

A pan-European professional development framework for researchers

- A feasibility study by the **ESF Member Organisation Forum**
European Alliance on Research Career Development

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- Development of best practices and exchange of practices on science management, to benefit all European organisations and especially newly established research organisations.
- Harmonisation of coordination by MOs of national programmes and policies in a European context.

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www.vitae.ac.uk



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Feasibility study of a pan-European professional development framework for researchers

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Foreword

In the frame of the MO Forum “European Alliance for Research Career Development”, a working group on skills development of researchers was created, with the purpose to better define researchers’ professional profiles and to develop guidance for the continuous professional development of researchers. The working group identified the need for a common and structured approach towards researchers’ skills development. The “Researcher Development Framework (RDF)”, as developed by Vitae (UK), offered a promising basis to achieving this goal. The RDF is a professional development framework for planning, promoting and supporting the professional and career development of researchers.

The RDF had been developed and validated in a UK-context and the question arose about its relevance, usefulness and potential applicability in a wider European context. In order to investigate this question, the ESF with the support of EUROHORCS, commissioned Vitae to conduct a trial of the RDF in a non-UK context. In autumn 2011, the suitability of the RDF was tested in 6 European countries (Estonia, France, Germany, Italy, Luxembourg, Norway) with different research/cultural/socio-economic settings. The pilot study was organised and conducted by Vitae, involving researchers and using the same methodological approach as applied in the UK-based trials.

The report of the feasibility study describes the European context of the project and the RDF, the approach, results and conclusions and presents potential next steps. The feasibility study made apparent some general deficiencies in the European systems with regard to skills and career development of researchers. Without claiming representativeness, the testing of the RDF in different European settings gave encouraging results in overcoming some of the identified deficiencies and in progressing towards a shared understanding of the skills and attributes that characterise modern researchers. Furthermore, the RDF proved to be a solid basis for making researchers reflect on their skills and attributes and on their career aspirations in general. It provides an important potential to support the professional development of researchers in any national or institutional environment.

Based on the results of the study, the MO Forum has formulated recommendations on how to achieve greater efficiency in researchers’ skills development in different levels from an overarching to an individual perspective.

Recommendations

There are big differences between countries in their overall awareness and readiness to engage and invest into the general development and career development of researchers. Furthermore, there is a real demand among researchers for a more structured approach towards researcher’s professional development and active career planning.

Recommendation 1 (overall)

Concerted efforts must be made by policymakers, governments, funders and research performing organisations to promote the concept and importance of researchers’ professional development targeted at all levels of the hierarchy of research management, from political leaders, heads of research organisations, academics to the researchers themselves.

The creation of a **European Researcher Development Framework** would **provide a single European language** describing researchers' skills and attributes and thereby facilitate mobility. A European Researcher Development Framework would contribute to the concept of the European Researcher, meet the objectives of the European Charter for researchers and to the build-up of the ERA. A European Researcher Development Framework could be implemented by already existing channels at a European level such as the EURAXESS.

Recommendation 2 (EU level)

The European Commission should consider investing in making available a pan-European Researcher Development Framework to promote the importance of the professional development of European researchers, to guide them in their reflections on their skills and attributes, their developmental needs and on their role as a researcher in general.

Recommendation 3

As a first step, the European Commission should provide funding to support a wider independent trial of the RDF at European/institution/national level that includes research performing organisation directors, human resources specialists etc. as well as researchers and consider any possible country/institution-specific constraints towards researchers' professional development (e.g. national legislative barriers, etc.).

Recommendation 4 (national and institution level)

Governments, research funders and research performing organisations should work together to offer researchers at all career levels adequate training and development means to actively expand their profile and progress in their career. Numerous countries/institutions do not have appropriate supporting structures regarding researchers' development i.e. adequate training opportunities, career advice services, etc.

Recommendation 5 (individual researcher)

Researchers across Europe should take responsibility for their own professional development and reflect how to improve their own career possibility by using for example using a tool like the suggested European Research Development Framework for a more in depth analysis of their own competences and expertise as a researcher and their specific career development needs.

