MANAGING THE LIFECYCLE OF AN RI

MODULE LEADER
Prof. M. Lavitrano - E. Guarini (UNIMIB) and Prof. Giorgio Rossi, Università degli Studi di Milano

OVERVIEW

Objective of the module is to introduce the Lifecycle analysis of RIs, from the conceptual design phase to the implementation and through the different organization levels that are typically associated to each phase. Managing the processes that lead a research community to formulate the needs and ideas for a novel or transformative RI, then to the formation of a project consortium, then to the establishment of a legal entity, is part of the implementation process. The transitions between different organizational models that are appropriate in different phases of the RI will be analysed with the help of practical examples of RIs at different operational stages.

CONTENT

This module concerns the lifecycle approach that has been adopted in road mapping exercises both at the European level (ESFRI RIs) and at the internal level of (Global Research Infrastructures, GRI). The Lifecycle is mapped onto the kind of resources that are made available (by whom, to whom) and the organization steps (informal consortium, MoU, formal consortium, legal entity) that may be needed at the different stages of RI life.

LEARNING OBJECTIVES

The programme covers the following topics organised in three chapters.

CHAPTER 1 – THE LIFECYCLE OF A RI: INTRODUCTION

- To convey concepts and definitions on the Research Infrastructures ecosystem as defined by ESFRI and the European Commission according to Competitiveness Council mandates.
- To understand the horizon scanning exercises by research communities, like ASTRONET, NuPPEC in physics and similar exercises in other domains. These typically identify the long term objectives of a community and can represent the scientific case for a project if other conditions are met: technical feasibility, lack of alternative, critical mass of competences available in a given project geometry (local, regional, national, European, international, global).
- To understand the interplay between institutional/national/European support actions suitable to develop the concept (e.g. design study).
- To estimate the time need to mature the concept of the new RI, or of its major upgrade.

- To introduce the concept of Readiness Levels (RLs) for analysing the management goals at all stages.
- To describe and identify transitions from organization models through the RI Lifecycle.
- To analyse some cases of successful management evolution through the lifecycle
- To understand the features of the Framework Programmes of the EU in the Excellent Science Pillar – Research Infrastructures.
- To understand the role of the Programme Committee in orienting FP measures.
- To develop managerial skills for monitoring the progress through Readiness Levels and leveraging on public funding calls.

CHAPTER 2 – START-UP FUNDING AND SUSTAINABILITY

- To provide an overview of opportunities to earn financial support at national and international level: funding models and opportunities.
- To understand the process of inclusion in national roadmaps and running national support schemes.
- To understand the logic and schemes of Framework Programme funding opportunities, the possibility to combine more than one source of support, also in collaboration with other RIs (clusters).
- To understand the need of formulating a business model adapted for the construction phase and its evolution in the operation phase.
- To understand the ERIC instrument, the application process and its intrinsic benefits and pitfalls
- To understand the users perspective of access to RIs and to access to funding for developing specific instrumentation (hardware, software) to be used at the RIs.

CHAPTER 3 – MONITORING AND ASSESSMENT OF QUALITY AND IMPACT

- To provide an overview of the current framework for monitoring and assessment of the quality and impact of RIs.
- To pick up elements of monitoring methodologies applicable also as managerial skills to self-evaluate the readiness level and the progress towards next RL.
- To understand how to identify Key Performing Indicators (KPIs) to assess the RI progress and to match with “external KPIs” established by ESFRI or other monitoring process.
- To understand socio economic cost-benefit analysis.
- To understand how to identify Key Impact Indicators (KIIs) to assess an RI impact.
- To learn, through case studies, histories that led to success or partial success.

