

# A European School for Research Management: Securing and professionalising the skills for the future



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## Acknowledgments

The white paper on European School for Research Management sets the basis for a discussion with Member States and stakeholders on the measures to be taken at all levels in Europe to address sustainability of Service Provider Organizations (Infrastructures, Core facilities...) as well as Research Performing organizations (Universities, research Institutes...) in medium and long-term. It emphasizes the role of educating and developing human capital for Research performing organizations who create value for their stakeholders and society at large.

RltrainPlus would like to acknowledge the contribution of the following experts addressing key issues in the field, and trenchant overviews designed to stimulate intellectual debate among wider audiences.

<p><b>Experts at the Milan Workshop<sup>1</sup>:</b></p> <p>Ari Asmi          Antonio Rotolo          Francisco Colomer          Ornela De Giacomo          David Eggleton          Michael Gaebel          Alessandra Gallerano          Helen Glaves          Pascale Goy          Ute Gunsenheimer          Jana Kolar          Licinio Lima          Maria Jose Rementeria          Carlo Rizzuto          Giorgio Rossi          Dominik Sobczak          Fabrizio Tassinari          Emilio Urbinati</p>	<p><b>RltrainPlus drafting team:</b></p> <p>Niklas Blomberg          Georges Dagher          Enrico Guarini          Katharina Heil          Marialuisa Lavitrano</p> <p><b>RltrainPlus WP leaders and members</b></p> <p>Paolo Cherubini          Maddalena Donzelli          Monica Forni          Francesco Paoletti          Marta Lloret Llinares          Vera Master          Lorenzo Merignati          Antonio Rotolo          Irena Vipavc Brvar</p>
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<sup>1</sup> Workshop: A European School for Management of RIs, May 2022, Milan-Bicocca University, Milan, Italy.

# 1. Executive summary

Research infrastructures and advanced scientific facilities are complex organisations. Not only do they operate at the leading edge of scientific and technological feasibility, rely on scientists/researchers across Europe, but they also need to work with a large number of different stakeholders and funding mechanisms. Managers of research infrastructures must have a scientific understanding, be part of the scientific user community, and at the same time balance the scientific needs and the technical possibilities with the management skills necessary for the operation of large, expensive facilities and the diplomatic skills required to engage with and define agreements between many international actors.

The role of education and universities is of utmost importance in the development and implementation of specific programs to address the organisational and management needs of RIs and CFs. In order to harmonise the content and implementation of such programs and develop a European diploma for managers of Research Infrastructure a centralized European School should be considered.

The concept of the School builds on the experience gained by two EU funded projects [RAMIRI](#) and [RITRAIN](#), both focused on developing training initiatives. These projects, as well as the input and contribution of experts from European Universities have been useful in defining a competency profile, designing an education, and training program to address the organisational and management needs of RIs and CFs, to prepare the future generations of managers and operators and equally important to pave the way for a career pathway.

The experience gained in defining an education and training program for service provider organizations (i.e., Research Infrastructures and Core facilities) could be extended to define programs for the management of Research Performing Organizations such as Universities and Public Research Institutes.

## ***A European School for Research Management (ESReM)***

### **Mission:**

To educate and develop human capital for Research performing organizations who create value for their stakeholders and society at large.

### **Vision:**

Developing progressive and connected community for thought leadership in the international research field. It is our goal to keep growing alongside new cutting-edge technologies and paradigms and fostering the implementation of Open Science, Open Innovation strategy.

### **Objectives:**

We accomplish this through our MBA, MS, PhD, and Executive Education programs. The ESReM education and training program is based on four pillars:

1. The design and dissemination of specific Learning Activities (LAs) in academic tracks (from BA to PhD level and beyond), reinforcing the existing academic curricula for future RI/CF managers and operators, and, at the same time, allowing the consortium to build a transversal, integrated, certifiable academic longitudinal learning track specific to RI/CF managers and operators.
2. The design and delivery of specific cross-field executive programs (Continuous Professional Development courses), as formal Lifelong Learning activities for RIs and CFs' managers and operators.
3. The development of a Community of Practice to structure opportunities of knowledge and best practices sharing, through a peer learning approach.
4. Fostering Staff exchange as cross fertilization.

### **Values:**

In fulfilling our vision and mission we must adhere to our core values:

- **Excellence** – We are dedicated to exceptional teaching, research, and service.
- **Accountable** – We must meet our obligations and be accountable to others.
- **Inclusiveness and Diversity** – We have an inclusive culture and welcome diversity.
- **Respect and Integrity** – We value what others offer and act with honesty and mutual trust.
- **Collaborative** – We foster and strengthen partnerships with our constituencies that support productive exchanges of knowledge and skills to the benefit of our community members.

## 2. Introduction

Research Infrastructures are critical for European research and provide researchers access to instruments, facilities or data resources beyond the capabilities of an individual institute - and often beyond the capacity of individual countries. They are large, often international, organisations that balance the need from a complex set of stakeholders. Research infrastructures are seen as a major instrument in European policy making, represent major posts in European research budgets and are large employers but to date there has been little attention paid to the training, development and long-term provision of professional research infrastructure staff and managers.

For this purpose, RltrainPlus has convened a workshop “A European School for Management of RIs” which was designed to explore different angles that need to be considered when working towards professionalising training related to research infrastructure management. Aspects such as accreditation, course focus (knowledge, skills, methods, governance, and management practice within RIs), course delivery, training sustainability and specific exchange programmes were covered. Invited speakers presented ongoing initiatives, past experiences, and best practices to gain an in-depth understanding of the different fields. The workshop articulated the foundations for a European School for Research Management (ESReM) awarding international academic certificates and the conceptual, legal and financial requirements for establishing such a school.

### ***RltrainPlus Project***

The overarching goal of the pan-European project [RltrainPlus](http://www.rltrainplus.eu) is to design and implement an educational and training programme to fulfil the competency requirements for the current and future managers of European Research Infrastructures (RI) and Core Facilities (CF). The project brings together, for the first time, research infrastructures, core facilities, business management Schools and European universities, in a new innovative concept to transform the access and empowerment of human resources for national and international scientific facilities in Europe. The RltrainPlus project aims to establish a European School for Research Management (ESReM) to drive the professionalisation, efficiency and long-term value creation of European Research Infrastructures and Core Facilities. The RltrainPlus project brings together key partners from the European Research Area:

- 9 Research Infrastructures (covering all thematic domains)
- 1 Core Facilities Association (regrouping more than 100 CFs)
- 9 Universities
- 18 associated partners
- 83 Universities linked through the Universities leagues and associations (The GUILD, CESAER, UNAEuropa and 4EU+ Alliances).

## 3. Research Infrastructures: A major role in EU

### 3.1 *Research infrastructures are critical for the European research ecosystem*

More than 1,000 existing Research Infrastructures (RIs) – as mapped by the Meril-2 Project, [Mapping of the European Research Infrastructure Landscape](#) – received national and European support to foster coordination, access and use of facilities to top-level scientists. Furthermore, the Member States (MS) and the European Commission (EC) set up the European Strategy Forum for Research Infrastructures (ESFRI) to support a coherent approach to policy making on RIs. This led to the development of 22 Projects and 41 Landmarks listed on the ESFRI Roadmap 2021 [2], alongside an extended landscape analysis that provides the current context of the most relevant RIs. They represent the most advanced undertakings at global level in their fields, strengthening the competitiveness of European science. The [RISCAPE](#) project is complementing this analysis by offering a systematic, comprehensive, consistent, and peer-reviewed analysis report on the position and complementarities of the major European Research Infrastructures in the international landscape.

#### ***Research Infrastructures and Core Facilities***

**Research Infrastructures** (RIs) are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. They include major scientific equipment (or sets of instruments), knowledge-based resources such as collections, archives and scientific data, e-infrastructures, such as data and computing systems and communication networks and any other tools that are essential to achieve excellence in research and innovation. They may be “single-sited,” “virtual” and “distributed.” They span the whole spectrum of knowledge from social sciences to astrophysics including environmental sciences and large-scale infrastructures. Scientific data are operated by highly competitive and broad research communities covering most areas of research [1].

**Core facilities** (CFs) provide centralised shared resources that provide access to instruments, technologies, and services, as well as expert consultation and other services to scientific and clinical investigators. The typical core facility is a discrete unit within an institution and has dedicated personnel, equipment, and space for operations.

### 3.2 *Research Infrastructures and Core facilities are essential to modern research*

Research infrastructures span all fields of science, from large instruments to long-term collections in the humanities. They are critical for knowledge development and its impact on society. Recently, ESFRI published a landscape analysis of RI providing their contribution as well as an analysis of grand challenges and future needs to be addressed [2].

