ERIC Forum Implementation Project

Report on proposed approach
and dashboard for common ERIC KPIs

Work Package 4 - Deliverable 4.1

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Executive summary

Key Performance Indicators (KPIs) are widely used by private and public organisations to monitor progress towards set goals and the efficient use of resources. In recent years, there has been a growing interest among policy makers, funders, and managers of research infrastructures (RIs) to develop tailored KPIs that would enable the tracking of developments at international, large-scale RIs, and allow for the monitoring of their performance and use of resources. As government-funded organisations, the European Research Infrastructure Consortia (ERICs) have a moral, and in many cases also legal, obligation to report on their performance to relevant stakeholders, funding bodies, and the public.

The aim of Task 4.1 of the ERIC Forum Implementation Project titled "Monitoring and Development of KPIs for ERICs" is to support the ERICs in assessing performance relative to their own mission goals and empower them with knowledge to track and monitor KPIs in a regular and consistent way. The Task was originally designed to develop a common set of KPIs for all ERICs, irrespective of their scientific field. At the end of 2018, i.e. shortly before the ERIC Forum Implementation Project officially kicked-off, a Working Group on Monitoring was established by the European Strategy Forum on Research Infrastructures (ESFRI) to act on the invitation by the Competitiveness Council to develop a common approach to monitoring of the performance of research infrastructures through tailored KPIs. Recognising the authority of ESFRI and the Competitiveness Council, Task 4.1 revisited its approach and activities to align its goals with the latest developments and create synergies with this strategic pan-European initiative. To this end, Task 4.1 carried out activities during the years of 2019 and 2020, engaging the ERIC community with European stakeholders active in the area of KPIs, focusing especially on the dialogue with ESFRI. The aim of the interactions has been to provide input of the Forum members on methodologies and tools to track KPIs that were being developed by ESFRI, and share lessons learned.

This report describes in detail the interactions Task 4.1 and ESFRI had during the process that resulted in the publication of the ESFRI Working Group Report on Monitoring of Research Infrastructures Performance in December 2019, which recommends 21 KPIs to monitor European RIs. The second part of the report you are reading focuses on results of a survey developed by Task 4.1 to assess the current status of KPIs implementation across the ERIC community and collect feedback on the KPIs proposed by ESFRI. The ERIC Forum believes that the data and lessons learned collected through the ERIC Forum survey will benefit ESFRI and inform the discussions of ESFRI delegates and other decision makers on the next steps regarding KPIs implementation.

The entire community of European RIs that have already acquired the status of an ERIC or aspire to become an ERIC were invited to participate in the survey. Out of the 32 RIs contacted in November 2020, 20 ERICs (95% of the ERIC community) and 3 prep-ERICs (27% of the prep-ERIC community) provided answers. The respondents come from 5 different scientific domains as classified in the ESFRI Roadmap, namely: energy, environment, health and food, social sciences and engineering, and social and cultural innovation. It can be concluded that the feedback and results presented in this report are representative of the ERIC landscape.

The survey revealed that the motivation of RIs to adopt KPIs varies. While some have decided to track KPIs because they needed an internal management tool to document improvements and developments, other use them to mitigate risks, and improve the long-term impact and value of their RI. Yet others see KPIs as an instrument for informed internal and external communication, or as an effective tool to measure the engagement with national nodes.

On average, RIs have adopted or plan to adopt between 6-25 KPIs and report on them annually to their stakeholders. Out of the 23 RIs participating in the survey, 11 have already adopted KPIs and all of these RIs are ERICs. The remaining RIs are currently in the process of adopting KPIs. Given that the topic of KPIs is rather new to RIs, this can be seen as a major evolution within the community. Those who already have experience tracking KPIs have indicated that the challenges they have faced are mostly related to methodology, definitions, limited resources, distributed nature of their RI, need for automation of data collection, or difficulties establishing how every KPI relates to the strategic goals of their RI.

The ERIC Forum survey revealed that the European RI community is well aware of the work of ESFRI and uses the Working Group Report as a reference when developing their unique and RI-tailored KPIs. The vast majority of the RI community is of the opinion that the adoption of the ESFRI KPIs should be voluntary. While they consider the reference sheets useful and described them as a good starting point, they made suggestions how the KPIs and the Working Group Report could be further improved, i.e. perform regular reviews of the KPI list, focus on key RI competences, make KPIs more universal, bring down the number of KPIs, develop a detailed implementation protocol, and consider the difference between RI types (single-sited vs. distributed) and the scientific domains they represent.

In order to ensure consistency and effectiveness in tracking KPIs, the RIs participating in the survey would welcome guidance and help from ESFRI in the following areas: sharing best practices in data collection, methodology and tools, establishing a permanent helpdesk, reporting on national nodes in an effective way, capturing publications that use open data provided by RIs, clarity on future steps vis-à-vis ESFRI KPIs, and tracking of socio-economic impact.

Results of the ERIC Forum survey demonstrate that the community of ERICs and preparatory ERICs approaches the topic of KPIs with due diligence and takes ESFRI recommendations into careful consideration. RIs are interested in expanding their knowledge in developing and tracking KPIs, and using proofed methodologies to collect data. They also openly acknowledge that they currently lack the resources and in-house capacity to do so in an efficient way and would appreciate further help from decision makers and stakeholders to ensure proper implementation.

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ELI	Extreme Light Infrastructure
ERA	European Research Area
ERIC	European Research Infrastructure Consortium
ESFRI	European Strategy Forum on Research Infrastructures
ESS Spallation	European Spallation Source ERIC
FTE	Full Time Equivalent
KPI	Key Performance Indicator
OECD	Organisation for Economic Co-operation and Development
PM	Person Month
RI	Research infrastructure
SEII	Socio-economic impact indicator
WG	Working Group

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Introduction

Key Performance Indicators (KPIs) represent standard measuring values that help institutions assess their performance in a consistent and periodic way. KPIs are widely used by private and public organisations to monitor progress towards set goals and the efficient use of resources. As government-funded organisations, the European Research Infrastructure Consortia (ERICs) have a moral, and in many cases also legal, obligation to report on their performance to relevant stakeholders, funding bodies, and the public.

In principle, KPIs are distinct from socio-economic impact indicators (SEIIs). The former focuses on the efficiency of processes and the recognition of accomplishments, while the latter tracks outcomes of these activities and their long-term effects. Since performance and impact can often be linked, it is not unusual to see similar or the same indicators used to monitor both performance and impact.

In recent years, there have been numerous Europe-wide efforts to develop KPIs and SEIIs methodologies tailored to the unique needs of Research Infrastructures (RIs). To mention just a few, which are deemed most relevant for the ERICs:

- In March 2019, the Organisation for Economic Co-operation and Development (OECD) published a "Reference Framework for Assessing the Scientific and Socio-economic Impact of Research Infrastructures".[1] The document aims to provide a versatile tool to evaluate the scientific and socio-economic achievements of RIs in various stages of their lifecycle.

- At the end of the same year, in December 2019, the European Strategy Forum on Research Infrastructures (ESFRI) published an extensive report titled "Monitoring of Research Infrastructures Performance",[2] which provides a list of 21 KPIs to be used in a periodic review of ESFRI Landmarks.

The European Commission also funded projects which aimed to develop methodologies and tools to help RIs assess their socio-economic impact and define SEIIs that best match their vision and goals, and encourage the sharing of lessons learned:

- In February 2019, the EU-funded project ACCELERATE published a "General Societal Impact Protocol: A Light on Societal Impact of ERICs and RIs".[3] The report provides guidance on how to relate RI objectives and goals to impact. It also describes how RIs can select qualitative and quantitative indicators and use case studies to develop narratives that demonstrate tangible results.

- Afterwards, in June 2020, the EU-funded project RI-PATHS released an online RI impact assessment toolkit,[4] a useful resource of monitoring and reporting tools. The toolkit describes various pathways and steps that RIs can take to track the existing links between activities they perform and their short-term as well as long-term impacts.

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[1] Reference Framework for Assessing the Scientific and Socio-economic Impact of Research Infrastructures. (OECD, March 2019). Available at: https://doi.org/10.1787/3ffee43b-en
[2] Monitoring of Research Infrastructures Performance. Working Group Report. (ESFRI, December 2019). Available at: https://www.esfri.eu/sites/default/files/ESFRI_WG_Monitoring_Report.pdf
[3] General societal impact protocol (final draft) – A light on societal impact of ERICs and RIs. (ACCELERATE, February 2019). Available at: https://www.accelerate2020.eu/wp-content/uploads/2017/01/ACCELERATE_D1.3_General-societal-impact-protocol.pdf
[4] The toolkit is available at: https://ri-paths-tool.eu/en

The overarching aim of all these efforts has been to guide RIs in the selection of indicators, be it KPIs or SEIIs, and develop a proofed methodology to ease the implementation and monitoring processes. Choosing the right KPIs is as important as applying the correct measuring procedures.

Work Package 4 of the ERIC Forum Implementation Project titled "Evaluation and Impact Assessment" has been closely following all strategic developments in the field of KPIs and SEIIs during 2019 and 2020. Recognising the know-how owned by actors in charge for the Europe-wide initiatives and reports mentioned above, the ERIC Forum established contact with ESFRI and the EU-funded projects early on, engaged with them on regular basis and maintained a close dialogue in order to benefit from their knowledge and the niche methodologies they develop.

This report describes in detail the interactions between Task 4:1 titled "Monitoring and Development of KPIs for ERICs" and ESFRI in particular. ESFRI is considered an important stakeholder and partner of the ERIC Forum and it plays a central role in the Europe-wide discussions about KPIs for RIs. At the end of 2018, i.e. shortly before the ERIC Forum Implementation Project officially kicked-off, a Working Group on Monitoring was established by ESFRI to act on the invitation by the Competitiveness Council to develop a common approach to monitoring of the performance of research infrastructures through tailored KPIs. Recognising the authority of ESFRI and the Competitiveness Council, Task 4.1 revisited its approach and activities to align its goals with the latest developments and create synergies with this strategic pan-European initiative.

During the first two years of the project, Work Package 4 has collaborated extensively with the RI-PATHS and ACCELERATE projects, too. However, since these projects primarily focus on impact and the development of SEIIs, these interactions will be described in further detail in a Deliverable titled "Report on SEI ERIC Framework" to be prepared by Task 4:3 in month 42.

The report you are currently reading will also present the results of a survey on KPIs, which was developed by Task 4.1 in order to assess the current status of KPIs implementation across the ERIC community and collect feedback on the KPIs proposed by ESRI in its Working Group Report from December 2019. The ERIC Forum believes that the data and lessons learned collected through the survey will benefit ESFRI and inform the discussions of ESFRI delegates and other decision makers on the next steps regarding KPIs implementation.

Dialogue with ESFRI on the development of KPIs

The aim of Task 4.1 of the ERIC Forum Implementation project is to support the ERICs in assessing performance relative to their own mission goals and empower them with knowledge to track and monitor KPIs in a regular and consistent way. To this end, Task 4.1 has carried out activities during 2019 and 2020, engaging the ERIC community and recognising the work done by other EU-wide initiatives.

