAPs implementation. Later, they used an adapted GPC tool to collect updated data on NAPs implementation.

Figure 1. Template for priorities 2a, 5 and 6 (GPC Model)

1. Excel spreadsheet is prepared for 23 MSs and ACs that have described actions in their NAPs and strategies
 2. GPC delegates should assess the **progress of each action** with the following questions:

(1) Has any activity for this action, item... taken place?	YES				NO			
(2) Was the activity delayed?	YES		NO		YES		NO	
(3) Is the activity stopped?	YES	NO	YES	NO	YES	NO	YES	NO
	TERMINATED	ON-GOING WITH DELAY	FINISHED	ON TRACK	CANCELLED	POSTPONED TILL	CANCELLED	SCHEDULED FOR

3. Depending on the questions and answers delegates are guided to the final answer (one among 8 in row "9").
 4. They move to the "PROGRESS" sheet and from drop-down menu in column "E" mark the answer gained from question/answer matrix:

Figure 2. Template for priorities 1, 2b and 3 (GPC Model simplified)

INSTRUCTIONS FOR FILLING IN THE TEMPLATE

1. Spreadsheet is prepared for Member States that have described actions in their National Action Plans.
 2. Below the prefilled actions, Delegates can include **new measures** that have been introduced at a later stage.
 3. In column "C" Delegates should assess the **progress of each action** with the following questions:

(1) Has any activity taken place for this action?	YES		NO
(2) Is the action accomplished (stopped)?	YES	NO	
	FINISHED	ON-GOING	CANCELLED

4. In column "D", Delegates should answer the question on whether **the action has been evaluated or assessed** (Yes/No/Leave empty if not applicable).
 -If "Yes", a short description of the outcome must be given: positive/mixed/negative
 5. Additional **comments** may be written in column "E". For instance:
 - If the action has been **cancelled**, an explanation would be useful.
 - If the action has been **modified**, a concise comment would be useful.
 - If the action has been **delayed**, a concise comment would be useful.
 - Underline if **the action can be strongly recommended** to other countries in order to increase the effectiveness of their national research systems.

In conclusion, although a harmonized format was used to report on each priority, the results are not fully comparable across priorities due to their different procedures (e.g. coverage is higher with more reminders; data is richer with a more complex tool) and also due to the fact that respondents were not the same for the different priorities and their understanding of the terms and notions used may have varied, in particular in regard to the notion of “action”. **However, the relevance of this exercise lies in the fact that all priorities have reported status and situation, as well as degree of progress.**

Coverage

Table 1 shows that the rate of response varies among priorities. The possible reasons for non-response may be either opting out from providing a contribution to this exercise –as this was a voluntary exercise- or the non-existence of a NAP for that particular priority. However, timing could also explain response rate since better coverage is shown in those priorities where there were several rounds of collection of data.

For Member States, the rate of response is above or equal to the 50% in all priorities. Priority 4 has the highest rate of response (86%) whereas Priority 5 has the lowest (46%). In the aggregate, the rate of positive responses over the total of possible responses for Member States is 67%. Although Associated Countries are integral participants to the ERAC, the percentage is only calculated on the basis of the Member States since the participation of associate countries in priorities differs and thus assures comparability.

Taking into consideration that this was not a country specific exercise (which perhaps was not clearly understood) and also the short time period for the exercise, the coverage is logically moderate but it is still feasible to tentatively report on status and situation, as well as an indication for the degree of progress for each of the priorities.

Table 1. Coverage of the monitoring exercise

Number of countries which reported progress	P1 ERAC	P2a GPC	P2b ESFRI	P3 HRM	P4 GRI	P5 OSI	P6 SFIC	TOTAL
Member States (% of 28)	22 (79%)	22 (79%)	22 (79%)	14 (50%)	24 (86%)	13 (46%)	15 (54%)	67%
Other ERAC Members	2	3	3	2	3	2	-	
TOTAL	24	25	25	16	27	15	15	

ANALYSIS OF QUANTITATIVE INFORMATION

Data on the current status of the measures can be exploited to know their degree of execution. In some priorities there are also data on the assessment of the actions that give a hint on the viability to monitor their results. Moreover, in some priorities, measures are classified by typologies and additional information on execution is provided.