By the co-Chairs of the MO Forum WG2 on Skills: Marie-Claude Marx (FNR, Luxembourg) and Maria Starborg (VR, Sweden)

Feasibility study of a pan-European professional development framework for researchers

Introduction

The European Science Foundation Member Organisation Forum ‘European Alliance on Research Career Development’¹ (MOF) was set up in 2010 following publication of the ‘EUROHORCs and ESF Vision on a Globally Competitive ERA and their Road Map for Actions’ report² in July 2009. It consists of 21 ESF member organisations (research funding and performing organisations) from 17 European countries and active observers from the European Commission (EC), European Research Council (ERC), European Universities Association (EUA), League of European Research Universities (LERU), European Federation of National Academies of Science and Humanities (ALLEA) and Vitae. The Forum’s mission is to make sound and implementable recommendations in order to make Europe an attractive place to work as a researcher.

One of the Working Groups within the Forum is exploring researcher skills. It aims to work towards a shared definition of researchers’ professional profiles and provide guidance to encourage continuous professional development of researchers, thereby enhancing their chances of employment inside and outside academia. Part of this work stream is a Feasibility Study to assess the applicability across Europe of a generic framework for the professional development of researchers based on the Vitae Researcher Development Framework (RDF)³. The ESF hereby addresses an identified need for a structured approach towards continued professional development and the career development of researchers⁴. The present report presents the findings and recommendations from the feasibility study.

Context

The European Commission’s flagship initiative Innovation Union⁵ places innovation at the heart of solving major societal challenges and achieving future economic success. It sets out the importance of avoiding fragmentation of effort and taking a ‘bold, integrated and strategic approach, exploiting and leveraging our strengths in new and productive ways’. An important focus is for the European Union and its Member States to ‘strengthen their capacity to attract and train young people to become researchers and offer internationally competitive research careers to keep them in Europe and attract the best from abroad’.

The 2005 launch event for the European Charter for Researchers and Code of Conduct for the recruitment of researchers⁶, recognised the need for ‘substantial cultural change in the way researchers are perceived, managed and conduct themselves. The recognition of

¹ www.esf.org/activities/mo-fora/esf-member-organisation-forum-on-european-alliance-on-research-career-development.html

² www.esf.org/index.php?eID=tx_nawsecuredl&u=0&file=fileadmin/be_user/publications/EUROHORCs-ESF%20Vision%20and%20Road%20Map.pdf&t=1305106010&hash=f71677d1479200a754cf1ffab91ff34e

³ www.vitae.ac.uk/rdf

⁴ Research Careers in Europe Landscape and Horizons, ESF, 2009
http://www.esf.org/fileadmin/links/CEO/ResearchCareers_60p%20A4_13Jan.pdf

⁵ Europe 2020 Flagship Initiative Innovation Union, 2010 http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf#view=fit&pagemode=none

⁶ www.ec.europa.eu/eracareers/pdf/am509774CEE_EN_E4.pdf

research as a profession - with researchers recognised as well as recognising themselves as professionals - is a key aspect of this change in perspective'. A key element of being a professional is the importance of engaging in continuing professional development.

A 2006 scoping study for Research Councils UK (RCUK)⁷ confirmed the potential importance of a generic professional development framework for researchers and research careers 'A fundamental issue that has repeatedly emerged throughout this project is the lack of clarity about what constitutes a research job/career, and about the defining characteristics of a 'researcher'. There is no overarching 'framework' on which to contextualise the mapping of research careers.'

The resultant Vitae Researcher Development Framework was developed in the UK in conjunction with UK universities and research institutes⁸. This ESF project explored whether there was potential for the RDF to be applicable as a professional development framework for researchers across Europe, thereby avoiding duplication of effort in developing researcher frameworks, fragmentation of approaches and the opportunity to benefit from economies of scale.

Vitae Researcher Development Framework

The Vitae Researcher Development Framework⁹ was developed from first principles using empirical data generated from a series of semi-structured interviews with over 100 researchers covering a range of experiences, institutions, disciplines and demographics¹⁰. The overarching Researcher Development Statement¹¹ has been endorsed by all the key stakeholders¹² in the UK, including the UK Research Councils, Universities UK, the Quality Assurance Agency, the Higher Education Academy and the UK Council for Doctoral Education.