Thus, RIs contributed to a better understanding of the blocks of matter, their properties, their interactions, and their role in the evolution of the Universe and enabled Nobel prizewinning scientific breakthroughs. Health & Food RIs are key catalysers of progress and change. Biomedical RIs and genomic CFs contributed to deciphering the genetic association in several common complex diseases thus enhancing the transition

towards precision medicine. RIs are required for the containment of emerging highly contagious infectious diseases such as Ebola and it is generally reckoned that RIs and CFs largely contributed to the identification of SARS COV2 and the large-scale production of vaccines. RIs and CFs are crucial in monitoring air, seawater, and seabed quality, as well as ocean observation, thus delivering data, information and ultimately knowledge, a high priority on the worldwide environmental agenda. In the technical domain, RIs contributed to the development of ultra-fast, low noise detectors that are used in a broad field of applications e.g.: medical and environmental sectors, and information technologies. Data warehouses and high throughput computing rely on techniques and testbeds developed by RIs. In the social sciences, RIs provide tools for a better understanding of societal changes such as ageing and multi-lingual communication.

### ***3.3 The role of European Research Infrastructures in driving borderless market for research, innovation, and technology***

Developing Europe as an attractive research environment is a foundational principle of the European Union. The Treaty of Rome in 1957 establishing the European Economic Area and principles of European institutions [3], also articulates the idea of a European Research Area, stating that “The Union shall have the objective of strengthening its scientific and technological bases by achieving a European research area in which researchers, scientific knowledge and technology circulate freely [...]” (see box The European Research Area: a historical perspective).

The implementation of the European Research Area (ERA) has contributed to some major achievements in areas such as Research Infrastructures, open science, international cooperation, and the mobility of researchers [4]. RIs established a borderless market for research, innovation and technology across the EU and play a major role in addressing grand challenges [5]. Conversely, as large pan-European organisations with large scientific user communities the European research infrastructures are also seen by the European Commission and national science policy makers as an important instrument for developing the European research landscape, supporting mobility of researchers and the sharing of knowledge. Thus, research infrastructures feature prominently in the ambitions for the ERA and in plans for European Structural and Investment funds [6] such as the ERDF [7].

RIs take a central role in the actions for the relaunched ERA [5]. For instance, research infrastructures are seen as instrumental for the advance towards the reform of the assessment System for research, researchers and institutions, instruments to promote attractive and sustainable research careers, help with research mobility - not only between major research institutions but also support mobility towards the new member states by offering attractive, technology intensive career opportunities. Research infrastructures are also seen as a foundation for collaborations beyond Europe and to help foster inter-sectoral mobility.

In addition, the core role of European Research Infrastructures is to provide the research community access to instruments, facilities and data resources that are too large, complex, or expensive for a single institute to handle alone. Thus, executive officers of these Infrastructure need to manage and organise access to these entities, they also need to respond to other, sometimes conflicting expectations. This is reflected in the ESFRI white papers research infrastructures that discuss a number of dimensions for their operations in addition to the scientific excellence [8].

### **3.4 Research infrastructures as drivers for Open Science**

RIs and CFs are also at the core of the development of the Open Science and Open Innovation strategy, and a major factor in its success and in the significant achievements of the European research landscape, with the development of initiatives, practices, shared facilities, common guidelines, and standards.

As RIs play a fundamental role in the Open Science and Open Innovation strategy, their sustainability, governance schemes and management organisation have become a central issue.

### **3.5 The European Research Area - A historical perspective**

Europe has been integrated for a very long time by a multitude of networks of varying breadth and depth, but whose importance has been constantly decisive for its economic development, the distribution of its population and its language structure. The Europe of networks predates the Europe of nations and has often been much deeper and more durable than the shifting and superficial political borders that have marked it.

The postal and rail networks have linked the continent into a system that has been at least partially integrated since the 1860s, when the major international organisations were born; at the end of the 19th century the network of European central banks animated and stabilised capital around a currency based on gold. The road networks have done so since the Rome treaty, particularly with the development of the major European transverse roads and the motorway network. This was complemented with the Trans-European Networks in the 1990s that included interconnected and interoperable networks in the fields of transport, telecommunications, and energy for the benefit of citizens, enterprises, and administrations. In this respect, the European Union is, to a large extent, a politicization and deepening of a technical integration that preceded it by far, notably at the time of the first industrialisation of the continent.

This Europe of networks goes back further than the technical networks of the industrial age. The circulation of scholars in the 'Republic of letters' of academies, courts and universities; the circulation of religious in mediaeval Europe through the network of Benedictine and Cistercian abbeys, Franciscan convents and missionaries sent around the world from their pan-European seminary of the Propaganda Fide in Rome; the European and worldwide networks of Protestant Europe; the Jewish diaspora since the development of the monarchy in Poland, and even more since their repression by the Iberic monarchy; migration networks on a continental scale, from the Normans to the political refugees of the 19th century; the merchant networks that animated trade on a continental scale from Genoa to the Baltic and from Byzantium to London from the Middle Ages onwards and that circulated bills of exchange, goods, information and financial techniques on a continental scale.

The Europe of networks predates the Europe of nations and has often been much deeper and more durable than the shifting and superficial political borders that have marked it. It is not surprising that one of the European Union's responses to the invasion of Ukraine has been its integration into a technical network, an integration which, as Ursula Von Der Leyden put it, "keeps the lights on and the houses warm in these dark times" far from utopias and fanaticism markets.

European integration can thus be read through this double prism. It is both an ancient history and a promise for the future.

### ***The construction of the European Research Area***

Since the late nineteenth century, political strategies have often highlighted the role of education as being at the forefront of societal change. Education has been an integral part of nation-building, state-building and economic development. Similarly, the role of education as one of the central practices of constructing the state as a territory of wealth and belonging is undisputed. Education and higher education were essential elements in the genesis of the Keynesian national welfare state as a particular geopolitical unit [9]. Provision of education became a form of universal social engineering and one of the key mechanisms through which what is customarily known as the welfare statehood unfolded. Primary and secondary school systems were homogenised, spatial networks of higher education institutions expanded, and curricula developed on the basis of particular national needs. This was the case in the OECD sphere. One may thus argue that the spatial modernization of the state and the constitution of educational systems took place concomitantly. The state was simultaneously constituted as a compartment of space and educational systems. Similarly, the European Research Area can be conceived as a geographical entity and an educational system.

The starting point in such a perspective is that universities are complex societal organisations whose purposes and actions extend well beyond producing pure scientific progress. European Universities increasingly contribute by their role in education to the construction of a de-territorializing, transnational societal and political order [10]. Indeed, within the increasingly axiomatic discourses of the global knowledge-based economy, universities are no longer given a merely supporting role as “national” organisations of such economy. Rather, universities are increasingly conceived of as pivotal actors of the global knowledge-based economy [11]. In this respect, The Erasmus and Erasmus Mundus programs were conceived to promote the European Dimension in Higher Education. Similarly, The European School for Research Management, with the involvement of the European Universities in designing and delivering its program will contribute to the emergence of the European Research Area and its consolidation.

### ***3.6 Impact of Research Infrastructures and Core Facilities***

Research infrastructures are large-scale public high-technology investments and consequently there is increasing demand for RIs to demonstrate the positive contribution they make to society beyond the direct impact on research progress. This includes the estimating - or even quantifying - impact on regional and national economies and the benefits they offer to our citizens through the science they deliver. The definition and measurement of socio-economic impact present considerable challenges, for instance, in many fields such as climate monitoring, biodiversity, livestock, and health, long-term observations are indispensable for the interpretation of ongoing changes. Data from research infrastructures form part of daily metrology forecasts [ICOS], and policy analysis and serve as references for intellectual property management [12]. Recently, ESFRI published a landscape analysis of RI providing their contribution as well as an analysis of challenges and future needs to be addressed [1].

In addition, RI and CF provide a pan-European open access to cutting-edge technology platforms for academia and industry, promote interdisciplinary and excellent research, reduce its redundancy and therefore its cost, improve productivity and foster innovation. A key role of RI in innovation is in the training of scientists and research engineers, as well as by creating opportunities for their mobility to and from science and industry or services. A great impact on innovation is also expected from the openness of well documented high-quality research data supported by reliable and effective data services [13] [14].

Within the scope of this white paper, suffice it to state that experience from several well established ESFRI Landmarks shows the significant long-term benefits of RIs to society at large. Large-scale RIs, or clusters of RIs, intrinsically shape the economy and society of the region where they are located contributing to competitiveness, but also to cohesion and integration.

### ***3.7 The ERA in the European knowledge-based economy***

The promise for the future, following the Lisbon treaty, is, among other themes, a knowledge-based economy that proceeds through the practices of multiple actors operating within and through different institutional settings. These actors range from individual academics to powerful think tanks, and international organisations. Among these actors are RIs and CFs. They are a vital element for the realisation of the European Union as a knowledge-based society.