Degree of execution and assessment

Table 2 shows the current status of the measures on March 2019. In general, the ratio of finished actions is below 30% and the ratio of on-going actions is around 70%. Cancelled actions do not account for more than 10% of the total number of actions in any priority. More precise information regarding what type of measures are being covered in the on-going category is needed. These measures might be "never-ending" as well as "still in the process of realization".

The number of actions for each priority also varies, with a strong majority of action in Priority 1. Priority 5 includes 128 actions, although 15 are "new" actions not included in the original NAPs since the monitoring process included the possibility to report on updated/new actions.

Looking at the specific priorities, **priorities 5, 3 and 1 have, in that order, the highest ratio of finished actions –just above or below 30%–, while Priority 4 have the lowest ratio, just 9%. In Priority 1 the rate of finished measures is 29% and most actions are on-going 70%.**

Table 2. Current status of measures by priority

	# Actions	ON-GOING			TOTAL	POSTPONED	CANCELLED	UNKNOWN	TOTAL
		FINISHED	ON TRACK	WITH DELAY					
P1 ERAC	215	29%	-	-	70%	-	0%	0%	100%
P2a GPC	97	17%	69%	2%	70%	7%	6%		100%
P2b ESFRI	132	20%	-	-	70%	-	3%	7%	100%
P3 HRM	125	30%	-	-	69%	-	2%		100%
P4 GRI	176	9%	-	-	88%	3%			100%
P5 OSI	128	33%	47%	13%	61%	4%	2%		100%
P6 SFIC	70	16%	-	-	77%	7%			100%

In priorities 1, 2b and 3, the reporting process asked for the assessment (or evaluation) of the actions. The ratio of assessed actions is 12%, 34% and 28%, respectively, so it is not possible to analyze the implementation or the potential impact of those priorities from the assessment of the measures in the related NAPs. This implies that the monitoring and evaluation aspects of Priority 1 have only just started to develop.

Analysis by typology

Actions have been classified by typology in the monitoring process in the following priorities: Priority 1 (ERAC), Priority 2a (GPC), Priority 3 (HRM) and Priority 5 (OSI).

In Priority 1, the measures of the NAPs have been classified according to five types that were inspired from the ERA Roadmap 2015-2020. According to Table 3, measures and actions more related to the top action priorities such as evaluation of policies and alignment of EU and national instruments (the first two typologies) account for 65% of the total number of actions.

Table 3. Distribution of actions by typology in Priority 1

TYPE	% OF ACTIONS
1. Evaluation (including all focuses)	35%
2. Strategies and alignment	30%
3. Funding	19%
4. Other policies (Education and Innovation)	12%
5. Other types of actions	4%
TOTAL	100%

As Table 5 shows, it is remarkable that the percentage of on-going actions is almost equal for each type.

Table 4. Current status of measures by typology in Priority 1

	FINISHED	ON-GOING	CANCELLED	UNKNOWN	TOTAL
1. Evaluation (including all focuses)	32%	68%	0%	0%	100%
2. Strategies and alignment	33%	66%	0%	2%	100%
3. Funding	25%	73%	3%	0%	100%
4. Other policies (Education and Innovation)	19%	81%	0%	0%	100%
5. Other types of actions	22%	78%	0%	0%	100%
TOTAL	29%	70%	0%	0%	100%

Table 5 shows the distribution of actions by typology in Priority 2a. These types are extracted from an ad hoc thoughtful text analysis of NAPs. Governance issues account for 52% of the total number of actions. Breaking down this category, the insight is that **setting up national coordination structures or its derivatives is the most frequently written action in the NAPs.**

Table 5. Distribution of actions by typology in Priority 2a

TYPE OF ACTION	% OF ACTIONS
1. Governance issues	52%
-National structures for coordination	54%
- Strategic networking	19%
- Utilization of other instruments	15%
- Alignment	12%
2. Communication and information	24%
3. Funding measures	11%
4. Monitoring	13%
TOTAL	100%