Before the ERIC Forum Implementation Project kicked off, the Competitiveness Council adopted an important conclusion regarding KPIs for European RIs. In its conclusion from May 2018, the Council: "INVITES Member States and the Commission within the framework of ESFRI to develop a common approach for monitoring of their performance and INVITES the Pan-European Research Infrastructures, on a voluntary basis, to include it in their governance and explore options to support this through the use of Key Performance Indicators".[5]

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[5] Conclusions of the Competitiveness Council, 29 May 2018, n19.

To act on the conclusion, ESFRI established a Working Group (WG) on Monitoring of Research Infrastructures Performance at the end of 2018. The WG carried out critical tasks during 2019 with the aim to develop a common approach to monitor European RIs and review ESFRI Landmarks. Considering that a significant number of ERICs has the status of a Landmark or a Project on the ESFRI Roadmap[6] released in 2018, Task 4.1 established a dialogue with the WG. Through regular interactions, the Forum has shared input of its members with ESFRI, and influenced the development of the KPIs by emphasizing that the members come from different scientific domains and each of them has different strategic objectives, and thus also a different need for a unique set of KPIs.

During 2019, the ERIC Forum actively contributed to the efforts of the WG. This was done both on the organisational as well as the community level. The ERICs provided feedback to ESFRI individually by responding to their questionnaires and the Forum also shared aggregated input with the WG, highlighting the challenges related to the development of common KPIs for RIs that are active in various scientific fields, are in different stages of lifecycle, and have a diverse organisational set-up. The ERIC Forum and ESFRI have communicated regularly by sharing written feedback, holding face-to-face meetings, organising phone conferences, and participating in workshops. An overview of all interactions is presented in Table 1 at the end of this section.

The letter outlining collaboration opportunities within the area of KPIs that the ERIC Forum sent to the ESFRI Working Group in March 2019 was the first joint response of the Forum to an external stakeholder. From this point of view, the letter was a major achievement and demonstrated that the Forum provides a useful platform for the ERICs and allows them to communicate their views in an efficient way.

Later in May 2019, the ERIC Forum shared its positions with the ESFRI Working Group to provide input into their work on the development of KPIs for RIs. The position paper, as submitted to ESFRI, was also shared with the European Commission, ESFRI Delegates, ERIC Member Countries and other key stakeholders. It is presented in one of the sections of this report further below. When the draft of the WG report became available, the ERIC Forum sent consolidated feedback to the Working Group in September 2019. The Forum shared feedback on all seven recommendations presented in the draft, indicating the need to clarity some of the key messages, and sharing ideas on how some of the proposed activities and implementation procedures could be improved.

The constructive dialogue continued during the ESFRI Workshop on the Future of Research Infrastructures in the European Research Area which was organised in La Palma on the Canary Islands in November 2019 where the ERIC Forum shared its views with ESFRI delegates again. The report of the Working Group was published in December 2019 and is available on the ESFRI website.[7]

During the year of 2020, European RIs started to familiarise themselves with the KPIs proposed by ESFRI and some also started adopting and implementing them. However, there has been no further guidance from ESFRI since the publication of the report. The ESFRI White Paper from March 2020 mentions that "ESFRI will promote the voluntary uptake of a Monitoring Approach by all Research Infrastructures, aiming at establishing pan-European standards".[8] The ESFRI delegates have since

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[6] Strategy Report on Research Infrastructures: Roadmap 2018 (August 2018). Available online at: http://roadmap2018.esfri.eu/
[7] ESFRI Working Group Report: Monitoring of Research Infrastructures Performance. (ESFRI, January 2020). Available online at: https://www.esfri.eu/latest-esfri-news/report-esfri-working-group-monitoring-ris-performance.
[8] ESFRI White Paper 2020. Making Science Happen: Ambition for Research Infrastructures in the European Research Area. (ESFRI, March 2020). Available online at: https://www.esfri.eu/sites/default/files/White_paper_ESFRI-final.pdf, p. 36.

been discussing how to best approach the implementation. At the time of writing (January 2021), no decision has been made yet.

Table 1: Overview of interactions between the ERIC Forum and ESFRI during 2019

Date	Interaction between the ERIC Forum and ESFRI
05 February 2019	ESFRI Questionnaire to pan-European RIs on their objectives & KPIs (deadline: 18 February)
01 March 2019	ERIC Forum letter no. 1 to ESFRI – invitation to collaborate
05 April 2019	Meeting in Brussels with ESFRI WG and European Commission about KPIs
17 April 2019	Interim report of the ESFRI WG on KPIs
7 May 2019	ERIC Forum meeting in Oslo, interim report presented by ESFRI
14 May 2019	ERIC Forum Position Paper on the Development of KPIs for RIs shared with ESFRI
17 June 2019	Questionnaire for Pan-European RIs on Relevance of KPIs (prioritisation, deadline: 26 June)
03 July 2019	Workshop in Brussels on "Monitoring of RIs methodology and KPIs"
04 September 2019	Draft report of the ESFRI WG on monitoring of RIs performance
16 September 2019	ERIC Forum letter no. 2 to ESFRI – feedback on ESFRI recommendations
16 September 2019	Response from ESFRI
07 November 2019	ERIC Forum presentation during ESFRI workshop in La Palma
December 2019	Publication of ESFRI Working Group Report

ERIC Forum and ESFRI surveys

In order to create synergies between the work carried out by ESFRI and the KPIs-related activities planned within the framework of the ERIC Forum Implementation Project, the team of Work Package 4 has collected the responses sent by ERICs to the WG. Below is a brief overview of the two ESFRI questionnaires and responses collected by the ERIC Forum:

ESFRI questionnaire to pan-European research infrastructures on their objectives and KPIs

- Distribution date: 5 February 2019
- Deadline: 18 February 2019

- Purpose: Research infrastructures were asked to indicate which objectives listed in the questionnaire have they adopted and what KPIs have they established to track them. Research infrastructures also had the opportunity to share additional objectives and KPIs. Objectives and KPI areas as defined by ESFRI: 1) science, 2) education and training, 3) facilitation of regional and transnational collaboration and activity in Europe, 4) technological development, innovation and knowledge transfer, 5) outreach, 6) data, 7) scientific support to policies and standards, 8) international cooperation, 9) governance, management and optimum use of resources, 10) other

- Number of responses collected by ERIC Forum: 16

ESFRI questionnaire for pan-European research infrastructures on relevance of KPIs

- Distribution date: 17 June 2019

- Deadline: 26 June 2019

- Purpose: Research infrastructures were asked to indicate the relevance of KPIs proposed by ESFRI and score each of them. The KPIs were grouped into nine headlines (A-I). The number of KPIs suggested under each headline is indicated in the brackets: A. scientific excellence (5), B. education and training (3), C. facilitating regional and translational collaboration and activity in Europe (2), D. innovation and knowledge transfer (2), E. outreach to public and policy makers (3), F. data (1), G. support (2), H. International cooperation (2), I. governance (1).

- Number of responses collected by ERIC Forum: 10

ERIC Forum Position Paper on the Development of KPIs for Research Infrastructures

The text below is the original wording of the ERIC Forum Position Paper on the Development of KPIs for Research Infrastructures from 14 May 2019. The paper was submitted to the WG, published on the ERIC Forum website, and also shared with the European Commission, ESFRI Delegates, ERIC Member Countries and other key stakeholders.[9]

Research infrastructures (RI) represent public investments. As such, they need to be accountable to their funders by demonstrating expected performance and impact. In its conclusions on "Accelerating Knowledge Circulation in the EU", the Council of the European Union:

"INVITES Member States and the Commission within the framework of ESFRI to develop a common approach for monitoring of their performance and INVITES the Pan-European Research Infrastructures, on a voluntary basis, to include it in their governance and explore options to support this through the use of Key Performance Indicators."[10]

The ERIC Forum gladly takes up the Council's invitation in that it

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[9] ERIC Forum Position Paper on the Developmetn of KPIs for Research Infrastructures. Available online at: https://www.eric-forum.eu/2019/07/09/eric-forum-position-paper-on-the-development-of-kpis-for-research-infrastructures/
[10] Conclusions of the Competitiveness Council, 29 May 2018, n19.

- Seeks to actively collaborate with ESFRI by connecting with the ESFRI Working Group (WG) on Monitoring, by responding to their questionnaire and proactively developing a common approach in discussing the monitoring system and KPIs,

- Contributes to the development of a common approach and measures for monitoring of their performance via the ERIC Forum Implementation Project[11],

- Includes and further develops Key Performance Indicators (KPIs) in the governance of its members,

While the need for evaluation is widely recognised, there is no firm agreement on the measures that might be used. The term KPI is often used to mean a management tool primarily aimed at internal monitoring of performance on a relatively short timescale. In the case of RIs it is more useful to think of performance metrics and qualitative case studies aimed more at external reporting to key stakeholders, and monitored over longer timescales, particularly where factors such as socio-economic impact are concerned. Success does require an understanding of both a baseline and a trend, but growth is not necessarily always the ideal scenario as it differs from progress.

With this position paper, the ERIC Forum12 aims to contribute to the development of a framework of performance measures and help to align parallel initiatives. The ERIC Forum appreciates the openness of the ESFRI WG to collaborate on this matter and would like to thank the WG for the opportunity to get involved and discuss details of their work in meetings organized in Brussels (April 2019) and Oslo (May 2019) and for sharing preliminary results. The ESFRI WG has indicated that it would like to invite the ERIC Forum to contribute to the prioritisation of KPIs which will be the outcome of their work. The members of the ERIC Forum would be pleased to participate in such process. The ERIC Forum looks forward to continued collaboration with the ESFRI WG and all involved actors in a constructive way.

ERIC Forum Positions

The ERIC Forum supports the development of a common understanding of KPIs and wants to actively contribute to the ongoing discussions
• ERICs understand the need of their funders, i.e. EU member states (in some cases also countries outside the EU) and other stakeholders, to create a framework of performance measures to monitor both the performance and impact of RIs and support an informed decision-making process.
• The ERICs demonstrated their interest in the development of KPIs by answering the ESFRI questionnaire.
• The ESFRI Forum Implementation Project dedicates a Work Package to the monitoring, scientific evaluation, and socio-economic impact assessment of ERICs, which can feed into the work of ESFRI WG.
• The ERICs would like to be involved in the ESFRI process of developing KPIs for RIs, in offering suggestions for consideration. The ERIC Forum appreciates the openness of ESFRI to collaborate on this important matter.

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[11] Horizon 2020 ERIC Forum Implementation Project, grant agreement 823798.
[12] Including aspiring ERICs.

KPIs should be tailored to the specific objectives and mission of each ERIC

- Every ERIC and RI is unique in terms of its raison d'être, objectives, mission and vision. Even ERICs active in the same scientific domain differ. To be properly meaningful, any metric needs to be customised to the unique character of each RI.

- ERICs acknowledge that ESFRI is aware of the unique nature of each ERIC and RI. Roadmap 2018 mentions the following: "To help address the unique aspects of each RI, Landmarks will develop specific KPIs and report on the few generic ones chosen by ESFRI."[13] As ERICs have a good understanding of their own mission and objectives, the ERICS ought to be involved in the selection of generic KPIs.