The RDF is a professional development framework for planning, promoting and supporting the personal, professional and career development of researchers in universities and research institutes. It articulates the knowledge, behaviours and attributes of successful researchers and encourages all researchers to aspire for excellence and realise their potential through engaging in professional development. The Researcher Development Framework has been incorporated into a Professional Development Planner¹³ (PDP) for use by individual researchers.

The Vitae Researcher Development Framework has been designed for:

- researchers to evaluate and plan their own personal, professional and career development
- principal investigators and supervisors of researchers in their role supporting the development of researchers

⁷ www.vitae.ac.uk/CMS/files/upload/RCMT-project-report-March-2006.pdf

⁸ www.vitae.ac.uk/researchers/437091/What-is-the-Researcher-Development-Framework.html

⁹ www.vitae.ac.uk/rdf

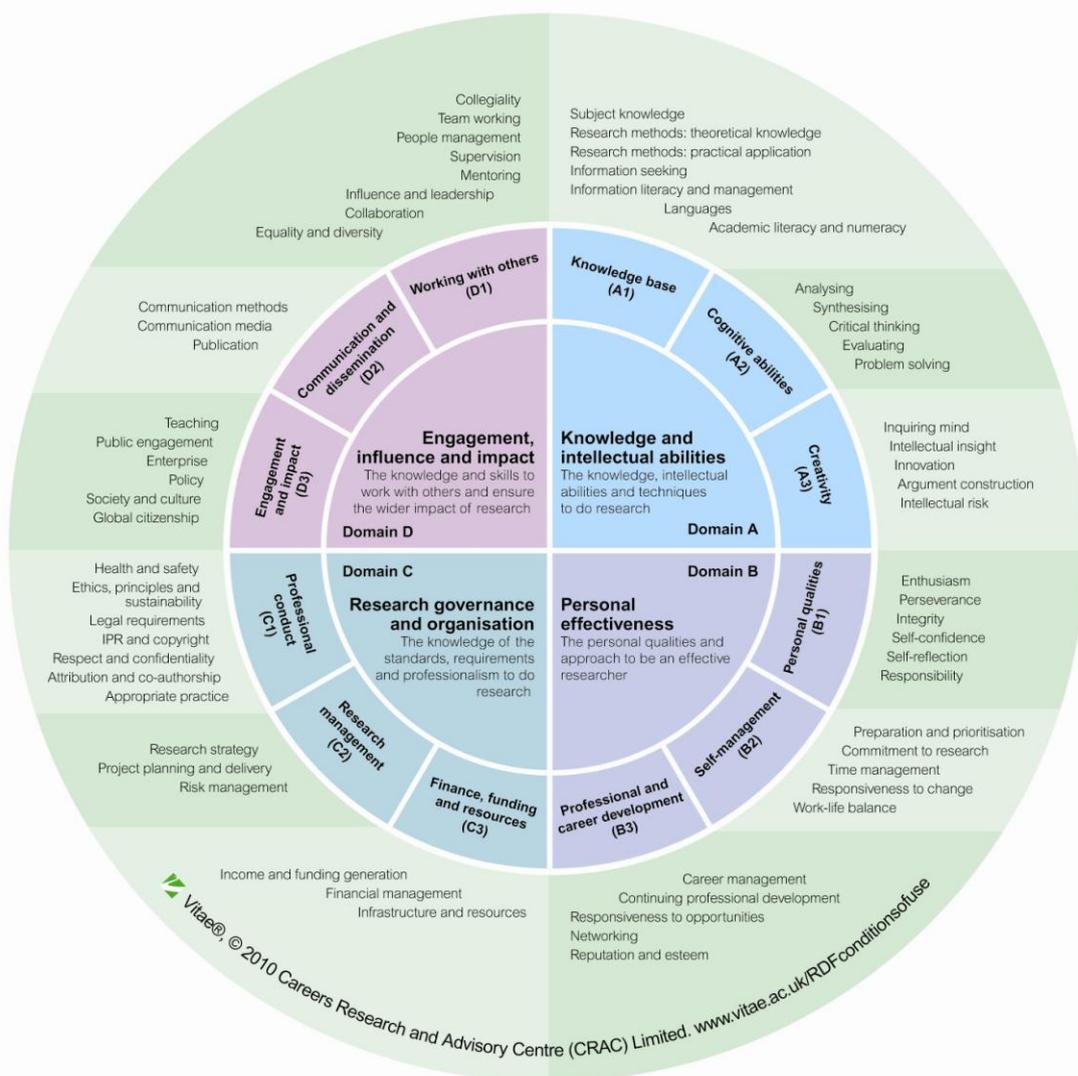
¹⁰ The development and validation of the Vitae Researcher Development Framework and Researcher Development Statement, Vitae, 2012 www.vitae.ac.uk/researchers/437091/What-is-the-Researcher-Development-Framework.html