In Priority 3 actions have been classified according to five implied types taken from countries' responses. **Measures in the Top Action Priority (“Using open, transparent and merit based recruitment practices with regard to research positions” – types 1 and 4) account for 67% of the total number of measures.**

Table 6. Distribution of actions by typology in Priority 3

TYPE OF ACTION	% OF ACTIONS
1. Remove legal and other barriers	52%
2. Support EURAXESS	11%
3. Support innovative doctoral training	21%
4. Implement the Human Resources Strategy for Researchers	15%
5. Other types of actions	1%
TOTAL	100%

When the current status of the actions is considered, it was found that the rate of finished measures related to the implementation of the Human Resources Strategy for Researchers (HS4RS) is lower than in the other types of policy measures.

Table 7. Current status of policy measures by typology in Priority 3

TYPE OF ACTION	FINISHED	ON-GOING	CANCELLED	TOTAL
1. Remove legal and other barriers	34%	63%	3%	100%
2. Support EURAXESS	36%	64%	0%	100%
3. Support innovative doctoral training	31%	69%	0%	100%
4. Implement the HRS4R	11%	89%	0%	100%
5. Other types of actions	0%	100%	0%	100%
TOTAL	30%	69%	2%	100%

In Priority 5 actions are classified in seven types: Open Science, Open Innovation, other forms of Knowledge Transfer and the possible combinations of the former three. **All forms in which Open Science is present account for 60% of the actions.** There is a great imbalance in the number of actions related to Open Science and Open Innovation towards Open Science.

Table 8. Distribution of actions by typology in Priority 5

TYPE	% OF ACTIONS
1. Open Science (OS)	46%
2. Open Innovation (OI)	5%
3. Other Kind of Knowledge Transfert (KT)	23%
4. OS + OI	3%
5. OS + KT	3%
6. OI + KT	11%
7. OS + OI + KT	9%
TOTAL	100%

As mentioned, the ERA related groups have med eth efforts to collect the information, analyze and report the progress. For the priorities 2b, 4 and 6 information on typologies of measures is not included since this was not yet provided.

CONCLUSIONS REGARDING THE ERA PRIORITIES

Data on the nature of the actions and the comments provided by ERA related groups based on the analysis of the NAPs serve to interpret the quantitative information and offer some insights and conclusions regarding each of the priorities:

Priority 1. Effective national research systems

The joint analysis of the status of the actions and their nature has given the following insights:

- In this priority **most actions are ongoing** because they are quite broad, cover various successive measures, involve a scale-up process, their period of execution covers several years or are continuous and have no end at sight. Nevertheless, ongoing actions have different degrees of implementation. Additional information would be useful to provide more insight in the case of this priority.
- Just a few actions are reported as delayed, as **most actions do not have a timeline**.
- In general, legislative or governmental negotiations can delay the execution of actions, what applies to most government actions.

From the analysis of the assessment of the actions and their nature, some conclusions are that:

- Most of the actions are not examined because their expected results are not define and because the assessment is not included in the design of the action.
- Measures that are often assessed are those included in **Policy Support Facility peer reviews**, smart specialization actions and those included in the NAPs with a monitoring mechanism.

Finally, the specific analysis of the Top Action Priority (Strengthening the evaluation of R&I policies) indicates that **pure evaluation actions usually cover a long cycle and are ongoing**. And evaluation measures give recommendations that usually result in new, updated or revised actions.

Priority 2a. Jointly addressing grand challenges

The GPC has drawn the following conclusions from the text analysis of the NAPs:

- **MS/AC are recognizing weaknesses in** areas that have nothing to do with the implementation of joint programming process (funding projects): **governance, coordination and outreach measures.**
- As a result, **MS/AC are focusing on national coordination** -establishment of national structures, inter-ministerial configurations of research or management models- **to achieve effective participation through transnational cooperation initiatives.**
- **MS/AC are not focusing on alignment.** Text analysis and ERA Progress Report indicate that **NAPs are not corresponding to the main challenges identified in the ERA Roadmap (improving alignment within/across joint programming processes and speeding up their implementation).**
- MS/AC think that transnational Public to Public collaboration is more effective in an EU framework than bi- or multi-lateral cooperation.