On a scientific level, large-scale infrastructures contributed to a better understanding of the blocks of matter, their properties, their interactions, and their role in the evolution of the Universe and enabled Nobel prizewinning scientific breakthroughs. Health & Food RIs are key catalysers of progress and change. Biomedical RI and genomic platforms contributed to deciphering the genetic association in several common complex diseases thus enhancing the transition towards precision medicine. RI are required for the containment of emerging highly contagious infectious diseases such as Ebola and it is generally reckoned that RI and Core facilities largely contributed to the identification of SARS COV2 and the large-scale production of vaccine. RI are crucial in monitoring air, sea water, seabed quality, as well as ocean observation thus delivering data, information and ultimately knowledge, a high priority on the worldwide environmental agenda. In the technical domain, RI contributed to the development of ultra-fast, low noise detectors that are used in a broad field of applications e.g.: medical and environmental sectors, information technologies... Data warehouses and high throughput computing much rely on techniques and testbeds developed by RI. In the social sciences, RIs provide tools for a better understanding of societal changes such as ageing and multi-lingual communication.

### ***3.8 Research infrastructures and core facilities are complex organisations to manage***

As RIs and CFs increase in importance, questions about how to organise, maintain, manage, and finance them have become a major topic for funding organisations. Research infrastructure sits at the crossroads of several demands. First and foremost, they make facilities accessible to the scientific community. They are also seen as instruments for implementing policy creating growth and jobs in regions, promoting European mobility, delivering skills and instruments for science policy.

In addition, RIs and CFs must manage a large number of human resources with a wide variety of competencies ranging from regulations to top notch technical skills. Research infrastructures and Core facilities are major employers in the European research landscape. In 2020, the number of personnel in Europe working in the higher education sector exceeded 811 000 persons [15]. There is no data reporting the number of individuals employed in Research Infrastructures and Core Facilities. Given the large number of RIs and CFs, a rough estimate of staff would be a number exceeding 70 000 persons as in only the synchrotron facilities the number is about 3000 [16].

Furthermore, the total budget invested in RI is significant. The 63 Research Infrastructures and projects on the ESFRI roadmap received a total budget of about 2.4 B€ in Horizon 2020 and 2.46 B€ in Horizon Europe. Thus, over the past 20 years, the EU has invested €20 billion in research infrastructures pitched in these roadmaps [17]. In addition, Europe Member States harbour more than 1000 RIs which receive national or European funding and the total investment in European research infrastructures exceeds 1.6 B€ [18]. Good management is thus imperative to secure value from these investments.

The diverse blend of scientific and non-scientific requirements for successful long-term RI and CFs operations requires a diverse set of management skills and backgrounds as stated by **Giorgio Rossi** at the Milan Workshop. This is where RI differs from big-science projects. Scientists being promoted into research infrastructure leadership often find the transition challenging. The transition into a managerial role requires a new skill-set and individuals need training and mentoring in organisational administration, finance and leadership to be effective in the role; conversely, non-scientific staff moving into RI needs training and mentoring to effectively project other critical skills such as business administration, project management and policy within the highly specialised scientific service role of RI organisations. Communication with stakeholders, policy makers and staff are of great importance. Similarly, inter-relationships between RIs in the same science domain as well as transdisciplinary across domains. The RI's mission is often a moving target. It includes policy developments, EOSC, SDGs, and industry interactions. These tasks require specific skills and competencies from the management team.

A key observation in the workshop was that leadership is practised at every level, many roles in a research infrastructure are externally facing and interact with users and other stakeholders. Research infrastructure managers need to have a strong focus on service culture, setting organisational values and support development of staff to meet organisational requirements as well as offering attractive career development for retention.

## 4. Education and training

### *4.1 Human capital - people - is critical for Europe's research infrastructure development*

At the Milan workshop, **Jana Kolar** stressed that “The most important resource for a RI is, arguably, its human capital and there is an urgent need to develop measures in support of career diversification and multiple career paths”. In addition, in an effort to deepen the European Research Area, the Council invites Member States and the Commission to develop measures in support of career diversification and multiple career paths. **Helen Glaves** indicated that navigating this landscape requires strong leadership and

management skills and that capacity building and training are required to make RIs function. There is a need to invest in the human capital to retain expertise and valuable team members.

The workshop concluded that existing programmes (e.g. EMMRI) [19] or existing internal courses provide a good starting point for training RI and CFs managers and need to be pursued. For specific roles such as IT and project management this can be complemented by existing certification schemes. In the discussions it was noted that a lasting benefit of the programmes targeting RI and Core Facilities is the development of informal European professional networks. Strengthening these networks and allowing participation from a wide range of participants from European RIs, single site, federated, RIs, CFs and technology platforms is a critical step for cross fertilization and professionalisation of the careers and effectively support the mobility of staff across Europe as stated by **Enrico Guarini** and **Marialuisa Lavitrano**.

#### ***4.2 The need for professionalisation of research management***

Through ESFRI the European research infrastructure landscape has developed over the last 20 years into a large ecosystem of European and national infrastructures, complemented by institutional Core Facilities. With the growth of the landscape hiring and retaining highly qualified staff has become a major bottleneck for European research infrastructures [19]. Education and training programmes to support career development and encouraging people to make the move into this environment is critical for long-term success. As RIS and CFs are geographically distributed, training must thus support development of human capital across the whole of the ERA, e.g., via embedding courses within existing degree programmes. Possibly, Longitudinal Learning Track (LLT) is the most pertinent approach. Besides, such a distributed LLT could be the prototype model for many conceptually similar LLTs on different topics and disciplines. Eventually this would fulfil the basic dream guiding the Bologna Process, started 21 years ago of a totally student-centred, Europe-centred, certified-quality European higher education, where the students can move and learn throughout different universities and countries at their will, looking for excellence and grasping it wherever they can find it, and this notwithstanding they can be issued, without bureaucratic bottlenecks and regulatory hassles, at given setpoints of their career, unique, centralised, certified European degrees.

The national and European research infrastructure portfolio is a large investment for Europe. The workshop concluded that a strategic investment is needed to ensure that the people and skills required to successfully manage this portfolio; and that there is a need to develop a career path as a research manager, drive the professionalisation of research management to meet the specific coordination needs in this landscape.

#### ***4.3 A European School for Research Management***

Several speakers stressed the role of Research infrastructures in addressing grand challenges and the necessity to set up specific education and training for RIs and CFs avoiding redundancy and reducing costs. Indeed, currently, training efforts are scattered across different (EC-funded) projects with each funded for similar activities. Partly leading to many parallel efforts working towards the same aim (“training”). A joint approach should be considered with a coordinated training program to be integrated in universities’ curricula. The role of education and universities is thus of utmost importance in the development and implementation of specific programs to address the organisational and management needs of RIs and CFs and that there is a need to develop a European diploma for this field.

The workshop moved on to outline a European School for Research Management (ESReM) that will coordinate the continuous development, dissemination, delivery, and certification of the learning activities, allowing for continuous professional development, and for monitoring and certifying the learning activities embedded in different university tracks and contributing to the European Longitudinal Learning Track.

**Dominik Sobczak** stated that the European Council adopted recommendations and actions to deepen the European Research Area, a number of these are in accord with the objectives of the School. Among the recommendations, is the coordination of Union and national investments and reforms in order to strengthen national research and innovation systems and increase their impact at Union level. Among the actions: to promote attractive and sustainable research careers, and inter-sectoral mobility across the ERA; to strengthen sustainability, accessibility, and resilience of research infrastructures in the ERA; to enhance the strategic capacity of Europe's public research performing organisations.

**Carlo Rizzuto** stressed the necessity of the European School (ESReM) to be connected to research on management. Indeed, management of RI is not subject to deep analysis and that the theoretical basis for this field needs to be developed.

The concept of the School builds on the experience gained by two EU funded projects [RAMIRI](#) and [RITRAIN](#), both focused to develop training initiatives. These projects, as well as the input and contribution of experts from European Universities and Member States have been useful in defining a competency profile, designing an education, and training program to address the organisational and management needs of RIs and CFs, to prepare the future generations of managers and operators and equally important to pave the way for a career pathway.

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- **Inclusiveness and Diversity** – We have an inclusive culture and welcome diversity.
- **Respect and Integrity** – We value what others offer and act with honesty and mutual trust.
- **Collaborative** – We foster and strengthen partnerships with our constituencies that support productive exchanges of knowledge and skills to the benefit of our community members.

#### 4.4 Competency profile

A competency framework has been developed within RltrainPlus project in partnership with Research Infrastructure leaders and is aimed to support the design and development of management education in this specific organisational context. Competencies are the skills, knowledge and behaviours that are required to lead organisations to successful performance.

The framework outlines several core competencies, grouped into 3 broad areas:

- leading the organisation,
- engagement within and beyond the organisation and
- professional conduct.

The content of this competency profile is further developed in Annex 1. It is in accord with the “competency-based approach for career development in academia and beyond” developed by the EU commission [20].

#### 4.5 ESReM education and training program

The ESReM education and training program is based on four pillars:

1. The design and dissemination of specific Learning Activities (LAs) in academic tracks (from BA to PhD level and beyond), reinforcing the existing academic curricula for future RI/CF managers and

operators, and, at the same time, allowing the consortium to build a transversal, integrated, certifiable academic longitudinal learning track specific to RI/CF managers and operators.