KPIs should only be used to benchmark an RI against its own performance and not to compare RIs

- KPIs recommended by ESFRI should provide a common ground for a monitoring system that should later be tailored to the specific needs of each ERIC. KPIs cannot and should not be used to compare one RI against another because their domains, objectives, activities etc. are heterogenous. Even KPIs with the same names often have fundamentally different meaning for different RIs.

- Many metrics only make sense when tracked over a several year period. This should be taken into consideration when evaluating data.

- Success does require an understanding of both a baseline and a trend, but growth is not necessarily always the ideal scenario as it differs from progress.

KPIs should comply with well-proven criteria for setting up indicators and measures

- KPIs should be defined according to one of internationally recognised standards for developing indicators and measures, such as e.g. RACER (Relevant, Acceptable, Credible, Easy and Robust) criteria developed as part of the European Commission's Impact Assessment Guidelines, SMART (Specific, Measurable, Achievable, Relevant, Time-bound) criteria, CREAM (Clear, Relevant, Economic, Adequate, and Monitorable) etc. Because of their strong connection to the European Commission and their relevance for the European Research Area, ERICs are in favour of RACER criteria.

- Each ERIC should be allowed to set RACER targets for the recommended KPIs. In most cases, this process will involve their governing bodies, thus implying the need for a flexible timeframe.

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[13] Roadmap 2018: Strategy Report on Research Infrastructures. (ESFRI, 2018). Available at: http://roadmap2018.esfri.eu/strategy-report/the-esfri-methodology/.

> **KPIs and indicators to measure socio-economic impact are not the same, even though a limited number of selected KPIs could be used to measure impact**
>
> - The purpose of KPIs is to measure performance, evaluate success in delivering results, and monitor progress towards set goals.[14]
>
> - The purpose of indicators assessing socio-economic impact is to evaluate how RIs transform their environment and what influence they have beyond scientific results. Some RIs enable science by producing data which are used for scientific research or by providing access to state-of-the-art instrumentation, so definition of impact can vary across RIs.
>
> - Recognising the difference between KPIs and impact indicators, the ERIC Forum Implementation Project has separate tasks dedicated to each of the tools. A KPI framework should exclude indicators to assess socio-economic impact of RIs.
>
> - KPIs are considered an internal management tool and thus it is more useful to think of performance metrics and qualitative case studies aimed more at external reporting to key stakeholders and monitored over longer timescales.

Conclusions

The performance of ERICs can be demonstrated through qualitative as well as quantitative results. This should be considered in the selection of common KPIs. In the case of RIs it is more useful to think of performance metrics aimed more at external reporting to key stakeholders and monitored over longer timescales.

The activities and objectives of ERICs differ even if they operate in the same scientific area. As a result, KPIs need to be customised to the unique character of each RI. As an internal management tool, KPIs are used to evaluate the performance of RIs on individual basis and should not be used to compare ERICs. The objectives of each ERIC have to be central to the evaluation process, utilising a mixture of methods, measures and indicators that closely relate to the mission of the specific ERIC and its activities.

A timeline for the adoption of common KPIs is as important as their selection. The timeline should be decided with care in order to allow for proper and systematic collection of data.

The ERIC community wishes to be actively involved in the ESFRI process and to engage in the discussion. The ERIC Forum appreciates the openness of the ESFRI WG to collaborate and seek feedback from the ERIC Forum. To contribute to further discussions on this matter, the ERIC Forum will, among other things, disseminate results of activities foreseen in the framework of the EU-funded ERIC Forum Implementation Project. Should a common set of KPIs be defined as an outcome of the ESFRI questionnaire, ERICs and RIs who will be invited to adopt them on a voluntary basis ought to be informed about the purpose of these KPIs and how and by whom they will be used. Members of the ERIC Forum would be happy to review the list of KPIs suggested by ESFRI WG and contribute to their prioritisation.

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[14] For a distinction between KPIs and impact indicators see OECD Science, Technology and Industry Policy Paper no. 65 from March 2019: Reference Framework for Assessing the Scientific and Socio-Economic Impact of Research Infrastructures, pp. 12-13. Available at: https://doi.org/10.1787/3ffee43b-en.

An individual baseline needs to be established for each RI. Many metrics only make sense when measured over a certain period of time. As a result, an assessment should only be made after several years (2-5) when progress relative to the set baseline can be assessed. After that, individual recommendations for each RI should be made to allow for improvement of their performance, should there be a need.

ERIC Forum survey on KPIs

Background

On 3 November 2020, Task 4.1 of the ERIC Forum Implementation Project invited the community of ERICs and international RIs that are preparing to become an ERIC (prep-ERICs) to participate in a survey, which aimed to assess the current status of KPIs implementation across the community and collect feedback on the KPIs proposed by ESFRI in its Working Group Report from December 2019. When preparing the questionnaire, Task 4.1 reached out to ESFRI and included several questions based on the feedback received from the WG Chair. By 18 November 2020 when the survey closed down, 23 responses were collected.

For the purposes of the survey, a KPI was broadly defined as in the ESFRI Working Group Report. According to the report, the purpose of KPIs is to "provide a means of monitoring the performance of a Research Infrastructure with regard to progress towards its stated objectives from inputs, through activities and outputs to outcomes. Indicators may be defined for various points in this chain for the different objectives of the Research Infrastructure. When monitored on a regular basis (typically annually), such KPIs provide valuable information both for the operators of Research Infrastructures and for their stakeholders to optimise progress towards the objective through changes in inputs and activities."[15]

When developing questions to be included in the survey, Task 4.1 considered the challenges related to distinguishing between KPIs and SEIIs. Readers of this report are encouraged to keep in mind that some respondents might have considered a number of KPIs listed in the ESFRI Working Group Report SEIIs rather than KPIs. As a result, their responses to the ERIC Forum survey might not necessarily reflect their RI's experience with tracking KPIs only. Their answers might be partly or fully based on considerations regarding SEIIs.

Survey structure

The ERIC Forum survey was divided into three key sections:

1) **General background:** To collect background information about the participating RIs, respondents were asked to answer informational questions about the general classification of their respective RI.

2) **KPI status and motivation:** Respondents were asked to provide answers to various questions addressing their RI's motivation to track KPIs. This section had two alternative sets of questions linked to the current status of KPI implementation at the respective RI. The first

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set was targeting RIs that have already adopted KPIs. The second set was designed for RIs that have not yet adopted KPIs. The questions in both sets were of similar nature.

3) **Feedback on ESFRI KPIs:** In this section, respondents were asked to share their feedback on the ESFRI KPIs, and share their thoughts on or experience with their adoption and implementation.

Profile of RIs participating in the survey

There are currently 21 ERICs and 11 prep-ERICs in the European RI landscape. All 32 RIs were invited to participate in the ERIC Forum survey. Altogether, 20 ERICs (95% of the ERIC community) and 3 prep-ERICs (27% of the prep-ERIC community) provided answers (see Figure 6). The profiling of the survey participants presented in this section is based on the 23 recorded responses.

The ERICs and prep-ERICs which took part in the survey come from 5 different scientific domains as classified in the ESFRI Roadmap (see Figure 1). The domain with the highest representation is the health and food sector (8 RIs), closely followed by physical sciences and engineering, social and cultural innovation (6 RIs each), environment (5 RIs), and lastly energy (2 RIs). Two ERICs reported that they represent more than one scientific domain. As a result, Figure 1 shows 27 entries.
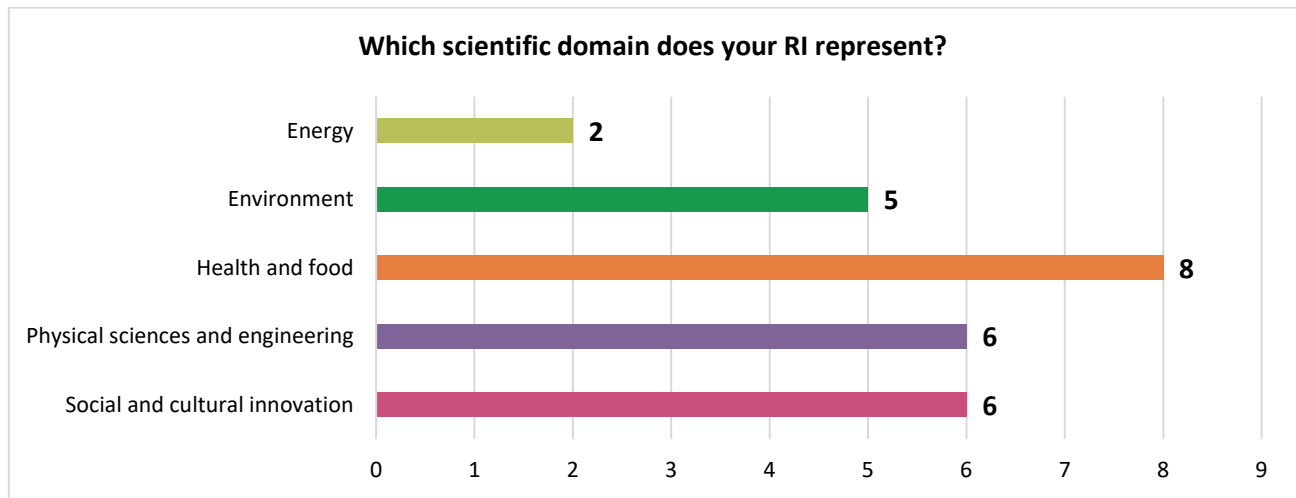

Figure 1: Scientific domains

The ERICs and prep-ERICs have a statutory seat in 11 different countries (see Figure 2), which shows the high interest among governments in Europe to host international RIs. France and Italy both host 4 RIs. Germany and the Netherlands are second with hosting 3 RIs each. One of the prep-ERICs reported that their host seat is in two countries, Germany and Italy. As a result, Figure 2 shows 24 entries.

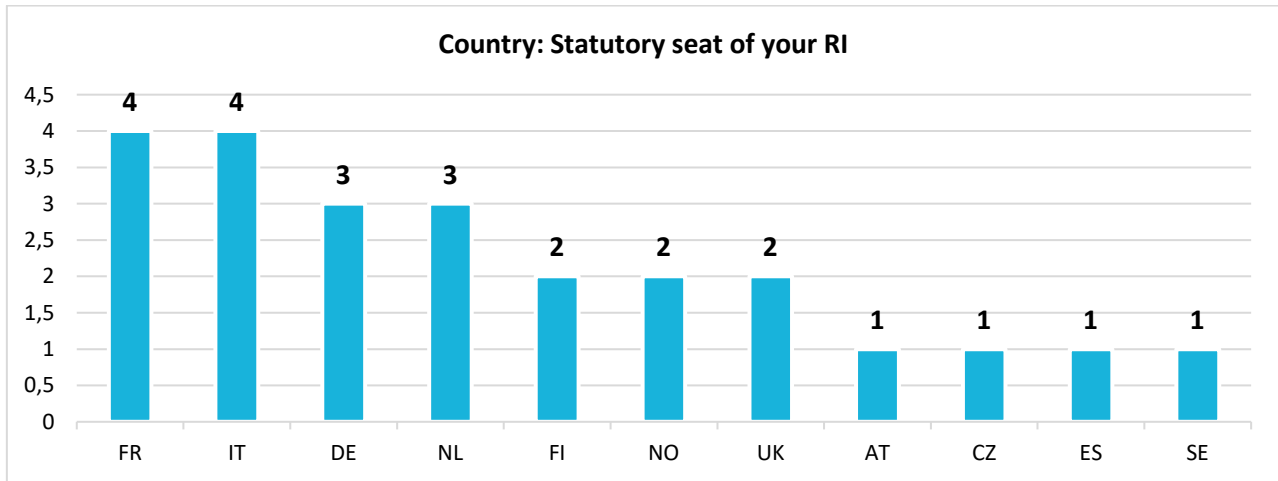**Country: Statutory seat of your RI**

Figure 2: Statutory seat of RIs

The majority of the RIs are distributed facilities (91%) with nodes that are geographically spread over more than one country (see Figure 5). The only exceptions are the European Spallation Source ERIC (ESS spallation) and the Extreme Light Infrastructure (ELI), which are both single-sited. The administrative and financial systems of distributed RIs are often decentralised.