LEARNING OUTCOMES

The module is designed to provide the Learners with:

CHAPTER 1 – THE LIFECYCLE OF A RI: INTRODUCTION

- Understanding of the Lifecycle Analysis methodology.
- Understanding the role of management in the implementation process of a RI.
- Understanding funding structure at Framework Programme level and in general.
- Understanding of international support potential, synergies with other RIs.
- Understanding the evolution steps of the RI.
- Identifying the proper Readiness Level (RLs) of the RI.
- Understanding the opportunities of clustering with other RIs.
- Understanding the ESFRI selection process and the appropriate Readiness Level to engage in it.

CHAPTER 2 – START-UP FUNDING AND SUSTAINABILITY

- Understanding institutional or national funding of conceptual development of RI as stimulated by research communities (bottom-up approach).
- Knowledge of National and European funding for conceptual design phase, from Integration Actions to Design Studies, Preparatory Phases via ESFRI or within other schemes. Funding of Start-Up phases of RI.
- Knowledge of funding measures for RI Sustainability. Foresight of sequential (sometimes parallel) RI phase developments. Dead-valleys. National Roadmaps, ESFRI Roadmap. Missions.
- Understanding of individual role in the design and update of the business model of a RI.
- Understanding the ERIC option and process.
- Understanding the internationalization options and opportunities.

CHAPTER 3 – MONITORING AND ASSESSMENT OF QUALITY AND IMPACT

- Knowledge of the monitoring issue: general concept of KPIs and time evolution of KPIs.
- Understanding the ESFRI Monitoring of RI Projects and Landmarks.
- Understanding the impact analysis on science and socio-economic dimensions: rationale of impact analysis and monitoring impact at all stages of RI.
- Understanding the strategic engagement of RPOs.
- Understanding the RI strategy at national Government level.
- Understanding the strategic engagement of RPOs.
- Understanding the RI strategy at national Government level.
- Understanding how to manage KPIs and KIIs.
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TARGET AUDIENCE

Managers and operators of RIs, professional from RIs, funding agencies and governamental

LEARNING MODEL

Lectures, group works, case discussions, and a final assignment.

ASSESSMENT

It will be based on an individual assessment.

PROGRAMME STRUCTURE

CHAPTER 1 – THE LIFECYCLE OF A RI: INTRODUCTION

This Chapter concerns the lifecycle approach that has been adopted in roadmapping exercises both at the European level (ESFRI RIs) and at the internal level of (Global Research Infrastructures, GRI). The Lifecycle is mapped onto the kind of resources that are made available (by whom, to whom) and the organization steps (informal consortium, MoU, formal consortium, legal entity) that may be needed at the different stages of RI life. Reference will be made to the EC measures that can support the birth and growth of a RI project, from Framework Programme grants to Structural and Investment Funds.

Case studies of RIs at different stages of their Lifecycle and with different organization and legal statute will be analysed. Each contribution from representative RIs from different domains will be condensed in a one hour lecture by the coordinator or executive officer. Contributions and report on the follow-up made by ESFRI through the monitoring tools, of the progress of RIs through their lifecycle will be introduced.

The Readiness levels at the different stages of the RI lifecycle approach will be adopted including management goals and user service goals. Analysis of the infrastructure services expected at each stage and the way they are consolidated and made sustainable though the lifetime.

LEARNING OBJECTIVES

- To convey concepts and definitions on the Research Infrastructures ecosystem as defined by ESFRI and the European Commission according to Competitiveness Council mandates.
- To understand the horizon scanning exercises by research communities, like ASTRONET, NuPPEC in physics and similar exercises in other domains. These typically identify the long term objectives of a community and can represent the scientific case for a project if other conditions are met: technical feasibility, lack of alternative, critical mass of competences available in a given project geometry (local, regional, national, European, international, global).
- To understand the interplay between institutional/national/European support actions suitable to develop the concept (e.g. design study).
- To estimate the time need to mature the concept of the new RI, or of its major upgrade.
- To introduce the concept of Readiness Levels (RLs) for analysing the management goals at all stages.
- To describe and identify transitions from organization models through the RI Lifecycle.
- To analyse some cases of successful management evolution through the lifecycle.
- To understand the features of the Framework Programmes of the EU in the Excellent Science Pillar – Research Infrastructures.