2. The design and delivery of specific cross-field executive programs (Continuous Professional Development courses), as formal Lifelong Learning activities for RIs and CFs' managers and operators.
3. The development of a Community of Practice to structure opportunities of knowledge and best practices sharing, through a peer learning approach.
4. Fostering Staff exchange as cross fertilization.

#### ***4.6 Development of a European diploma***

Transnational joint study programmes, as developed by several higher education institutions from different European countries, do already exist. However, there are still numerous challenges as well as legal and administrative obstacles to implementation, especially if students in these joint programmes are awarded a joint degree upon completion. In some cases, legal frameworks and regulation may hinder universities from awarding joint degrees. Obstacles to joint programmes and/or joint degrees also emerge from varying requirements related to curriculum design and delivery in the different higher education systems. According to the Bologna Process Implementation Report of 2018, only about 5% of higher education institutions across the European Higher Education Area award joint degrees.

The European University Association facilitates the dialogue and collaboration of higher education entities and their practices by setting up a range of services. Among these are Lifelong Learning initiatives which evolved from one of lifelong education intertwined with humanistic ideals promoted by UNESCO in 1949, to a neo-liberal conception more focussed on learning outcomes to improve skills and competencies [21] [22]. The Memorandum on Lifelong Learning [23] and Making a European Area of Lifelong Learning a Reality brought Lifelong Learning to the forefront of EU policy [24].

There is an increasing interest and demand for a European diploma to go beyond learning skills in a country and getting them recognised in another European country. Very few European initiatives deliver such EU degrees. For example, the European University Institute grew up to incorporate academics from across the globe and deliver post graduate and post-doctoral education in fields related to development of Europe such as culture, history, law, economics, and institutions. It also develops interdisciplinary research programmes on the major issues confronting contemporary European society, including matters relating to the construction of Europe. Reflecting the growth of the European Union, the Institute now has 23 contracting states [25]. In 2018, THE ESCP Business school, a bicentenary old institution, launched its European bachelor's degree [26]. The 4EU+ Alliance, an alliance between six of Europe's leading universities - Sorbonne, Heidelberg, Charles, Warsaw, Milan, Copenhagen - is the first of several expected EU initiatives [27, 28]. It follows a proposal in September 2017 by French president Emmanuel Macron to create 20 cross-border European University Networks of about four partners each, to strengthen academic performance and boost European cooperation [29]. Past alliances have often faded into dead letters because faculty did not buy into them, governments failed to support them, or new rectors were not as keen as the original signatories. Learning from this experience, the Guild of European Research-Intensive Universities published, in 2018, recommendations for how the new deals could work better. One suggestion is to base them, "on clear

strategic objectives and committed leadership.” The Guild also urges a long-term perspective, with minimum government support of 10 years and a five-year review [30].

Quite clearly, since 2021, EU is moving forward towards a European diploma following the Council conclusions on the European Universities initiative. EU higher education needs a European identity. A European diploma would provide a visible symbol and reinforce a strong sense of European belonging among graduates. It would foster the development of a European identity and a sense of Europeanness among its citizens, an identified aim of the European Commission: “Education and culture are the key to the future” [31]. The establishment by the European School for Research Management is in accord with the aim of the European commission. Building up such an EU school in close coordination with European universities and Research Infrastructures will foster the construction of the European Research Area.

#### ***4.7 European School for management of Universities and Research Entities***

Universities, Public research Institutions, Research Infrastructure and Core facilities play an essential role in research and innovation via the public research system, and many of today’s innovations are based on knowledge generated in this sector [32-34].

Advances in the understanding of innovation systems have also given rise to the notion of systemic failures, which reduce the efficiency of overall R&D and innovation efforts and pose issues for governments shaping Research policy [35]. Among these are governance and management of these entities. Indeed, as their role in Innovation has increased, questions about how to organise, maintain, manage, and finance them have become a major topic for funding and research organisations. The focus in the coming years is likely to be a continuing search for optimal steering and governance arrangements that achieve goals (such as research excellence and supporting the growth of industry) within a constantly evolving environment. In addition, these entities have also been buffeted by factors such as trends to more open innovation, ongoing globalisation, and changing boundaries between basic and applied research, technologies, and users and producers of research [36]. These require specific skills and training which goes beyond scientific and technical expertise.

The experience gained in defining an education and training program for Research Infrastructures and Core facilities could be extended to define program for the management of Universities and Public Research Institutes.

Research Infrastructures, Public research institutes and Core facilities are heavily involved in knowledge creation and innovation processes. Management of these entities require appropriate education and training that supports their scientific and related endeavours. This will contribute to improved economic outcomes overall.

### *Universities and Research entities by number in the EU*

Universities and other higher education institutes: 9094

Government or private non-profit research institutions: 7806

Research Institutes with continuous research activities: 91 527

[https://ec.europa.eu/eurostat/databrowser/view/INN\\_C822\\_custom\\_3231537/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/INN_C822_custom_3231537/default/table?lang=en)

#### **4.9 Funding of the European School for Research Management**

At the Milano workshop different business models to set up a school have been explored, e.g., a federated setup with the School as a shared common service between Member States. **Alessandra Gallerano** focused on “European degrees/joint programmes/transnational efforts” ongoing at the EU level to bring cooperation to the next level and described the Erasmus Mundus as a driving force for the development of joint programs. **Fabrizio Tassinaro** presented the European University Institute as a model for the setting up of the ESReM. Michael Gaebel mentioned the role of the European University association in facilitating the dialogue and collaboration on higher education as well as research policy and practices. **Emilio Urbinati** presented the UNA.RESIN project that aims to strengthen the research and innovation (R&I) aspect of Una Europa, in synergy with the education aspects. It is the first steps towards creating a common R&I eco-system for our researchers and partners from all Una Europa universities.

While the EC’s funding of specific training initiatives is a useful policy approach, it is not sustainable in the long run. Moreover, it does not allow the scalability of solutions as the providers are only the grant winners. In order to get the sustainability of management education for middle and senior leaders of RIs, the School could be arranged through a specific governance model as a shared common service between Member States. **Marialuisa Lavitrano** suggested that the school could be built based on the European University Institute model in Florence.

## 5. Annex 1

### 5.1 A competency framework for managing large-scale public investments in deep technology

A competency framework has been developed within RltrainPlus project in partnership with Research Infrastructure leaders and is aimed to support the design and development of management education in this specific organisational context. Competencies are the skills, knowledge and behaviours that are required to lead organisations to successful performance.

The framework outlines several core competencies, grouped into 3 broad areas:

- Leading the organisation.
- Engagement within and beyond the organisation.
- Professional conduct.



The competencies are intended to be applied dynamically to all phases of the RI cycle – planning, construction, operation - with each phase building on the previous phase with different nuances i.e., a competency required at the operation phase also connotes the planning and construction phases as a matter of principle. Therefore, the framework provides guidance on what is needed urgently and what can wait until the next phase.

These descriptors of behaviour are not designed to be comprehensive but provide a sense of what is expected from top leaders of Research Infrastructures. In the box below is a detailed list of all the competencies with a description of knowledge base, skills and expected behaviours of each one.

This competency profile is in accord with the “competency-based approach for career development in academia and beyond” developed by the EU commission [37]. Indeed, in the new ERA communication, the European Commission announced, amongst others, the delivery of a toolbox of support for researchers’ careers, including a Researchers Competence Framework. This competence framework is needed for a successful research career, both inside and outside academia. This framework is made up of 38 interrelated competences that are clustered in 7 competence areas:

- cognitive abilities,
- self-management,
- working with others,
- doing research,
- managing research,
- managing research tools,
- making an impact.

The ambition of this framework is to enable widespread recognition of the competences and career development of researchers in various stages of their careers. It will be a useful tool to support self-assessment, education, and training (e.g., curricula development) as well as job seeking.