Likewise, the majority of ERICs and prep-ERICs (91%) are on the ESFRI Roadmap 2018 and are already classified as Landmarks, i.e. RIs that have reached an advanced implementation phase (see Figure 3). The ESFRI Roadmap is a strategic document that is regularly updated in order to guide EU Member States and Associate Countries on their decisions regarding investments in science and research. The Roadmap lists new RIs that are in the preparation phase, the so-called ESFRI Projects, and also more mature and successfully implemented RIs that represent major elements of the European Research Area (ERA), the so-called ESFRI Landmarks. There are two ERICs that are currently not on the ESFRI Roadmap and neither of them plans to apply to be included in the future.

Is your RI on the ESFRI Roadmap 2018?

- YES, our RI is an ESFRI Landmark
- NO, our RI is not on the ESFRI Roadmap 2018 and we do not plan to submit a proposal to be included in the future
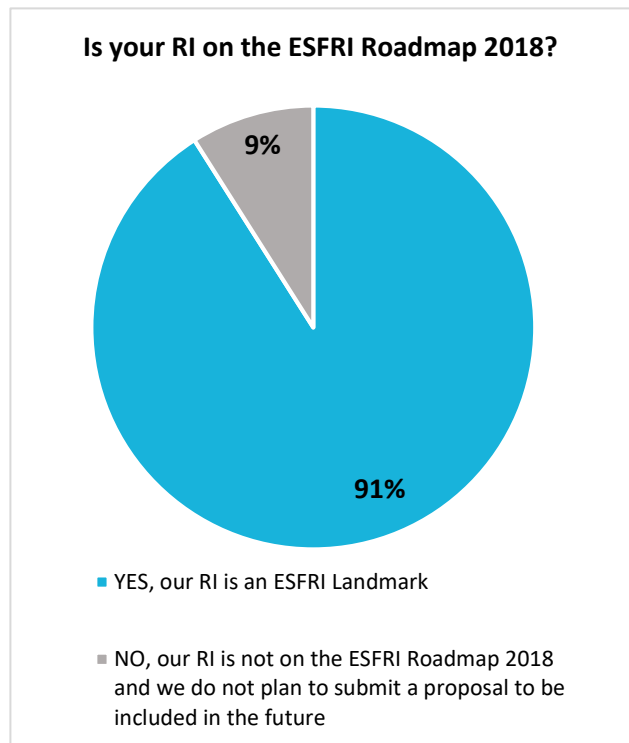
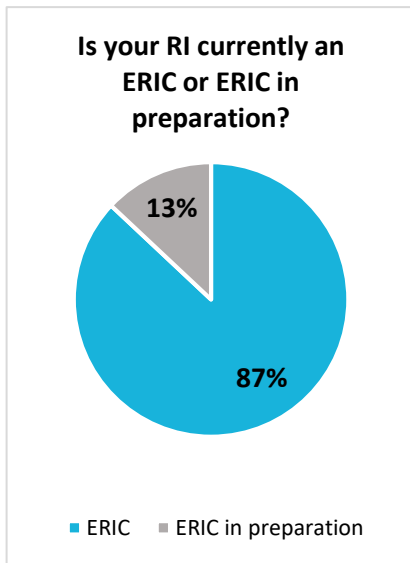Figure 3: RIs' relation to ESFRI Roadmap
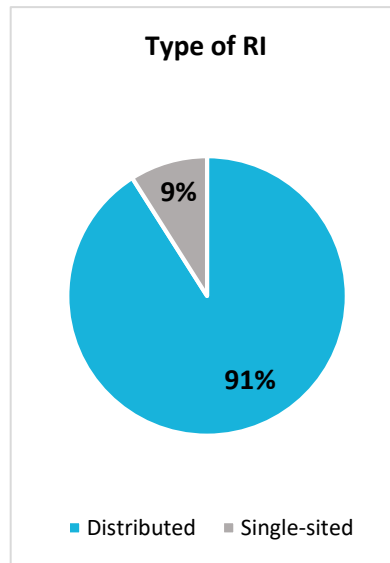
Figure 6: RI category: ERIC vs. prep-ERIC

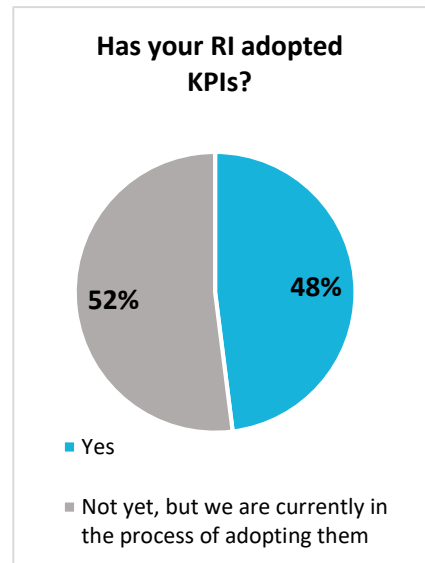Figure 4: RI category: Distributed vs. single-sited

Figure 5: KPI adoption

While the level of KPI implementation varies across the RI community, all ERICs and prep-ERICs participating in the survey have started the process of adopting KPIs. 48% of respondents have already successfully implemented and started tracking KPIs (see Figure 4). This demonstrates that the KPIs topic is taken up by the RI community with due diligence.

In the next sections, we first present the experience of the 11 ERICs that have already adopted KPIs and then move on to the 12 ERICs and prep-ERICs that are currently in the process of adopting them.

Answers by ERICs that have already adopted KPIs

The conclusions in this section are based on answers provided by 11 ERICs that have already adopted KPIs.

While one of the ERICs adopted KPIs already in 2004, that is well before the legal framework for ERICs was set up, the majority of respondents (8) did so only in the last five years (see Figure 7). This shows an increasing trend within the RI community and the importance with which the topic of KPIs is treated by RI managers.
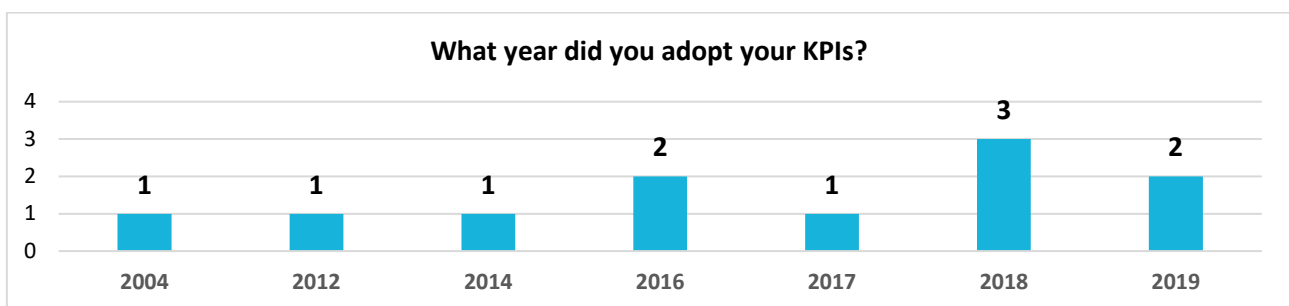

Figure 7: Year of KPIs adoption

When asked why they adopted KPIs, ERICs reported being motivated by both internal and external factors. The key reasons can be summarised as follows:

- To have an **internal management tool** that helps the ERICs to achieve tangible results, and enables the monitoring of progress against set objectives, mission, and vision;

- To **document improvements and developments,** and monitor performance in various areas of interest, including e.g. scientific outcomes and outputs, technical performance, operations, adequacy of services, access, trainings, user uptake etc.;

- To have an **instrument for communicating** the successes of the ERICs to various audiences and stakeholder groups by presenting measurable results;

- To **improve the long-term impact and value** of the ERICs, demonstrate their effectiveness, efficiency and accountability, and address the requests of governing bodies;

- To **mitigate risks** by detecting problems early on, and provide informed feedback on key strategic documents and policies of the ERICs;

- In case of distributed ERICs, to better evaluate the work of headquarters and measure the **level of engagement with each national node.**

The majority of ERICs has between 11-25 KPIs (see Figure 8). In most cases (10 respondents), the ERICs have had their KPIs approved by their respective governance bodies.
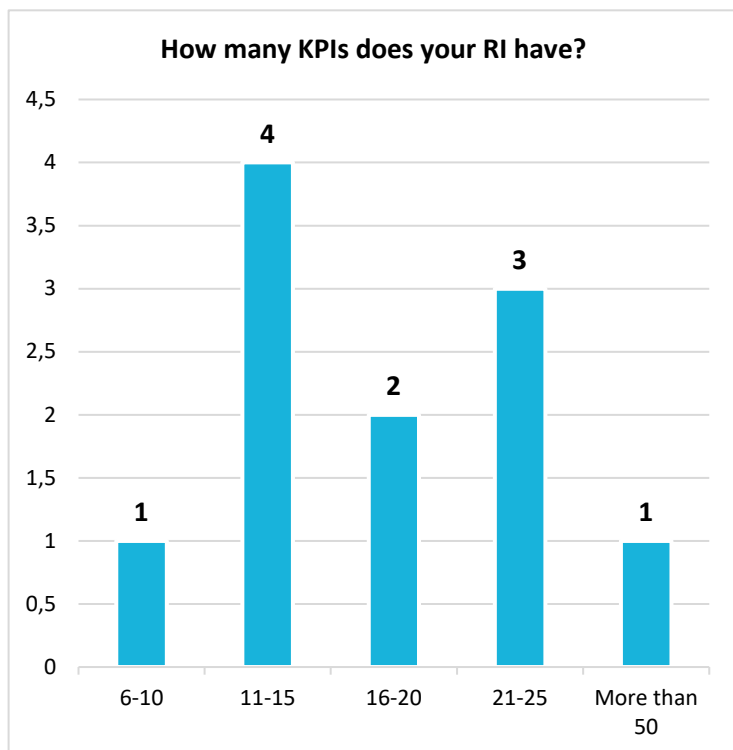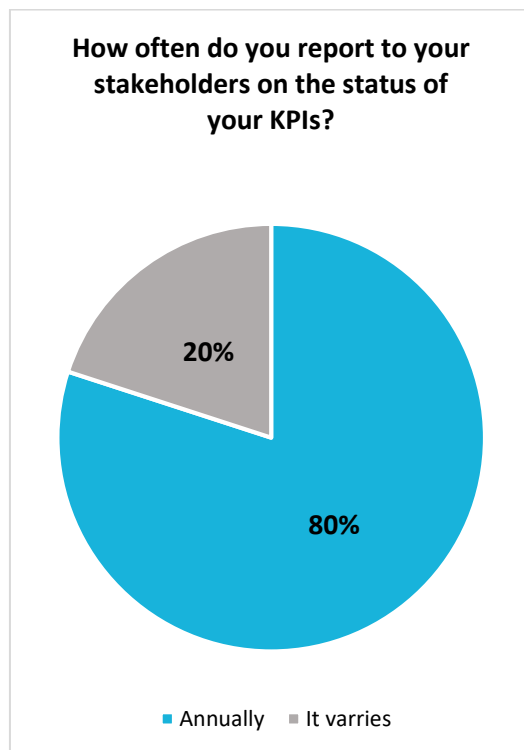