¹¹ www.vitae.ac.uk/rds

¹² www.vitae.ac.uk/policy-practice/278641/RDS-endorsements.html

¹³ www.vitae.ac.uk/rdfplanner

- trainers, developers, human resources specialists and careers advisors in the planning and provision of support for researchers' development
- employers to provide an understanding of the blend of skills unique to researchers and their potential as employees.



Project approach

The project explored the use of the Vitae Researcher Development Framework through focus groups with researchers in six countries reflecting a diverse sample of the research systems across Europe as far as possible. Focus groups were held in Estonia, France, Germany, Italy, Luxembourg and Norway (Appendix 1).

Researchers were provided access to the RDF and supporting resources. Semi-structured focus groups were held in each participating country to gather feedback on the overall content of the RDF and the value of the associated professional development planning for continued professional development.

The feedback from the six focus groups were collated and analysed to assess the potential appropriateness of the RDF across Europe and identify recommendations for the next steps in this project.

Results

Overall, the concept of a pan-European professional development framework was well received and individual researchers could see the personal value in the RDF, irrespective of their level of experience, discipline or research/country context. However, some participants identified that the social and political contexts in some countries would influence the readiness and acceptability of researchers using competency frameworks..

Some of the findings from the focus groups echoed the messages from focus groups and implementation activities in the UK¹⁴, ie not specifically related to the application of the RDF in a European context. Primarily, they reflect the perceived usability of the RDF by individual researchers, for example:

- on first impression many researchers perceive the content of the RDF as overwhelming, but on further reflection find the depth and flexibility of the RDF valuable
- the extent of individuals' initial enthusiasm to engage with the RDF is more dependent on the familiarity of users in reflecting on their skills and attributes or using competency frameworks, rather than on their disciplinary context or level of experience as researchers
- some researchers expressed a preference for the language of RDF to be directly relevant to their experiences or environment, ie subject-specific language and context rather than generic for all researchers
- engagement will be improved through initial facilitated introduction and/or opportunities to discuss their reflections with others
- the importance of providing links from the RDF through to training and development resources and access to careers advice and information.

Generally, improving usability, expanding the RDF supporting resources and providing a more comprehensive glossary would improve the accessibility of the RDF for all researchers.

These findings are consistent with the use of personal development planning more generally. The UK Quality Assurance Agency guidance¹⁵ on the use of personal development planning highlights that engagement is improved if:

- 'learners are supported in developing their understanding of the contribution that reflective review and action planning may make to their learning and personal development
- PDP is integrated into the opportunities that are provided for careers advice and planning.'

¹⁴ Bray, R., Boon, S, [2011] Towards a framework for research career development: An evaluation of the UK's Vitae Researcher Development Framework International Journal for Researcher Development 2:2 99-116

¹⁵ Personal development planning: guidance for institutional policy and practice in higher education, Quality Assurance Agency for Higher Education, 2009 www.recordingachievement.org/images/pdfs/pdpguide2009.pdf

Several consistent messages emerged from the focus groups that were specific to the application of the RDF in a European-wide context:

- the holistic approach of the RDF and having a common conceptual European framework and language for researchers' expertise was seen as beneficial for mobility, evidencing researchers' skills and the professionalisation of the research career.
- the need for more clarity in the language of the RDF, especially for researchers whose first language is not English. This can be achieved through a comprehensive glossary of terms, additional supporting resources and a more user-friendly interface
- more guidance on the use of personal development planning for those researchers that are not familiar with the concept of self-reflection, performance review and career development as part of their research environment
- the challenge of making best use of the RDF in countries and institutions where researchers do not have access to a range of training and development opportunities and careers advice to support their professional development
- the difficulty of researchers using personal development planning in national systems where the concept of professional development for researchers is not well established or culturally unacceptable
- the value of the RDF in prompting discussions around the role and responsibilities of researchers, for example their contribution to the academy, public engagement activities and being innovation.