## 5.2 RltrainPlus competence framework

Competence and definition	Indicative knowledge, skills, and behaviours
<p><b>Strategic vision and business context</b></p> <p>Ensures a long-term, strategic view is taken. Communicates the strategy, vision and how individual tasks fit with the broader context</p> <p>(Maps to ESA 'Strategic vision and business context')</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Has an overview of the organisation and the research that it supports</li> <li>● Knows who the organisation's stakeholders are</li> <li>● Is aware of activities that compete with those of the organisation</li> <li>● Understands and regularly reviews user needs</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● The charisma and influencing skills to foster a common vision among key stakeholders</li> <li>● Market research skills</li> <li>● Long-term business planning, including forecasting/anticipation of future goals</li> <li>● Backup planning</li> <li>● Risk analysis</li> <li>● Balancing different needs from different sources</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Willingly and openly communicates the overall strategy</li> <li>● Checks the strategy from a top-down perspective; reviews the vision against organisational objectives to ensure there is no contradiction</li> <li>● Takes action to translate the organisation's vision into a clear operational strategy, cascades this into individual objectives and enables operational delivery of the strategy</li> <li>● Checks the strategy from a bottom-up perspective; recognises what impact the current tasks and projects may have on the vision and highlights this appropriately</li> <li>● Makes decisions that support and are aligned with the overall strategy</li> <li>● Demonstrates how tasks and projects fit in with the bigger picture and broader context</li> <li>● Monitors the implementation of strategy</li> <li>● Provides regular updates regarding strategy evolution</li> <li>● Encourages others to propose potential changes</li> <li>● Positively challenges how things have been done in the past at the right time and in the right environment</li> <li>● Maintains awareness of changes in the wider sector and recognises what changes are required to keep up to date or how to react to these</li> <li>● Reviews suggestions and decisions related to change to determine the best changes to implement</li> <li>● Acts as a conduit for communicating mandated change requirements and pushes for decisions from above related to change suggestions</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Takes actions or implements objectives that contradict the strategic vision</li> <li>● Focuses on the short-term, immediate priorities and is unable to understand and / or take account of the global context</li> <li>● Does not recognise how his/her section / division / department contributes to the overall strategy</li> <li>● Articulates the strategy without indicating links between this and the tasks being completed</li> </ul>

	<ul style="list-style-type: none"> <li>• Takes an approach that does not consider the future aims of the organisation</li> </ul>
<p><b>Operational planning</b></p> <p>Establishes, implements, and monitors a systematic course of action for self or others to ensure accomplishment of a specific objective. Plans, anticipates and initiates change. Determines priorities and allocates time and resources effectively</p> <p>(Maps to ESA 'Planning and organisation')</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Relevant research landscape/business context, including transnational considerations</li> <li>• Strategic vision</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>• Project management</li> <li>• Public procurement</li> <li>• Communication</li> <li>• Team building</li> <li>• Influencing</li> <li>• Diplomacy</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>• Follows a methodical course of action</li> <li>• Uses objectives as a basis for planning activities</li> <li>• Realistically estimates the time and resources required to accomplish tasks</li> <li>• Prioritises effectively when faced with limited resources or time pressure</li> <li>• Constantly monitors the accomplishment of objectives and adapts planning accordingly</li> <li>• Plans, anticipates change; thinks it through from beginning to end</li> <li>• Willingly takes responsibility for the delivery of a result to ensure it is achieved</li> <li>• Regularly checks outcomes to ensure quality is maintained throughout delivery</li> <li>• Successfully navigates obstacles, setbacks, and issues to move towards successful outcomes</li> <li>• Provides direction, SMART objectives, and goals to others so that they understand what they are working towards.</li> <li>• Makes sure that roles, responsibilities, and reporting lines are clear to each staff member</li> <li>• Delegates tasks to the appropriate individual or team</li> <li>• Plans out activities, tasks, workload, and milestones within the section / division / department.</li> <li>• Accurately estimates the amount of time and resources needed to accomplish a task and matches tasks to skills</li> <li>• Reviews performance against objectives, provides feedback, rewards, and discusses corrective actions</li> <li>• Quickly and proactively addresses individual issues of underperformance</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>• Is unable to keep to a plan</li> <li>• Makes plans that do not relate to objectives</li> <li>• Allocates resources poorly and manages time badly</li> <li>• Does not set priorities when dealing with limited resources or does not know how</li> <li>• Cannot cope with changes in requirements</li> </ul>
<p><b>Ethical and legal compliance.</b></p> <p>Complies with ethical and legal regulations at a local, national, and</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Broad understanding of ethical and legal implications of research, and the responsibility of researchers and research infrastructures to work within ethical and legal constraints</li> <li>• Firm understanding of the organisation's internal ethical and legal policies</li> <li>• Broad understanding of organisational responsibilities in the context of local, national, and international legal frameworks</li> </ul>

<p>international level as appropriate, and ensures that others are well-placed to do so.</p>	<ul style="list-style-type: none"> <li>● Basic understanding of intellectual property law, contractual law, and copyright law</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Is able to empathise with research subjects and other stakeholders</li> <li>● Can interpret both the letter and the spirit of ethical and legal policy</li> <li>● Applies risk assessment skills relevant to the interpretation of ethical and legal uncertainties</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Confronts potentially unethical behaviour or behaviour that is at odds with the organisation's values; holds others accountable for supporting these values</li> <li>● Respects confidentiality: knows when and how to use confidential information without abusing the confidence of the source</li> <li>● Protects the organisation against litigation and financial risk by complying with legal frameworks and insisting that others do the same</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Does not respect confidentiality; uses confidential information inappropriately</li> <li>● Shows no loyalty to the organisation, its mission, and values</li> <li>● Does not recognise or is not concerned with dilemmas involving</li> </ul>
<p><b>Financial management</b>        (include funding generation and budgetary control)</p> <p>Manages the generation and spending of organisational income effectively, demonstrating responsible use of public funds and compliance with organisational and legal processes</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Has broad awareness and knowledge of key relevant funding sources and grant application procedures</li> <li>● Understands funding complexities and variety of sources for funding. Knows who potential funders of organisational activities are and is aware of their constraints</li> <li>● Good awareness of the financial/legal landscape as it applies to research infrastructures</li> <li>● Understands the importance of independent audits and the organisational processes necessary to comply with them</li> <li>● Understands institutional and national financial systems for supporting research.</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Is expert skilled in the use of required financial management systems for audit tracking and budgetary planning?</li> <li>● Can interpret budgets produced by others</li> <li>● Budget planning and control skills</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Demonstrates integrity when making financial decisions</li> <li>● Allocates funds according to demonstrated need and monitors use of these funds to avoid significant under- or over-spending</li> <li>● Makes financial decisions based on evidence</li> <li>● Complies with organisational processes</li> <li>● Educates, advises, and guides others on income and funding generation</li> <li>● Anticipates unexpected budget changes</li> <li>● Recognises the constraints imposed by funders and complies with these</li> <li>● Consults organisational finance teams appropriately</li> <li>● Supports funding applications led by others</li> <li>● Influences funding policy - within and beyond the organisation</li> <li>● Helps shape/contributes to funding policy and financial management processes and commercial awareness in the organisation</li> </ul>

	<ul style="list-style-type: none"> <li>Manages multiple budgets; educates, advises, and guides others</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>Creates bottlenecks in financial planning</li> <li>Demonstrates lack of transparency in terms of how funds are allocated and spent</li> <li>Spends funds according to what is left rather than what is needed</li> </ul>
<p><b>Staff recruitment</b></p> <p>Effectively manages the overall process of attracting, selecting, and appointing the best candidates for jobs within the organization (also interacting with recruitment specialists), (Maps to ESA 'Driving performance; developing and motivating people</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>Firm understanding of HR processes and policies, including rules governing international recruitment</li> <li>Firm understanding of organisational competency requirements</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>Ability to benchmark different roles within the organisation</li> <li>Interviewing skills</li> <li>Structured approach to decision making</li> <li>Negotiation skills</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>Actively plans for succession</li> <li>Transparent selection criteria</li> <li>Systematic approach to shortlisting and selection</li> <li>Seeks input from others and ensures good fit with the rest of the team</li> <li>Impartial, regardless of prior knowledge of the candidates</li> <li>Respects confidentiality</li> <li>Provides feedback on request to unsuccessful candidates</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>Selects people that are over-qualified or that conform to a preconceived ideal rather than making evidence-based recruitment decisions</li> </ul>
<p><b>Staff management and development</b></p> <p>Strives to develop and motivate other people by encouraging</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>Firm understanding of staff rights and responsibilities</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>Variety of leadership styles</li> <li>Team building</li> <li>Coaching approach</li> <li>Conflict management</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>Leads, manages, and delegates impartially.</li> <li>Is sensitive to intentions, needs and positions of team members; acts accordingly to achieve success.</li> <li>Manages expectations and resolves conflict</li> <li>Coaches team members and helps them to clarify their roles and responsibilities; supports the development of a coaching approach in others</li> <li>Acknowledges the results of the team</li> <li>Actively seeks collaborative partners and encourages this behaviour in others</li> <li>Actively maintains attention to work-life balance issues and promotes an effective work-life balance for self and team</li> </ul>