Figure 8: Number of KPIs

Figure 9: Frequency of reporting

All but one ERIC have changed or updated their KPIs since they were first adopted. When asked why, the reasons were summarised as follows:

- To **improve the methodology** for collecting data, provide clearer definitions, update KPIs in line with SMART and/or RACER criteria;

- To **align KPIs with pan-European developments** in the area, such as for example the publication of the ESFRI KPIs;

- To adapt existing KPIs to the newly arising needs of the ERICs in order to **monitor new aspects or activities as the organisations mature** and their operations expand**,** and adjust KPIs that have proven not to be efficient or useful;

- **To streamline reporting** to the level of detail preferred by each stakeholder group, and make KPIs **more relevant in light of the global trends,** e.g. face to face events are increasingly being replaced by online events etc.

According to the collected responses, 80% of ERICs report on the status of their KPIs to stakeholders on annual basis (see Figure 9). The remaining 20% indicated that their reporting times vary and depend on the particular KPI and stakeholder group they report to. It this case, some KPIs are monitored every six months, some monthly and yet some are made available live online.
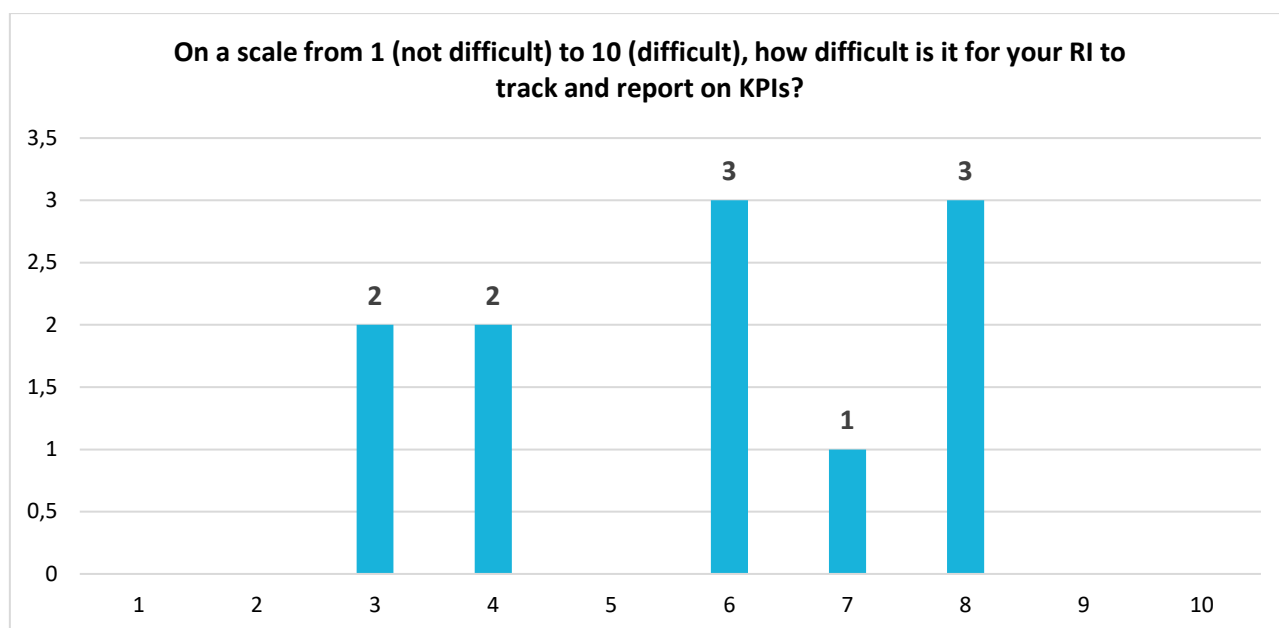
Figure 10: Difficulty of reporting

When asked about the general difficulty of tracking and reporting on KPIs on a scale from 1 (not difficult) to 10 (difficult), the average level of difficulty was 6 (see Figure 10). Nearly two thirds (64%) of the ERICs are in the right-hand side of the scale, thus indicating that the community would benefit from further guidance on how to ease and improve data collection and the entire reporting process.

The ERICs were also asked to indicate specific KPIs that they particularly struggle with. The summary is presented in Table 2.

Table 2: KPIs that ERICs consider more difficult to track and report on.

KPI or KPI area	Challenge
Publications	• In general, publications are hard to track because users do not always acknowledge RIs and it is also difficult to identify a suitable form of acknowledgement. • The use of external platforms to collect data is often challenging.
Users and directories	• It is difficult to monitor users and the efficiency of directories especially in cases when ERICs offer open data and users can access it free of charge without registering. This is difficult not only due to technical but also legal challenges.
Events	• Some ERICs are large organisations composed of many departments that can organise events independently. To be able to report on all events, these ERICs would need to develop a centralised tracking system.
Financials	• RIs that are exclusively financed through external funding without revenues from user access struggle with reporting on financial KPIs.
Human resources	• The concept of "RI staff" and other terms are not always defined in the same way by all nodes and partners of distributed RIs. As a result, KPIs related to human resources are hard to track.
Qualitative KPIs	• Qualitative KPIs are in general more difficult to track than quantitative KPIs.
Socio-economic impact	• The tracking of socio-economic impact requires many assumptions as the value chain to end beneficiaries is rather long. Also, RIs often provide basic science services which are far downstream in the pipeline to realise socio-economic impact.
KPIs and data protection	• KPIs that may conflict with data protection regulations and that require a huge administrational effort are difficult to track and report on.
ESFRI KPIs	• ESFRI KPIs specifically mentioned by ERICs participating in the survey: KPI no. 4: Percentage of top cited publications, KPI no. 9: Share of users associated with industry and publications with industry, KPI no. 16: Citations in policy related publications, and KPI no. 21: Revenues.

The survey revealed that all ERICs have at least one ESFRI KPI included in their tailor-made lists of KPIs and as many as 91% of them have noted that some of their original KPIs did match the ones developed by ESFRI. Only 1 ERIC noted that none of their original KPIs matched those of ESFRI. Most ERICs (8 responses) have adjusted selected ESFRI KPIs to the unique needs of their RI.

Nearly a half of the ERICs (5 respondents) have a personnel dedicated specifically to the KPIs-related work (see Figure 11). Based on answers from those who could give an estimate of how many Person Months (PMs) their ERIC invests in the KPIs-related work, it can be concluded that this is nearly 1.5 PMs per year on average.

Since this group of ERICs has already adopted KPIs, the ERIC Forum asked about their own experience with the process of selecting the right KPIs for the organisation and setting up the tracking systems and tools. The problems they have encountered during this process are summarised in Table 3.
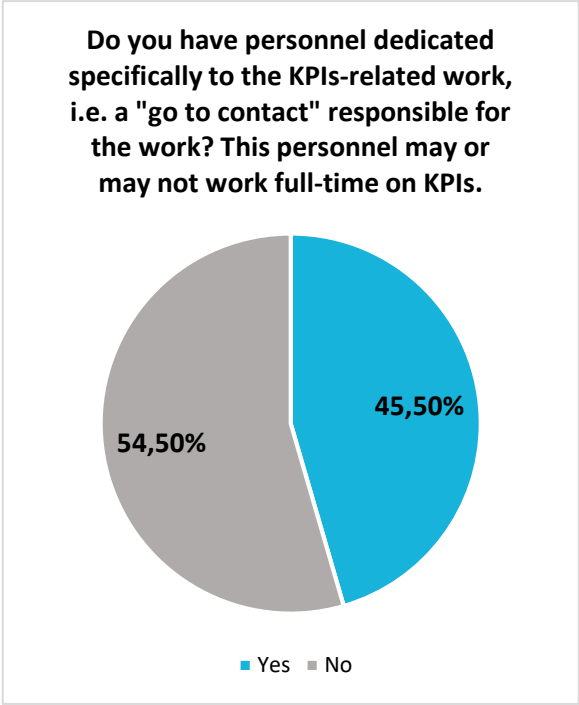
Do you have personnel dedicated specifically to the KPIs-related work, i.e. a "go to contact" responsible for the work? This personnel may or may not work full-time on KPIs.

Figure 11: Personnel dedicated to KPIs-related work

Table 3: Problems encountered by ERICs relative to selecting and/or tracking KPIs

Area	Problem description
Methodology	• It can be difficult to find an adequate method to measure a KPI that is linked to a specific objective if the objective was defined without considering the need to track and measure it. • It is not always possible for KPIs to follow the RACER criteria and especially so when KPIs need to be linked to objectives from Statutes. • Even detailed methodologies are at times difficult to understand and implement. • It is not always easy to decide what to include in or exclude from a KPI and discern what data can be collected without burdensome procedures. It is necessary to find a good balance between what is desired and what is possible, based on the data that actually can be collected.
Definitions	• Some concepts and terms may not be homogenously defined and used by all partners and nodes of an RI.
Distributed nature of RIs	• Distributed RIs can struggle more than single-sited RIs with identifying what exactly to integrate into a KPI.

Area	Problem description
Automation	• Manual tracking of scientific outcomes, such as for example peer-reviewed publications, and also tracking of policy-related publications is challenging and should be automated.
Relevance of KPIs	• It can be difficult to define the relevance of ESFRI KPIs for the respective activities, stakeholder groups or users of individual ERICs. ERICs often need to align visions and requirements of various stakeholder groups in order to avoid multiplication of KPIs. It would be useful for ERICs to understand how KPIs will be interpreted and used by stakeholders.
Limited resources	• Data collecting is time consuming and ERIC staff may not always be available to report on all desired KPIs due to other commitments. • ERICs are international organisations with a high number of Member Countries and Partners. The effort needed to collect local and country-specific data is considerable.

Answers by RIs that have not yet adopted KPIs

The analysis presented in this section is based on responses from 9 ERICs and 3 prep-ERICs that participated in the survey and have not adopted KPIs yet.