Priority 2b. Research infrastructures

The European Strategy Forum on Research Infrastructures (ESFRI) has analyzed the nature of the actions and its current status, extracting the following insights:

- As expected, due to the nature of the actions proposed, most of them are on-going and will permanently continue as living actions.
- As shown in the quantitative analysis, **the assessment of the actions has a limited scope.**
- Strengthening ESFRI and promoting the participation in its Research Infrastructures are core actions in NAPs.

- Funding and budgetary strategies at regional, national and European level for long term sustainability is a priority for most countries. Most countries include actions to benefit from synergies of funds at regional, national, H2020 and European Structural and Investment Funds levels.
- Evaluation, peer review and establishment of specific committees in charge of roadmapping and monitoring are common practices.
- There are coherence and synergies in the actions proposed and on-going by the different countries.

Priority 3. Open labor market for researchers

This priority should be seen as a continuous/on-going effort, but relevant actions should be included to ensure it can become a measurable process

As mentioned above, the Standing Working Group on Human Resources and Mobility (SWG HRM) has classified the actions in the NAPs according to five implied types taken from countries' responses. Their analysis has come to the following conclusions:

- **In many cases, EU-level initiatives** (e.g., the use of EURAXESS jobs for internationalization and talent attraction, the uptake of Innovative Doctoral Training Principles to foster intersectoral mobility or implementing Charter & Code principles to reinforce career development support in the institutions) **are proving to be very valuable to contribute to human resources policies at national levels.**
- **Most countries have reported actions to foster intersectoral mobility and intersectoral collaboration.** This covers from specific funding programs to advances in the recognition of non-academic experience in academic positions.
- **The second most common type of actions are those linked to talent attraction,** with countries actively promoting the use of EURAXESS Jobs for advertising positions, but also some specific funding programs as well as actions aimed at improving visa conditions.

- **Finally, there are also quite a large number of actions aimed at improving research careers**, which can include the increase of positions, but most commonly, the development of national level frameworks and/or strategies aimed at reinforcing researcher career development.

Priority 4. Gender equality and mainstreaming in research

The SWG GRI is using a clustering developed by the GENDERACTION Project to classify NAPs according to their comprehensiveness. The 2017 GENDERACTION Monitoring Report, completed by the SWG GRI, detected **huge variability among NAPs in terms of their number of actions, comprehensiveness of the concept of gender equality** (three objectives: increasing the share of women in all fields and hierarchical levels of R&I; structural change to abolish barriers for female carriers; integration of the gender dimension in research content and teaching) **and ambition**:

- Comprehensive NAPs.
- Focused NAPs (context analysis, objectives and measures focus on one or two objectives).
- Actionist NAPs (no context analysis or objectives but measures).
- No NAP or NAP without Priority 4.

The analysis of the NAPs also indicates that Priority 4 is generally treated as an independent priority: only seven NAPs link it to other ERA priorities. So gender is not integrated as a cross-cutting issue. Priority 4 is more likely to be interlinked with other priorities in EU15 countries compared to EU13 countries. Other difference among EU15 and EU13 countries is that for 57% of EU13 countries the NAP was the first policy document on gender equality in R&I, a fact that only holds for 25% of EU15 countries.

With respect to the monitoring of Priority 4, the SWG GRI has concluded that the ERA Headline Indicator (the proportion of women PhD graduates to the total number of PhD graduates) does not work well to assess the implementation of this priority: contextualized and combined qualitative and quantitative indicators are needed.