	<ul style="list-style-type: none"> <li>● Sensitive to signs of pressure on and stress in members of personnel; provides support, advice, and management where necessary</li> <li>● Ensures that all members of personnel have equality of opportunity and are treated fairly</li> <li>● Encourages the development of autonomy in others</li> <li>● Keeps up to date with managerial policies and procedures</li> <li>● Actively seeks feedback on own managerial skills and techniques; provides feedback for less experienced colleagues</li> <li>● Is a role model. Shares networks and creates opportunities for others</li> <li>● Shapes the mentoring strategy of own institution</li> <li>● Involves people in decision making and leadership roles, promoting their autonomy</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Fails to take personal responsibility for driving performance</li> <li>● Accepts inefficiency in others</li> <li>● Commits to delivering more than is achievable without reviewing the resources, information, and time available</li> <li>● Limits him/herself to minimum results rather than take the initiative to deliver a high-quality outcome</li> <li>● Defers all decisions for action elsewhere</li> <li>● Unable to take responsibility for making decisions which may be unpopular</li> <li>● Takes an unstructured approach to tasks</li> <li>● Controls every aspect of an individual’s work rather than driving performance through empowerment</li> </ul>
<p><b>Innovation and business development</b>, including developing new services and technologies; understanding IP law</p> <p>Identify arising opportunities in the environment and build long term relationships with prospects in order to achieve RI mission and maximize stakeholders’ satisfaction.</p> <p>(Maps to ESA ‘Innovation and creativity’)</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● The dynamics of knowledge-intensive environments and the scope for strategic response</li> <li>● Strategy and market development</li> <li>● Design service models for innovation</li> <li>● Understanding of IPR markets and rules</li> <li>● Data management and protection</li> <li>● Infrastructure and resource management</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Open mindset and visioning</li> <li>● Communication skills</li> <li>● Entrepreneurship</li> <li>● Team building</li> <li>● Project management</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Balance contradictory expectations and demands from constituents and other stakeholders</li> <li>● Leverage innovations through service development</li> <li>● Assesses situational forces that are promoting and inhibiting an idea for change</li> <li>● Evaluates the current performance of the RI and find ways to help the organization reach its full potential</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Is too internally focused, doesn’t recognise the environment signals and innovation trends</li> <li>● Does not involve collaboration with multiple parties from inside and outside the RI</li> </ul>

	<ul style="list-style-type: none"> <li>● Is not able to navigate through relationship politics in order to get things done</li> </ul>
<p><b>Service provision</b>        (including service level agreements, quality control, physical access to services, user training, data management and security)</p> <p>Designs and effectively implements conditions for providing high quality service levels in a networked and distributed environment</p> <p>(Maps to ESA 'Customer focus')</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Service design and delivery management</li> <li>● Understanding of procurement procedures</li> <li>● Operations management</li> <li>● Total quality management</li> <li>● Knowledge of the legislative frameworks and statutory requirements relating to RI environment</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Customer focus</li> <li>● Listening and tailoring</li> <li>● Continuous improvement mind-set</li> <li>● Budget management</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Can delivery effective services in a distributed organization</li> <li>● Focuses on the needs and desires of the service user</li> <li>● Continuously optimises the main operative processes</li> <li>● Can improve processes and services according to the needs of service users</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Is not able to critically analyse and interpret service data and information from different sources</li> <li>● Is not able to translate complex information into formats that support decision making by operational managers</li> <li>● Is not able to implement successful collaborative working with other organisations</li> </ul>
<p><b>Impact assessment</b></p> <p>Continuously assess the organization's capacity to achieve output and outcomes and to satisfy stakeholders' expectations</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Socio-economic impact modelling</li> <li>● Broad understanding of the scientific discipline and its ecosystem</li> <li>● Knowledge of the types of methodologies and tools used for impact modelling</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Analytical thinking</li> <li>● Appropriate grasp of statistics</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Listens to stakeholders</li> <li>● Anticipates trends and uses methods to forecast them</li> <li>● Uses evidence-based approaches, including a mixture of quantitative and, where appropriate, qualitative techniques for measuring impact</li> <li>● Engages constituents in priority-setting and impact assessment</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Ignoring stakeholders' expectations</li> <li>● Lack of engagement</li> <li>● Making decisions according to self-interest</li> </ul>

<p><b>Stakeholder management and community building</b>        (including user communities, policymakers, Board of Governors etc.)</p> <p>Establishes and maintains good contacts and relationships to achieve the goals of the organisation and its stakeholders</p> <p>(Maps to ESA 'Relationship management')</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Broad understanding of the scientific discipline and its ecosystem</li> <li>● Broad understanding of who your stakeholders are, their interests and their sphere of influence</li> <li>● Recognize different types of stakeholders</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Negotiation and conflict management</li> <li>● Influencing skills</li> <li>● Communication and presentation skills, including ability to translate complex concepts into lay language and pitch the message appropriately for the audience</li> <li>● Ability to manage expectations</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Recognises importance of building and maintaining relationships</li> <li>● Actively builds on and invests in relationships based on communality of interest</li> <li>● Shows trust in the goodwill of others</li> <li>● Takes the first step in the process of building trust with others</li> <li>● Interacts comfortably and competently with people within and outside the organisation – even in critical situations</li> <li>● Shows diplomacy and tactfulness when required</li> <li>● Negotiates to achieve win-win outcomes</li> <li>● Is conscious of the importance of compromise</li> <li>● Avoids any activity that creates even the appearance of conflict of interest</li> <li>● Is sensitive to political considerations when necessary</li> <li>● Actively and effectively uses networks to the benefit of all parties and in order to facilitate work efforts and gain support</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Is too internally focused, doesn't recognise the benefits of building relationships externally</li> <li>● Openly shows lack of trust in others</li> <li>● Does not recognise importance of relationships, focuses on content only and ignores process</li> <li>● Acts in a way that generates unnecessary conflict and is not able to manage it</li> <li>● Is inappropriate, judgemental, and overbearing; does not recognise sensitivities</li> <li>● Cannot admit failure</li> <li>● Over commits the organisation or provides an unrealistic view of how it can benefit stakeholders</li> <li>● Is evasive or conveys unclear or inconsistent messages</li> <li>● Engages in activities in which there is a real or potential conflict of interest</li> </ul>
<p><b>Acting as a role model*</b></p> <p>Exemplifies organisational values; demonstrates effective personal leadership characteristics and interpersonal skills for leading others.</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Knowledge of the internal and external environments</li> <li>● Knowledge of technical contextual issues</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Influential skills</li> <li>● Leadership</li> <li>● Innovation</li> </ul>

<p>Manages own emotions and demonstrates an ability to combine both technical and people leadership perspectives for the benefit of the organisation          (Maps to ESA 'Acting as a role model*')</p>	<ul style="list-style-type: none"> <li>● Risk management</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Knows, understands, and models organisational values to illustrate them in practice and embed them within his/her team / division / department</li> <li>● In his/her own actions and conduct, exemplifies the standards of behaviour he or she expects of others</li> <li>● Engages in self-reflection and personal learning to improve technical, managerial and leadership skills, behaviours, and abilities</li> <li>● Is open and willing to share his/her mistakes and learn with / from others</li> <li>● Is aware of the impact he/she has on other people</li> <li>● Shows personal resilience and is able to effectively manage personal stress</li> <li>● Manages own emotions to convey clarity and consistency towards others</li> <li>● Persuades others effectively through involving and engaging them to engender their commitment</li> <li>● Is authentic in his/her style and approach, remaining open, honest, and fair towards others</li> <li>● Demonstrates the effective leadership characteristics that underpin all tasks (such as emotional intelligence, personal engagement, and proactivity)</li> <li>● Acts as an inspirational leader, motivating and enthusing others to perform at their best</li> <li>● Able to recognise the human dimension in all technical activities / approaches</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Reacts very emotionally and is unpredictable</li> <li>● Concentrates only on technical performance without considering the human dimension</li> <li>● Is unwilling to exemplify the standards of behaviour that he/she expects from others</li> <li>● Demonstrates inconsistency between what he/she says and what he/she does</li> <li>● Exercises control through his/her technical ability rather than effective leadership skills</li> <li>● Persuades others through dictating or using his/her authority or leadership position</li> </ul>
<p><b>Systems and broader business thinking</b></p> <p>Sees the big picture in complex situations by linking information or applying theoretical frameworks, by taking a system-wide view, or by considering an organisation-wide or long-term perspective. Is aware of the broader business context; processes information from various perspectives and anticipates trends/problems</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Knowledge of the internal and external environments</li> <li>● Understanding of the organisational impact of uncertainty</li> <li>● Holistic view of the organization</li> <li>● Scenario planning</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Influential skills</li> <li>● Forward-looking attitudes</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Recognises patterns or themes in information that provide insight into possible trends or broader perspectives</li> <li>● Able to judge quality of information and assess the long-term/strategic relevance</li> <li>● Accurately forecasts / anticipates trends and uses this for the personal, team and business benefit</li> <li>● Puts everyday issues into perspective; sees the big picture in all activities and translates it into everyday working tasks</li> <li>● Displays a solid understanding of the activities of the organisation as well as its political and competitive environment</li> </ul>