All 12 of them plan to adopt KPIs and are currently working on developing their tailored lists. When asked why they want to adopt KPIs, the respondents mentioned the reasons presented below. Their motivation is similar to that of ERICs that have already gone through the process of selecting KPIs and adopting them:

- To have an internal management tool and a **control system that allows for everyday monitoring of performance** of the entire RI, including the headquarters/coordination office, national nodes, and member institutions;

- To be able to **evaluate RI progress** in an effective way and track outputs that contribute to the implementation of the RI mission and its strategic objectives;

- To **institutionalise existing measures of performance** which have proved to be useful;

- To **meet the expectations of governing bodies** and other stakeholders, such as for example ESFRI, to be able to report to funders and participate in the evaluation of ESFRI Landmarks;

- To be able to **perform impact analysis** by first adopting thought-through KPIs, and later turning some of them into SEIIs;

- KPIs represent a **responsible way of managing and governing** public, international organisations.

Only one out of the 12 RIs reported that their governance body would not have to approve KPIs that will be proposed at the end of the selection process. A similar pattern can be observed in the responses of ERICs that have already adopted KPIs (see page 19). The involvement of the governing body in the process indicates the weight of the decision. This might be one of the reasons why all RIs in this group plan to report regularly to their stakeholders on the status of their KPIs (see Figure 12). More than a half (58%) plans to do it annually, a third (33%) plans to do it half yearly, and one ERIC has not made a decision about the frequency yet.

Two thirds of the responding RIs plan to adopt between 6-20 KPIs and the rest plans to adopt more than that (see Figure 13). All RIs intend to adopt at least one ESFRI KPI and as many as 67% have indicated that they would need to adjust some of the ESFRI KPIs to the specific needs of their respective RI. Only 17% said they plan to adopt some ESFRI KPIs without any changes.
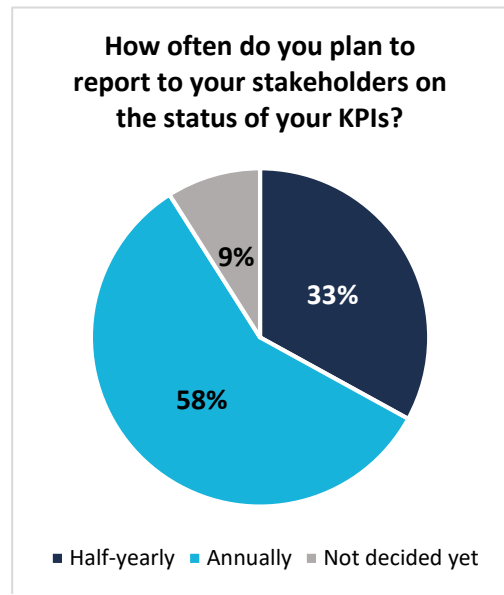
How often do you plan to report to your stakeholders on the status of your KPIs?

- Half-yearly
- Annually
- Not decided yet

Figure 12: Planned frequency of reporting
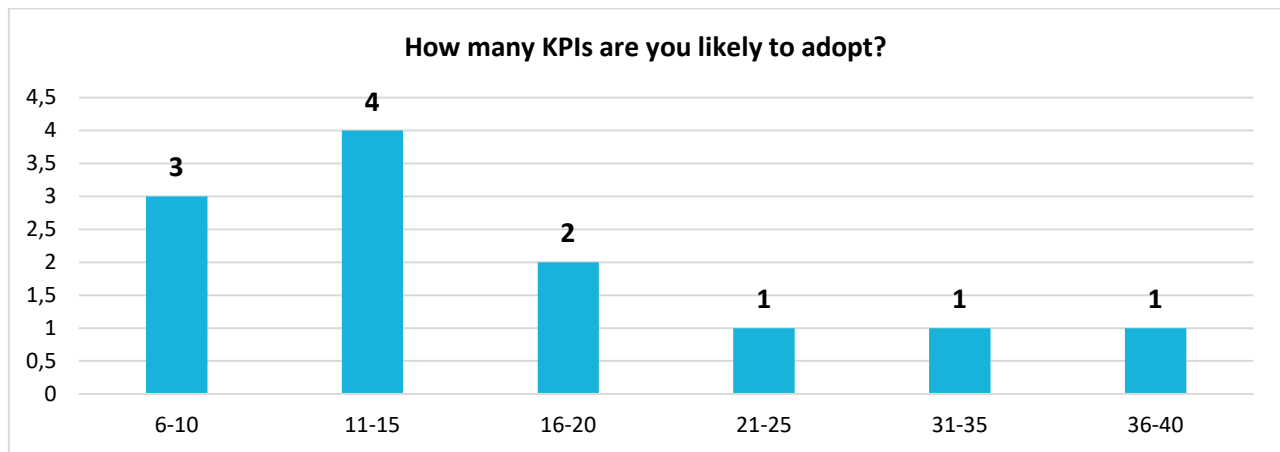
Figure 13: Planned number of KPIs

Feedback on ESFRI KPIs

The analysis presented in this section is based on responses collected from 23 ERICs and prep-ERICs that have participated in the ERIC Forum survey.

When asked how useful do they find the ESFRI reference sheets with definitions, data sources, methodology etc. in providing guidance to defining and measuring KPIs, the average value of all collected responses indicated on a scale from 1 (not useful) to 10 (useful) was 7. Only 4 out of 23 RIs placed themselves on the left-hand side of the scale (see Figure 14).

On a scale from 1 (not useful) to 10 (useful), how useful do you find the reference sheets with definitions, rationale, data sources, methodology etc. of the ESFRI KPIs in providing guidance to RIs on how to define and measure KPIs?
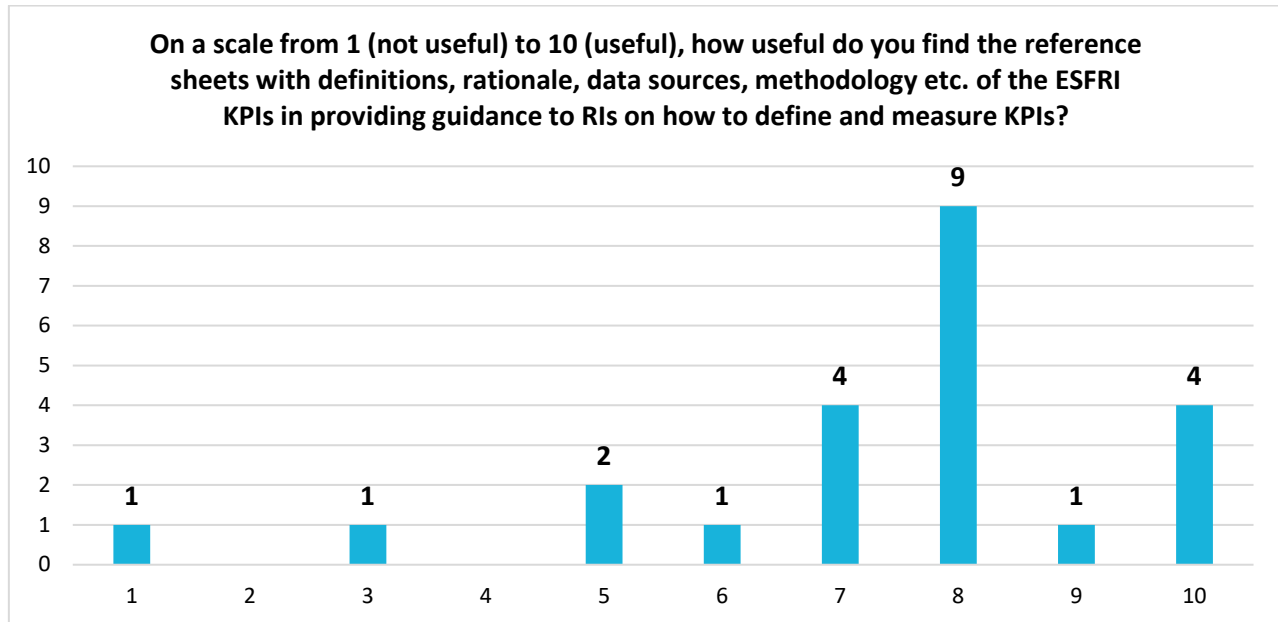
Figure 14: Usefulness of ESFRI reference sheets

While the RIs find the reference sheets rather useful, they shared how they could be further improved for the benefit of the ERIC community:

- The reference sheets offer a **broad list of KPIs and potential methods** to measure them. They allow for each indicator to be placed in a proper monitoring context, which is very useful. Yet some RIs find the methodologies **rather vague and generally on a high-level,** and would appreciate if they were more precise and detailed to ensure effective implementation. A facilitated discussion among RIs about the methodologies they use and the **lessons they have learned** from implementing them would benefit the community.

- The value of the ESRI guidance is in bringing a **certain level of order to the European RI landscape** and providing a **good starting point** for any RI wishing to adopt KPIs. However, even with the ESFRI guidance RIs need to have a certain level **in-house expertise** that would allow them to adjust selected KPIs to their own institutional goals and needs. It was also pointed out that some of the ESFRI KPIs are **not relevant or applicable to RIs from social sciences and humanities.**

- By definition, KPIs usually focus on very few, most relevant aspects of any organisation that is using them. In the case of RIs, this is for example the number of users, publications, quality of services etc. **ESFRI KPIs cover many other aspects, which are not necessarily key aspects or activities of RIs.**

- The ESFRI KPIs should be **updated based on feedback from ERICs** that have already gained experience in using them. Some KPIs could possibly be **adopted on a more universal level** after they are tested by a significant number of RIs from the same scientific domain.

- The anticipated burden associated with reporting on a number of KPIs seems to **underestimate the amount of effort required**. Given the emphasis on "E – Ease" in the RACER criteria, this should be recognised and reconsidered. It was also highlighted that the

implementation of all ESFRI KPIs by distributed RIs with **limited number of staff (sometimes as little as 5 Full Time Equivalents – FTEs) might not be feasible.**

- **RI funders** and even other ESFRI Strategy Working Groups might have their **own priorities,** which might not necessarily align with those covered by the ESFRI KPIs.

The ERICs and prep-ERICs participating in the survey were also asked what guidance from ESFRI would they consider useful in order to implement and measure KPIs regardless of whether they match or do not match the ESFRI KPIs. The needs they identified are presented in Table 4 below.