Priority 5. Optimal circulation, access to and transfer of scientific knowledge

The Standing Working Group on Open Science and Innovation (SWG OSI) has drawn several conclusions from the monitoring exercise:

- In general, the exercise has shown the good planning and relevancy of the actions in the NAPs. Some of the “on track” actions have a clear end date, for instance for a specific funding opportunity or a project that should be set up by a certain date. Others are ongoing and do not have a specific end date.
- The concept of Open Innovation does not seem well defined and operational given that, as shown in the quantitative analysis, there is a great imbalance in the number of actions related to Open Science and Open Innovation.
- There are important initiatives relating to the implementation of Open Science / Open Innovation plans and national Open Science committees not (yet) mentioned in the NAPs. These actions are mainly in the field of Open Science and Open Access, and only a minority in Open Innovation, even though the SWG OSI’s focus has shifted from Open Science to Open Science and Open Innovation.
- There is a need of an inclusive and well concerted monitoring of Open Science (and Open Innovation). The adequacy of the ERA Roadmap as the monitoring framework should be assessed.

Priority 6. International Cooperation

The Strategic Forum for International Science and Technology Cooperation (SFIC) has come to the following conclusions:

- Actions in the NAPs are expressed in very different ways (precise vs. general actions), what made the monitoring difficult and somehow biased (e.g. Difficulties with choosing between “finished” and “on-going” for long-term actions).

- Some actions have to be seen as “continuous” rather than “ongoing”: they do not have a timetable.
- Actions regarding increased international cooperation are mainly “ongoing”, indicating in some cases the implementation of bilateral agreements.

FINAL RECOMMENDATIONS: SOME LESSONS LEARNED

Some recommendations or lessons, useful for future exercises, have been learned from the analysis of the quantitative and qualitative information provided by the ERA-related groups on the progress of their respective ERA priority:

- The first conclusion is that it is possible to monitor the execution of the National Action Plans. However, the tool used showed its limits due to its simple design with a limited number of questions. Therefore only general information (finished/ongoing/cancelled/...) is available regarding the policies elaborated in the Member States. Then, and in order to contribute effectively to the debate regarding the future of ERA, more information would be needed and, as a consequence, a more refined monitoring tool.
- Since a common work plan for monitoring all priorities was not previously defined, the scope and depth of the monitoring process differs across priorities. For future exercises, a uniform monitoring procedure with a unique methodology is needed, that gives useful information that permits better understanding of what efforts are being made and how to adjust the implementation of the actions and achieve results.
- Also, it has been difficult to verify the execution of the measures, as most actions are broad and their period of implementation is long. In general, it is somewhat difficult to determine whether measures were on track or delayed because most are on-going type of initiatives or timelines were not included in the design of the action or measure. Future monitoring exercises would be recommended of including a more systemic monitoring with clear identification of concrete actions with timelines. The monitoring tool would need to be refined in this respect.

- With respect to the results of the actions, the ratio of assessed actions is very low, so, in general, it is not possible to measure the degree of achievement of the NAPs' objectives. Future exercises should give more attention to ongoing and ex-post evaluation, including a definition of expected results for each action and a way to measure its realization.
- ERA is progressing and NAPs show that the measures and actions to implement and to accomplish the ERA priorities are mainly achieved through on-going, long term measures – that can be also monitored-. All priorities are working towards achieving ERA but the understanding of what actions and measures are deemed relevant varies somewhat according to NAPs. Future exercises should foster the ex-ante evaluation of NAPs and the analysis of the features of the national research & innovation systems. As a matter of fact, the needs of the countries differ and as consequence their National Action Plans do as well.

Finally, the main conclusion is that the ERA progress report and the monitoring of ERA NAPs are complementary mechanisms that tell stories from different angles. Moreover, there other monitoring mechanisms (among others, the European Innovation Scoreboard, the European Semester and the Policy Support Facility) that also give useful information to monitor the progress of ERA.

Furthermore, a reflection could be undertaken on the future monitoring of ERA NAPs given that ERA priorities are rapidly changing domains. In any case, the future of ERA and its priorities can only be understood by what has been achieved up until now. This exercise can contribute to the reflection regarding the future of the ERA and the priorities designed to make it happen.