<p>(Maps to ESA 'Systems and broader business thinking')</p>	<ul style="list-style-type: none"> <li>● Systematically produces data / information with influence on the long-term objectives/strategy of own area</li> <li>● Formulates concepts and theories, or studies models and designs tools in order to understand complex circumstances</li> </ul> <p><b>Ineffective behaviours</b></p> <ol style="list-style-type: none"> <li>5. Has preconceived ideas or makes assumptions</li> <li>6. Not able to step back from tactical details and everyday issues</li> <li>7. Fails to consider impact and scope of own actions/ decisions</li> <li>8. Unable to think of the long-term perspective; predominantly focuses on the immediate or short-term</li> </ol>
<p><b>Risk assessment</b></p> <p>Analyse all types of potential losses from internal and external risks using an adequate combination of known and unknown information and provide solutions and actions to reduce the impact.</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Knowledge of tools for risk assessment and management</li> <li>● Understands the science/technology underlying the research infrastructure, the services that it provides and the organisation as a whole</li> <li>● Understands the ethical and legal frameworks underlying the research infrastructure's operations</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Communication skills</li> <li>● Problem solving</li> <li>● Analytical skills</li> <li>● Project management skills</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Thinks in an analytical way</li> <li>● Takes decisions and has a sense of perspective</li> <li>● Responsible</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Takes risks without assessing their potential impact</li> <li>● Is unnecessarily risk averse</li> <li>● Fails to perceive the impact of risks on employees and on the reputation of the organisation</li> </ul>
<p><b>Advocacy and ambassadorship</b>        (including lobbying to funders and ministries)</p> <p>Focuses on building and protecting the image, reputation, and long-term interest of the organisation within its member states, their citizens and the global research community</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Is aware of organisational values</li> <li>● Knowledge of research infrastructure environments</li> <li>● Is aware of national policies and priorities in the research area</li> <li>● Knowledge of suitable communication tools</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Communication skills</li> <li>● Empathy</li> <li>● Lobbying</li> <li>● Stakeholder management</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Demonstrates organisational values effectively in all situations</li> <li>● Reports back on any external knowledge gained that might benefit the organisation</li> </ul>

<p>(Maps to ESA 'Ambassadorship')</p>	<ul style="list-style-type: none"> <li>● Looks for opportunities to showcase the organisation's capabilities and professionalism</li> <li>● Recognises the impact of own actions, behaviours and communication on the organisation's image and refrains from doing things to jeopardise that image</li> <li>● Effectively addresses issues that may tarnish the image of the organisation and identifies remedies</li> <li>● Contributes to the reputation of the Division, Department, and organisation through his/her exemplary professionalism</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Shows little or no knowledge of the activities of the organisation other than those within his/her immediate area of involvement</li> <li>● Fails to maintain a professional image</li> <li>● Openly criticises the organisation in the presence of third parties; shows no sense of pride in working for it</li> <li>● Does not realise how own actions, modes of behaviour and communication influence the organisation's reputation</li> </ul>
<p><b>Communication and outreach</b> (including to lay people)</p> <p>Structures and conveys ideas and information, both verbally and in writing, in a way that brings about understanding. Uses active listening to fully comprehend what others are saying. Personally, commits to and supports the creation of an atmosphere/mechanisms in which open and two-way communication is promoted.</p> <p>(Maps to ESA 'Communication' and vitae D3)</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Broad understanding of communication models</li> <li>● Can distinguish between different target audiences and identify the most appropriate means of reaching them</li> <li>● Understands the science/technology underlying the research infrastructure and the services that it provides to be able to communicate effectively about them to different audiences</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Fluent in the language in which most communications are made</li> <li>● Basic command of other languages</li> <li>● Active listening skills</li> <li>● Sympathetic</li> <li>● Enthusiastic</li> <li>● Appreciates the value of social media and uses it effectively to communicate effectively with different audiences</li> <li>● Able to work effectively with creative professionals (e.g., designers, animators, journalists)</li> <li>● Interviewing skills</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Communicates clearly and precisely with people at all levels</li> <li>● Delivers points in a structured and logical manner</li> <li>● Informs others of relevant information appropriately and on time</li> <li>● Seeks out openness from others; gives straightforward, candid opinions to all</li> <li>● Invites two-way communication; actively listens/pays attention; able to engender participation and commitment from others</li> <li>● Communicates effectively even in difficult situations</li> <li>● Anticipates audience needs and tailors communications to the audience and the context</li> <li>● Proactive in discovering different audiences and their interests</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Is unable to communicate the appropriate message</li> <li>● Does not inform others; forgets that communication is part of work</li> </ul>

	<ul style="list-style-type: none"> <li>• Does not participate in two-way communication when invited</li> <li>• Communicates in an indirect or vague way; tells others what they want to hear</li> <li>• Does not take into account, understand or accept perspective or needs of audience</li> <li>• Ignores cultural differences between different audiences and does not tailor approach accordingly</li> </ul>
<p><b>Negotiation</b></p> <p>Engages in multi-party negotiations building consensus and seeking the cooperation of others in achieving organisational goals. Works towards win-win outcomes in conflicting situations.</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Negotiation models (e.g. the trust equation)</li> <li>• Deep understanding of the context/the position of the person/organisation with which the negotiation will take place</li> <li>• Understands when negotiation is not an option</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>• Active listening skills</li> <li>• Questioning skills</li> <li>• Assertive</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>• Uses a variety of approaches according to the context</li> <li>• Is flexible and adaptable</li> <li>• Shows neutrality</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>• Behaves aggressively towards the other party</li> <li>• Imposes personal views</li> <li>• Comes across as negative/unwilling to accept that a win-win situation is possible</li> <li>• Finishes negotiations prematurely, before both parties are agreed on the desired outcome and how they plan to achieve it</li> </ul>
<p><b>Collaboration and networking (including in a global context, and between sectors)</b></p> <p>Balances individual and team objectives; cooperates and works collaboratively with others to accomplish agreed solutions. Shows team* orientation by sharing information, giving and accepting feedback, and participating in building and implementing collective solutions</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Understanding complementary personality types and how to make the most of them in a team context (e.g., Myers-Briggs)</li> <li>• Cultural awareness</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>• Ability to initiate conversations</li> <li>• Active listening</li> <li>• Empathy (two ears, one mouth)</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>• Is approachable without being over-familiar, using humour appropriately</li> <li>• Participates in building and implementing collective solutions</li> <li>• Cooperates willingly with other teams</li> <li>• Expresses appreciation for the contributions of others</li> <li>• Understands own role in the team and other team members' roles</li> <li>• Accepts and supports team interests and decisions and is willing to compromise</li> <li>• Addresses difficult issues openly; gives honest feedback and accepts feedback</li> <li>• Initiates team processes; suggests compromises or alternatives to progress toward the achievement of group goals</li> <li>• Openly and systematically shares ideas, innovations, best practice, and failures with team</li> </ul>

<p>*team in this context could mean a virtual team distributed across multiple organisations</p>	<ul style="list-style-type: none"> <li>• Is responsive to collaborative opportunities across disciplines/research areas and with non-academic organisations</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>• Behaves in a way that is insensitive to the cultures, beliefs and values of team members or is prejudiced against them</li> <li>• Has no clear understanding of own role in team</li> <li>• Does not seek to understand other areas outside own team</li> <li>• Puts individual interests first; ignores needs of others and team; uncooperative</li> <li>• Ignores team decisions or unwilling to share team responsibility</li> <li>• Ignores or sees no value in feedback provided to him or her</li> </ul>
<p><b>Human resource management</b></p> <p>Encourages team synergy and creates a sense of unity and purpose within and between teams / departments / consortia. Recognises team success and deals with team conflict and dynamics</p> <p>Maps to ESA 'Fostering cooperation and effective teamworking*'</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Broad understanding of the organisation's purpose and the role of different teams in fulfilling that purpose</li> <li>• Broad understanding of organisational HR policy and procedures</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>• Active listening</li> <li>• Stimulate and create organizational conditions for professional development</li> <li>• Commitment to career management</li> <li>• Empathy</li> <li>• Conflict management skills</li> <li>• Resilience</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>• Shares strategic vision and inspires team members to work towards common goals</li> <li>• Adapts management style to the needs of the individual employee</li> <li>• Recognises individual strengths in team members and makes the most of them; motivates team members and delegates to them accordingly</li> <li>• Makes difficult decisions and ensures that they are accepted by team members</li> <li>• Maintains regular contact with the whole team / division / organisation to support working towards a common goal</li> <li>• Fosters cooperation on a wider scale by encouraging teamwork across teams / divisions / organisations</li> <li>• Represents and promotes own team to others in the organisation</li> <li>• Considers team dynamics and blends the skills of various teams into a departmental / organisational whole</li> <li>• Provides the means to enable teams to work together across the organisation</li> <li>• Builds consensus and alignment between teams</li> <li>• Resolves conflicts that arise between different teams/divisions</li> <li>• Uses the right management style at the right moment</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>• Is unable to maintain an appropriate level of approachability, being either too distant/hierarchical or by behaving more like a peer than a manager</li> <li>• Does not recognise or respond to lack of productivity or motivation in staff members</li> </ul>
<p><b>Leading change</b></p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Broad understanding of the scientific discipline and its ecosystem</li> </ul>