Table 4: Specific needs relative to the implementation and measuring of KPIs that RIs would appreciate guidance on or help with from ESFRI

NEED DESCRIPTION	
1	**SHARING BEST PRACTICES IN DATA COLLECTION, METHODOLOGY & TOOLS** • Further guidance from ESFRI on specific best practices, monitoring systems, and methodologies that have already been put in place by RIs; • Recommendations on useful tools that help to track KPIs in an efficient and systematic way; • Automation of data collecting processes, such as for example the retrieval of scientific, industrial and policy-related outcomes; • Procedure or tool to capture citations in policy-related papers in a coherent way, and to track publications by users who do not acknowledge RIs.
2	**ESTABLISHING A PERMANENT HELPDESK** • Each RI will inevitably maintain a certain level of specificities in the development and production of KPIs. ESFRI should partner with groups of RIs, such as for example the ERIC Forum, EIRO-Forum etc., to provide a permanent Helpdesk on KPIs and guide the RIs that need it; • Coordinating discussions among thematically similar RIs and offering them a tailored help would also be beneficial.
3	**REPORTING ON NATIONAL NODES IN AN EFFECTIVE WAY** • Distributed RIs face a complex challenge when trying to monitor the same KPIs across all of their nodes. The motivation of the nodes may not always match the motivation of the headquarters. It might be difficult to convince them of the added value of the exercise and ensure a robust monitoring system that is consistent across all nodes; • Guidance on how to differentiate when a KPI needs to refers to the whole RI and when only to the national nodes.
4	**CAPTURING PUBLICATIONS THAT USE OPEN DATA PROVIDED BY RIs** • Stakeholders should recognise that publication outputs which are based on data or support from open, distributed RIs are hard to capture in an absolute and

NEED DESCRIPTION	
	straightforward manner. Users of open data RIs have no obligation to include a reference to the RIs and as a consequence many publications (partly) based on or enabled by the use of these RIs may not be trackable; • Changing access policies to ensure proper citation would go against the objectives of RIs that provide open access to data and services.
5	**CLARITY ON FUTURE STEPS VIS-À-VIS ESFRI KPIs** • Guidance on what is expected from RIs in terms of implementing ESFRI KPIs; • RIs would also benefit from knowing how stakeholders plan to use ESFRI KPIs; • RIs and stakeholders, including RI internal stakeholder groups, external funders, partners, ESFRI etc. need to discuss which KPIs should be implemented and how.
6	**TRACKING SOCIO-ECONOMIC IMPACT** • Guidance and practical help offered to RIs that would like to or need to measure their socio-economic impact. The capacity and knowledge to develop and track SEIIs is often outside the in-house expertise of RIs. • An RI experienced in the tracking of socio-economic impact or another organisation with the relevant knowledge could offer such services to other RIs in order to ensure a common approach and a universally applicable method.

When asked whether the ESFRI KPIs needed to be changed or adjusted, 61% of responding RIs said yes (see Figure 17). While it is expected that every RI has to adjust the ESFRI KPIs to their unique needs and align them with their mission goals, this question in the ERIC Forum survey was about the overall need to adjust the list of KPIs proposed by ESFRI in December 2019. RIs can benefit from selecting the right KPIs, which would not change over time and thus allow them to track long-term developments. However, it is also recognised that KPIs might evolve over time as the environment in which RIs operate changes or new data becomes available, RI starts performing a new activity etc.

Table 5: Proposals for changes and/or adjustments in the list of ESFRI KPIs

Proposals for changes and/or adjustments in the list of ESFRI KPIs	
Perform regular reviews	• ESFRI shall gather data on the use of the guidance and regularly evaluate its implementation together with the RIs and ministries. • Regular reviews would allow ESFRI to identify the main difficulties and improve the KPIs as necessary. RIs that have not yet updated their KPIs according to the ESFRI guidance would also benefit from this.
Focus on key RI competences	• Some of the ESFRI KPIs do not focus on key competence areas of RIs and could rather be considered SEIIs, e.g. social media, collaborations, outreach etc.

Proposals for changes and/or adjustments in the list of ESFRI KPIs	
	• ESFRI should define KPIs that focus exclusively on the key aspects of RIs and when doing so include more KPIs related to scientific excellence, scientific achievements, innovation etc. • Consider the level of implementation and maturity of the RI in relation to KPIs.
Make KPIs more universal	• ESFRI KPIs seem to be currently tailored to physical, single-sited RIs. • Flexibility will be key to avoid inappropriate comparing of RIs. For some RIs, social and cultural impact (underrepresented in the current list) is far more important that e.g. economic impact and industrial engagement (represented in the current list).
Bring down the number of KPIs	• ESFRI should significantly reduce the number of KPIs.
Develop a detailed implementation protocol	• To implement the ESFRI KPIs properly, there would need to exist 1) well-proven criteria agreed and recognised by RIs, 2) an independent evaluation agencies that could be engaged as necessary. • RIs would benefit from further specifications on methodologies for data collection. KPIs based on unbiased feedback should be considered important. Indicators related to the SDGs would be useful. • A few reference sheets need to be modified and some KPIs, such as for example the one focusing on open access to data, need further elaboration. In addition, the currently available methods do not allow for weighting of author contributions and affiliations when collecting information about publications. This process needs to be manual and is therefore not practical.
Consider the difference between single-sited and distributed RIs	• Measuring KPIs demands a larger effort from distributed, open RIs than from physical RIs that have a controlled access. The former usually have less resources and staff that can be allocated to measure KPIs. The ESFRI KPI framework should reflect this imbalance. • A subset of KPIs could be developed to better fit the specific nature of distributed, open RIs.

Another question in the survey asked respondents to identify specific areas currently not covered by the ESFRI KPIs which would be useful to add. The participating RIs were able to select from three areas already pre-filled by the survey organisers, i.e. FAIR principles, EU Green Deal, and EOSC, and also add additional ones (see Figure 15). Six respondents proposed additional topics which included: feedback or appraisal on the quality of services from users, computational KPIs, impact of RI on the R&D landscapes of partner countries, Sustainable Development Goals, quality, and number of certified data repositories of distributed RIs.

The majority of RIs participating in the survey (91%) is of the opinion that the adoption of the ESFRI KPIs should be voluntary for RIs on the ESFRI Roadmap (see Figure 16). At the time of writing (January 20021), RIs do not have clarity on how ESFRI or other stakeholders plan to use the KPIs. Further guidance would be appreciated as indicated in need no. 5 presented on p. 27.
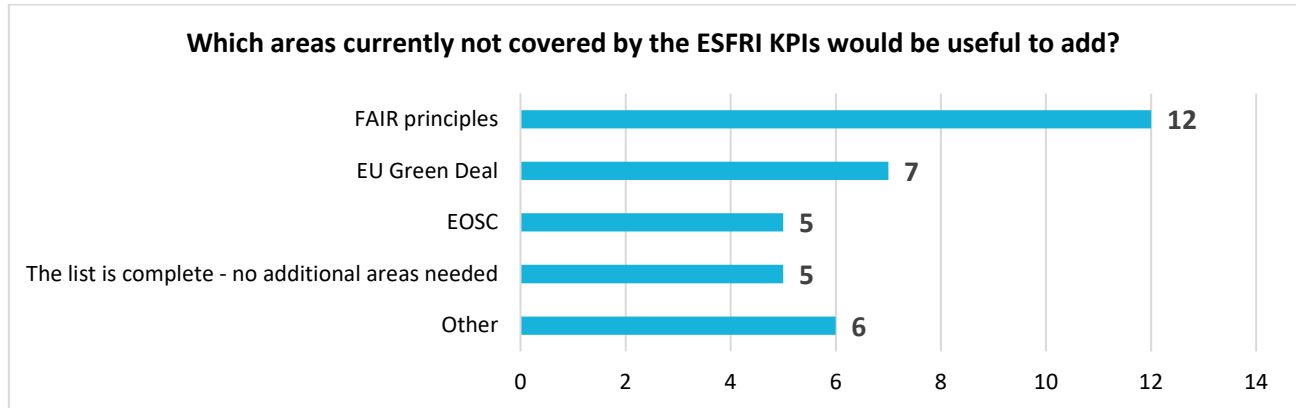

Figure 17: Areas currently not covered by ESFRI KPIs
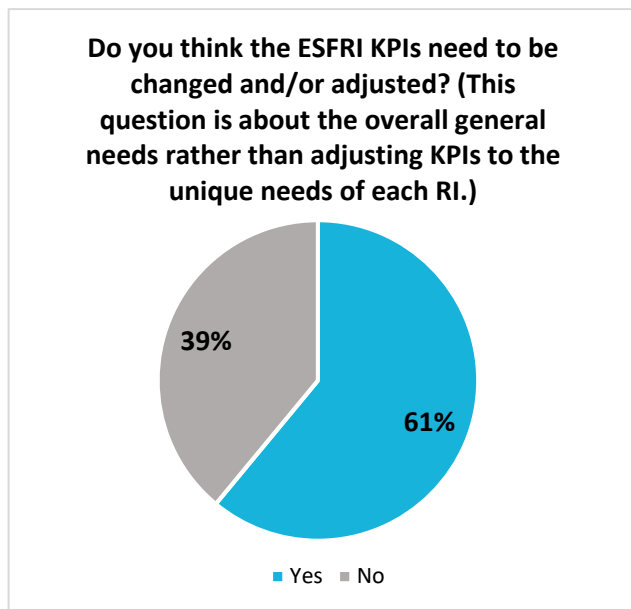
Figure 167: Need to change and/or adjust ESFRI KPIs
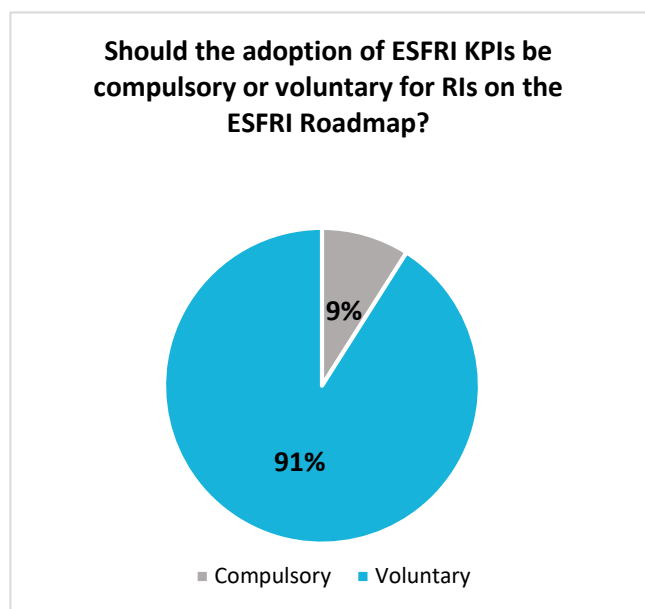
Figure 156: Adoption of ESFRI KPIs: Voluntary vs. compulsory

Conclusions

The ERIC Forum and ESFRI both benefited from the regular and open dialogue during 2019 when the ESFRI Working Group on Monitoring was working on a list of KPIs that could be recommended for uptake to large-scale European RIs.

Members of the Forum appreciate the opportunity to provide feedback and shape key recommendations in the report of the Working Group. As a result of the collaboration, the RI

community has been well aware of the ESFRI work and uses the Working Group report as a reference when developing or updating their own tailored lists of KPIs.

The fact that all RIs participating in the survey have either already adopted KPIs or are currently in the process of adopting them demonstrates that the KPI topic is considered important by the community. This is a major development as KPIs are rather new to RIs.

The ERIC Forum and its members are interested in sharing lessons learned and expanding their capacity in KPIs development and monitoring. The Forum also openly acknowledges that ERICs and also prepERICs currently lack the resources and in-house capacity to implement KPIs in an efficient way and would appreciate further help from decision makers and stakeholders like ESFRI to ensure proper implementation. The Forum is also eager to continue the fruitful dialogue with ESFRI and actively contribute to the discussions as the Working Group and delegates decides on how to move to the implementation phase of the KPIs developed in 2019.