- To understand the role of the Programme Committee in orienting FP measures.
- To develop managerial skills for monitoring the progress through Readiness Levels and leveraging on public funding calls.

KEY LEARNINGS OUTCOMES

- Understanding of the Lifecycle Analysis methodology.
- Understanding the role of management in the implementation process of a RI.
- Understanding funding structure at Framework Programme level and in general.
- Understanding of international support potential, synergies with other RIs.
- Understanding the evolution steps of the RI.
- Identifying the proper Readiness Level (RLs) of the RI.
- Understanding the opportunities of clustering with other RIs.
- Understanding the ESFRI selection process and the appropriate Readiness Level to engage in it.

REFERENCE DOCUMENTS

- Neutron scattering facilities in Europe Present status and future perspectives. ESFRI Scripta Vol1. September 2019
  https://www.esfri.eu/sites/default/files/NGL_CombinedReport_230816_Complete%20document_0209-1.pdf
- Long-Term Sustainability of Research Infrastructures. ESFRI Scripta Vol2. October 2017
  https://www.esfri.eu/sites/default/files/ESFRI_SCRIPTA_SINGLE_PAGE_19102017_0.pdf
- Supporting the Transformative Impact of Research Infrastructures on European Research. Report of the High-Level Expert Group to Assess the Progress of ESFRI and Other World Class Research Infrastructures Towards Implementation and Long-Term Sustainability. June 2020
  https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_transformative-impact-ris-on-euro-research.pdf

CHAPTER 2: START-UP FUNDING AND SUSTAINABILITY

This Chapter provides an overview of initiatives supporting RIs at institutional, national and international level: funding models and opportunities. The overview includes institutional or national funding of conceptual development of RI as stimulated by research communities (bottom-up approach). National or European funding for conceptual design phase, from Integration Actions to Design Studies. Funding of Preparatory Phases via ESFRI or within other schemes. Funding of Start-Up phases of RI. Funding Sustainability of RIs. Foresight of sequential (sometimes parallel) RI phase developments. Dead-valleys. National Roadmaps, ESFRI Roadmap. Missions.

LEARNING OBJECTIVES

- To provide an overview of opportunities to earn financial support at national and international level: funding models and opportunities.
- To understand the process of inclusion in national roadmaps and running national support schemes.
- To understand the logic and schemes of Framework Programme funding opportunities, the possibility to combine more than one source of support, also in collaboration with other RIs (clusters).
- To understand the need of formulating a business model adapted for the construction phase and its evolution in the operation phase.
- To understand the ERIC instrument, the application process and its intrinsic benefits and pitfalls.
- To understand the users perspective of access to RIs and to access to funding for developing specific instrumentation (hardware, software) to be used at the RIs.

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- Understanding of individual role in the design and update of the business model of a RI.
- Understanding the ERIC option and process.
- Understanding the internationalization options and opportunities.

CHAPTER 3 – MONITORING AND ASSESSMENT OF QUALITY AND IMPACT

This Chapter provides an overview of current framework for monitoring and assessment of the quality and impact of RIs with a special focus on ESFRI methodology and European initiatives. It will support Managers in identifying Key Performing Indicators (KPIs) to assess an RI quality and provide tools for identifying Key Impact Indicators (KIIs) to assess an RI impact.

LEARNING OBJECTIVES

- To provide an overview of the current framework for monitoring and assessment of the quality and impact of RIs.
- To pick up elements of monitoring methodologies applicable also as managerial skills to self-evaluate the readiness level and the progress towards next RL.
- To understand how to identify Key Performing Indicators (KPIs) to assess the RI progress and to match with “external KPIs” established by ESFRI or other monitoring process.
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KEY LEARNINGS OUTCOMES

- Knowledge of the monitoring issue: general concept of KPIs and time evolution of KPIs.
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