<p>Communicates the reasons for and impact of change. Reduces or explains uncertainties and seeks to manage ambiguity. Manages reluctance towards change and encourages others to enable change.</p> <p>(Maps to ESA 'Leading change*')</p>	<ul style="list-style-type: none"> <li>● A clear understanding of what needs to change and why</li> <li>● Good grasp of methods for identifying opportunities and threats</li> <li>● Good grasp of change management models</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Consulting skills</li> <li>● Communication skills</li> <li>● Active listening</li> <li>● Empathy</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Recognises the need for change so that the organisation remains successful</li> <li>● Identifies where changes are required and what these should be, consulting others as appropriate. Makes these changes if they are within personal remit or escalates them appropriately</li> <li>● Is positive towards required changes and encourages others to embrace change</li> <li>● Willingly takes balanced risks and operates flexibly within the regulatory guidelines</li> <li>● Explains and reduces potential uncertainties</li> <li>● Encourages others not to be disconcerted by ambiguities that arise through change implementation</li> <li>● Explains the reasons for and benefits of change</li> <li>● Looks to minimise the potential ambiguities through clarifying information, data or requests</li> <li>● Manages individual reactions and emotions to change to ensure it is accepted by all</li> <li>● Drives change forward through to implementation, setting realistic time frames for change</li> <li>● Maintains awareness of changes in the wider sector and recognises what changes are required to keep up to date or how to react to these</li> <li>● Reviews suggestions and decisions related to change to determine the best changes to implement</li> <li>● Acts as a conduit for communicating mandated change requirements and pushes for decisions from above related to change suggestions</li> <li>● Encourages others to propose potential changes</li> <li>● Positively challenges how things have been done in the past at the right time and in the right environment</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Focuses his/her efforts only on communicating and supporting those who are embracing change and ignores individuals who are reacting emotionally</li> <li>● Prefers to remain in a static environment rather than embracing change; panics when faced with the prospect of change</li> <li>● Only supports ideas for change which benefit him/her as an individual rather than recognising the broader benefits they may bring</li> <li>● Takes a passive approach without constructively challenging the way things have always been done</li> <li>● Challenges or implements change for the sake of it rather than through a balanced analysis of the right changes to propose</li> </ul>
<p><b>Promoting diversity</b></p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Culturally aware</li> <li>● Awareness of unconscious bias and its consequences</li> </ul>

<p>Understands, accepts, and actively promotes diversity as an organisational asset to optimise performance; integrates diversity into people management related decisions and creates a respectful and inclusive working environment where everyone is fairly and equally treated.</p> <p>(Maps to ESA 'Promoting diversity*')</p>	<ul style="list-style-type: none"> <li>● Solid understanding of the responsibilities of the organisation as an employer, and of relevant employment law</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Active listening</li> <li>● Consulting skills</li> <li>● Cross-cultural and cross-disciplinary sensitivity</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Respond to differences sensitively</li> <li>● Avoids having preconceptions about others, and discourages others from doing so</li> <li>● Accepts a range of behaviours in others whilst being clear about what is unacceptable</li> <li>● Meets regularly with staff and is able to spot diversity and inclusiveness risk areas for the organisation</li> <li>● Knows and adheres to the organisational diversity and inclusion policies</li> <li>● Attends diversity initiatives to increase self-awareness, knowledge and improve skills in managing diversity to leverage performance</li> <li>● Is aware of own biases when taking people-related decisions</li> <li>● Addresses and corrects the use of inappropriate language or actions detrimental to diversity</li> <li>● Makes diverse newcomers feel welcomed and integrated</li> <li>● Takes a pro-active approach to diversity when selecting new staff members to enrich the organisation's profile</li> <li>● Treats everyone equally and regardless of their background or status within the organisation, in particular when supporting career development and/or merit recognition</li> <li>● Seeks a range of opinions during meetings or projects before making decisions</li> <li>● Creates opportunities in to bring together different cultures, ideas, and experiences to stimulate organisational performance, creativity, learning and development</li> <li>● Recognises and makes optimal use of the skills of staff with diverse backgrounds/profiles to benefit the organisation</li> <li>● Acts as a role model for the promotion of diversity inside and outside the organisation</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Makes inappropriate jokes about other cultures and sexist remarks</li> <li>● Applies stereotypes and tolerates others doing so</li> <li>● Demeans the points of view of others when they differ from his/her own</li> <li>● Creates a team of individuals who replicate himself/herself rather than valuing diversity of thought, style or approach</li> <li>● Does not challenge others who show prejudice and/or discrimination</li> <li>● Views own ideas and beliefs as superior to others</li> <li>● Does not proactively acknowledge the importance of fostering diversity in the organisation</li> </ul>
<p><b>Integrity</b></p> <p>Performance is based on the highest professional and personal ethics including</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>● Experience</li> <li>● Knowledge of the organisation, its ethical framework, and the legal landscape</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>● Communication skills</li> <li>● Able to handle 'big egos'</li> <li>● Diplomacy</li> </ul>

<p>professionalism, dedication, loyalty, honesty, impartiality, and confidentiality. Consistently adheres to these principles, values, and exemplary modes of behaviour to build trust and credibility</p> <p>(Maps to ESA 'Integrity')</p>	<p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>• Communicates intentions, ideas, and feelings openly and directly</li> <li>• Tells the truth even when it is unwelcome</li> <li>• Refrains from all discrimination on grounds of race, ethnic origin, nationality, political or religious opinions, age, health, sex, or sexual orientation etc.</li> <li>• Shares own dilemmas involving impartiality, seeking input and help in determining how to handle them</li> <li>• Respects confidentiality - knows when and how to use confidential information without abusing the confidence of the source</li> <li>• Confronts potentially unethical behaviour or behaviour at odds with the organisation's values; holds others accountable for supporting these values</li> <li>• Inspires in others a sense of belonging and loyalty to ESA and its mission</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>• Says things in an indirect or vague way to conceal information</li> <li>• Displays improvisation and amateurism</li> <li>• Shows no loyalty to the organisation or dedication to its mission</li> <li>• Does not recognise or is not concerned with dilemmas involving impartiality</li> <li>• Does not respect the confidentiality of information gained through the normal duties at ESA</li> </ul>
<p><b>Accountability</b></p> <p>Demonstrates continuous reporting on organizational activities, results, and responsibilities in a transparent manner to all constituents. Generates a culture of accountability in others.</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Firm understanding of who the organisation is accountable to</li> <li>• Monitoring and reporting</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>• Decision making</li> <li>• Delegation with clear roles and responsibilities</li> <li>• Communication skills</li> <li>• Good judgement</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>• Believes in the vision and values of the organisation, and communicates this belief to others</li> <li>• Collects the right information to make informed decisions</li> <li>• Communicates and effectively justifies difficult decisions and gains support for them</li> <li>• Leads by example and inspires others</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>• Behaves in a way that does not promote trust in relationships</li> <li>• Does not provide disclosure about due information</li> <li>• Does not provide support and constructive feedback</li> </ul>
<p><b>Responsible decision-making</b></p> <p>Takes decisions, makes judgements, undertakes actions and makes commitments</p>	<p><b>Knowledge base</b></p> <ul style="list-style-type: none"> <li>• Understanding of information bias in decision-making</li> <li>• Awareness about risks</li> <li>• Knowledge and selection of right decision-making tools</li> </ul> <p><b>Skills base</b></p> <ul style="list-style-type: none"> <li>• Reasoning and intuition</li> <li>• Personal commitment and implementation</li> </ul>

<p>within own area of responsibility in a timely manner</p> <p>(Maps to ESA 'Responsible decision-making')</p>	<ul style="list-style-type: none"> <li>● Persuasion skills</li> </ul> <p><b>Effective behaviours</b></p> <ul style="list-style-type: none"> <li>● Is fully aware of own area of responsibility and takes decisions/actions within it when required</li> <li>● Takes timely decisions within own area of responsibility</li> <li>● Makes rational judgements; retains objectivity to avoid bias</li> <li>● Accepts the consequences of own decisions, judgements, and actions at all times</li> <li>● Takes ownership, accepts full and personal accountability</li> <li>● Displays an appropriate level of confidence in own judgement and decision-making and creates buy-in from key stakeholders</li> <li>● Anticipates the implications that own actions/decisions may have and acts on them beforehand</li> </ul> <p><b>Ineffective behaviours</b></p> <ul style="list-style-type: none"> <li>● Passively complies with instructions or assignments</li> <li>● Is overly cautious; does not exploit own area of responsibility</li> <li>● Avoids responsibilities; fails to take ownership of decisions or problems</li> </ul>
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## References

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The white paper on European School for Research Management of sets the basis for a discussion with Member States and stakeholders on the measures to be taken at all levels in Europe to address Service Provider Organizations (Infrastructures, Core facilities...) as well as Research Performing organizations (Universities, research Institutes...) sustainability in medium and long-term.

Sustainability of these organizations goes well beyond funding, and this report touches upon several dimensions which have an impact on sustainability, such as scientific excellence, skills market, education, and training of personnel.

This white paper is instrumental to trigger and structure the debate with funders, users, and operators to develop and maintain a strategic and sustainable European Research organizations and service providers ecosystem.