Annex: ERIC Forum survey on Key Performance Indicators for Research Infrastructures

Contribute to our survey on Key Performance Indicators (KPIs)

Section 1 of 9

ERIC Forum survey on Key Performance Indicators (KPIs) for Research Infrastructures

PURPOSE
Work Package 4 of the ERIC Forum Implementation Project invites the community of ERICs and prep-ERICs to participate in this survey on Key Performance Indicators (KPIs), which aims to assess the current status of KPIs implementation across the ERIC community and collect feedback on the KPIs proposed by the European Strategy Forum on Research Infrastructures (ESFRI) in its Working Group Report from December 2019. Results of the survey will feed into a Deliverable of Work Package 4 and relevant sections will also be shared with ESFRI.

INSTRUCTIONS
- Provide only 1 consolidated answer on behalf of your ERIC or prep-ERIC
- Submit your answers by 15 November 2020
- Only answers submitted electronically will be considered in this survey. A pdf version with all questions was supplied to all recipients and can be used to prepare answers before submitting them in this online form.

KPI DEFINITION
For the purposes of this survey, a KPI is broadly defined as in the ESFRI Working Group Report, according to which the purpose of KPIs is to "provide a means of monitoring the performance of a Research Infrastructure with regard to progress towards its stated objectives from inputs, through activities and outputs to outcomes. Indicators may be defined for various points in this chain for the different objectives of the Research Infrastructure. When monitored on a regular basis (typically annually), such KPIs provide valuable information both for the operators of Research Infrastructures and for their stakeholders to optimise progress towards the objective through changes in inputs and activities."

Work Package 4 is aware of the challenges related to distinguishing between KPIs and impact indicators and understands that some respondents might consider some of the KPIs listed in the ESFRI Working Group Report impact indicators rather than KPIs.

BACKGROUND
In December 2019, the European Strategy Forum on Research Infrastructures (ESFRI) published a Working Group Report titled: Monitoring of Research Infrastructures Performance. The aim of the report was to develop a common approach across Research Infrastructures in order to monitor their performance based on KPIs.

The ERIC Forum has been in close contact with the ESFRI Working Group throughout 2019-2020 in order to provide feedback and contribute to the process. This was done by the publication of a joint position paper and by participating in strategic conferences and ESFRI meetings.

One of the goals of the ERIC Forum Implementation Project is to support the development of individual Research Infrastructure performance metrics within the framework of Work Package 4 titled: Evaluation and Impact Assessment. The relevant Deliverable is due in December 2020.

USEFUL DOCUMENTS
- ESFRI Working Group Report: Monitoring of Research Infrastructures Performance:
https://www.esfri.eu/latest-esfri-news/report-esfri-working-group-monitoring-ris-performance

- ERIC Forum Position Paper on the Development of KPIs for Research Infrastructures:
https://www.eric-forum.eu/2019/07/09/eric-forum-position-paper-on-the-development-of-kpis-for-research-infrastructures/

ERIC FORUM

Please tell us who is answering this survey on behalf of your RI so we can get in touch and inform you about the results

1. Name *

   _____

2. Position *

   _____

3. If you would like to be informed about the survey results, please share your e-mail addres in the text field below. If you do not wish to share your e-mail address via Google Forms, you can send your contact details to lenka.petkova@ess.eu instead.

   _____   mailto:lenka.petkova@ess.eu

4. Are you authorised to submit the response to this survey on behalf of your RI? *

   Mark only one oval.

   ( ) Yes, I am authorised.

   ( ) No, I am not authorised.

5. The responses to this survey will be analysed and may be used for the purpose of writing summary/analysis document that will be published online. In view of this, can you confirm that the name of your institution can be mentioned when referring to the replies given in this survey in such summary/analysis document? In case of ticking "No", your responses will be used only anonymously. *

   Mark only one oval.

   ( ) Yes, I confirm that the name of my institution can be mentioned.

   ( ) No, the name of my institution cannot be mentioned and my responses may be used only anonymously.

Background information about your Research Infrastructure (RI)

6.   Full name of your RI *

_____

_____

_____

_____

7.   Acronym of your RI *

_____

8.   Country: Statutory seat of your RI *

_____

9.   Status: Is your RI currently an ERIC or ERIC in preparation? *

Mark only one oval.

◯ ERIC

◯ ERIC in preparation

10.   Which scientific domain does your RI represent? (Scientific domain options are identical with those of the ESFRI Roadmap 2018) *

Check all that apply.

☐ Energy

☐ Environment

☐ Health and food

☐ Physical sciences and engineering

☐ Social and cultural innovation

☐ Digit

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11. Is your RI on the ESFRI Roadmap 2018? *

Mark only one oval.

◯ Yes, our RI is an ESFRI Landmark

◯ Yes, our RI is an ESFRI Project

◯ No, our RI is not on the ESFRI Roadmap 2018, but we have submitted a proposal to be included in the 2021 Roadmap

◯ No, our RI is not on the ESFRI Roadmap 2018, but we plan to submit a proposal to be included in the future (after 2021)

◯ No, our RI is not on the ESFRI Roadmap 2018 and we do not plan to submit a proposal to be included in the future

12. Type of your RI (Options are identical with those of the ESFRI Roadmap 2018) *

Mark only one oval.

◯ Single-sited

◯ Distributed

KPIs and your RI: Current status

13. Has your RI adopted KPIs? *

Mark only one oval.

◯ Yes   *Skip to question 14*

◯ Not yet, but we are currently in the process of adopting them.   *Skip to question 30*

◯ No   *Skip to question 30*

Section for RIs that have already adopted KPIs

14. What year did you adopt your KPIs? *

15. Have your KPIs been approved by your governance body? *

Mark only one oval.

◯ Yes

◯ No

16. How many KPIs does your RI have? *

Mark only one oval.

◯ ≤5

◯ ≤10

◯ ≤15

◯ ≤20

◯ ≤25

◯ ≤30

◯ ≤35

◯ ≤40

◯ ≤45

◯ ≤50

◯ More than 50

17. Do you report regularly to your stakeholders on the status of your KPIs? *

Mark only one oval.

◯ Yes

◯ No

18. If YES, how often? (If you do not report regularly on the status of your KPIs to your stakeholders, skip this question.)

Mark only one oval.

◯ Quarterly

◯ Half-yearly

◯ Annually

◯ Other: _____

19. Why did you decide to adopt your KPIs? *

_____

_____

_____

_____

_____

20. Have you changed or updated your KPIs since they were first adopted? *

Mark only one oval.

◯ Yes

◯ No

21. If YES, why did you change or update your KPIs? (If you have not changed or updated your KPIs, please skip this question.)

_____

_____

_____

_____

22. On a scale from 1 to 10, how difficult is it for your RI to track and report on KPIs? We understand some KPIs are easier to track and report on than others. This question is about the overall difficulty (general overview). *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not difficult	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	Difficult

23. Let us know which KPIs (if any) you consider more difficult to track and report on.

_____

_____

_____

_____

_____

24. What problems have you encountered relative to selecting and/or tracking KPIs? *

_____

_____

_____

_____

25. Do you have personnel dedicated specifically to the KPIs-related work, i.e. a "go to contact" responsible for the work? This personnel may or may not work full-time on KPIs *

Mark only one oval.

◯ Yes

◯ No

26. Please give an estimate on how many person months a year does your RI spend on the KPIs-related work? *

_____

27. Is at least one ESFRI KPI included in the list of your adopted KPIs? *

Mark only one oval.

◯ Yes

◯ No

28. If YES, which of the following is most correct? (If no, please skip this question.)

Mark only one oval.

◯ None of our original KPIs matched the ones announced by ESFRI

◯ Some of our original KPIs matched the ones announced by ESFRI

◯ All of our original KPIs matched the ones announced by ESFRI

◯ We did not have any KPIs before the ESFRI KPIs were announced

29. How would you evaluate your current compliance with the ESFRI KPIs? *

Check all that apply.

☐ We have adopted all of them without any changes or adjustements

☐ We have adopted some of them without any changes or adjustements

☐ We have adopted some of them and adjusted them to our needs

☐ We have not adopted any of them yet, but plan to adopt at least some (with or without changes)

☐ We have not adopted any of them and do not plan to do so

Skip to question 39

Section for RIs that have not yet adopted KPIs

30. Do you plan to adopt KPIs? *

Mark only one oval.

◯ Yes   *Skip to question 32*

◯ No   *Skip to question 31*

Section for RIs that have not yet adopted KPIs and do not plan to do so

31. Tell us why you do not want to adopt KPIs. *

_____

_____

_____

_____

_____

Skip to question 39

Section for RIs that have not yet adopted KPIs but plan to do so

32. Tell us why you want to adopt KPIs. *

_____

_____

_____

_____

33. Will your governance body have to approve your KPIs? *

Mark only one oval.

◯ Yes

◯ No

34. How many KPIs are you likely to adopt? *

Mark only one oval.

○ ≤5
○ ≤10
○ ≤15
○ ≤20
○ ≤25
○ ≤30
○ ≤35
○ ≤40
○ ≤45
○ ≤50
○ More than 50

35. Do you plan to report regularly to your stakeholders on the status of your KPIs? *

Mark only one oval.

○ Yes
○ No

36. If YES, how often? (If you do not plan to report regularly on the status of your KPIs to you stakeholders, skip this question.)

Mark only one oval.

○ Quarterly
○ Half-yearly
○ Annually
○ Other: _____

37. Do you plan to adopt at least one ESFRI KPI? *

Mark only one oval.

◯ Yes

◯ No

38. Which of the following options best describes your plan regarding ESFRI KPIs? *

Check all that apply.

☐ We plan to adopt all ESFRI KPIs without any changes or adjustments

☐ We plan to adopt all ESFRI KPIs, but will need to adjust them to our needs

☐ We plan to adopt some ESFRI KPIs without any changes or adjustments

☐ We plan to adopt some ESFRI KPIs, but will need to adjust them to our needs

☐ We do not plan to adopt any ESFRI KPIs

Skip to question 39

Section with general feedback about ESFRI KPIs

39. On a scale from 1 to 10, how useful do you find the reference sheets with definitions, rationale, data sources, methodology etc. of the ESFRI KPIs in providing guidance to RIs on how to define and measure KPIs? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Not useful	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	Useful

40. If you would like to add a comment about your answer, fill in the text field.

_____

_____

_____

_____

_____

41. Do you have any specific needs relative to the implementation and measuring of KPIs (regardless of whether they match or don't match the ESFRI KPIs) that you would appreciate guidance on or help with from ESFRI? *

42. Do you think the ESFRI KPIs need to be changed and/or adjusted? (This question is about the overall general needs rather than adjusting KPIs to the unique needs of each RI.) *

Mark only one oval.

◯ Yes

◯ No

43. If YES, what would you propose to change and/or adjust? (If no, please skip this question

44. Which areas currently not covered by the ESFRI KPIs would be useful to add? *

Check all that apply.

☐ FAIR principles

☐ EOSC

☐ EU Green Deal

☐ The list is complete - no additional areas needed

Other: ☐ _____

Should the adoption of ESFRI KPIs be compulsory or voluntary for RIs on the ESFRI Roadmap? *

◯ Adoption should be compulsory

◯ Adoption should be voluntary