Appendix 2 summarises the overall feedback from the focus groups in terms of first impressions, content, professional development and support and resources.

Conclusions

The outcomes from the six focus groups demonstrated the potential applicability of the RDF for researchers across Europe. The RDF presents an opportunity to make a step change in how European researchers are supported in their professional and career development.

As focus group participants noted, the adoption of the Researcher Development Framework across Europe would support the aims of the European Charter and Code¹⁶, specifically the principles relating to Continuous professional development, Career development, Access to research training and continuous development and Access to careers advice. It would also provide a common language for researchers to talk about their expertise and professional development within evaluation and appraisal systems and to potential employers in all employment sectors. Pan-European access and usage would support the European Research Area by promoting the concept of the 'European Researcher' and facilitate mobility. However, some countries have a longer journey to travel than others in terms of the cultural and political recognition of the professional development of researchers.

The focus group participants recognised the value of the RDF in providing a comprehensive framework of researchers' knowledge, skills and attributes, but the very nature of this comprehensiveness impacts on the ease of engagement. More diverse and flexible resources are needed to introduce the RDF to researchers dependent on their experience of

¹⁶ European Charter for Researchers and Code of Conduct for the Recruitment for Researchers
<http://ec.europa.eu/euraxess/index.cfm/rights/whatIsAResearcher>

self-reflection and professional development. The initial receptiveness of individuals to the RDF improves through facilitated introduction. To do this would require the development of supporting resources for staff with responsibility for training and developing researchers, including supervisors and principal investigators. .

The value of the RDF will be enhanced significantly by signposting researchers from the RDF to readily accessible training and development opportunities. Although there is a range of online resources for researchers, particularly through the Vitae website, researchers will also want to access concrete training and development activities within their institution or country. Professional development provision for researchers is generally improving, particularly for doctoral candidates. However, some countries have less developed provision for researchers than others.

Next steps

The aim of this ESF-funded feasibility study was to assess the applicability across Europe of a generic framework for the professional development of researchers based on the Vitae Researcher Development Framework (RDF).

This project has been an important first step in identifying the potential opportunity of creating a pan-European professional development framework. The focus groups revealed:

- considerable interest from the participating researchers
- that the readiness of research systems to use professional development frameworks varies by country
- ways in which the RDF can be further developed and supported for pan-European use,.

To build upon the outcomes of this project the next steps include further work in each of these three areas and developing the capability of the Vitae professional development planner to be implemented across Europe¹⁷.

1. Explore the potential to undertake a large scale independent trial of the RDF across Europe by making the RDF professional development framework available to larger numbers of researchers and in more countries, funded by the European Commission.

2. ESF member organisations and research organisations to explore in more depth the interest in and readiness of individual country contexts in adopting and using a professional development framework for researchers, for example by:

- exploring at policy or institutional level interest in and capability to adopt and support a professional development framework for researchers
- running the equivalent of the researcher focus groups to gain feedback directly from researchers.[

¹⁷ The Vitae Researcher Development Framework content and current resources are available for free use by UK institutions only. Use by other European countries and institutions would require a licence agreement. See www.vitae.ac.uk/RDFconditionsofuse

3. Initiate discussions with the European Commission on the availability of funding to develop the RDF into a pan-European version of the RDF, including additional resources, FAQs and guidance for a European audience.

4. Vitae is currently developing a web-based interactive Professional Development Planner that will be available by license to UK institutions. This will have the facility to provide an institutional-specific version of the RDF, whereby an institution can add their logo and provide links through to institutional training and development resources and events. Additional financial investment and licensing would be required to extend this capability across Europe to other countries within Europe so as to reflect local research systems and legislation.

Appendix 1: Methodology

The study explored the use of the Vitae Researcher Development Framework with researchers in six countries to provide a diverse sample of the research systems across Europe as far as possible. The participating countries were selected through the Member Organisations and were:

- Estonia
- France
- Germany
- Italy
- Luxembourg
- Norway

Within each country, approximately ten researchers were selected across a range of experiences, career stages and disciplines to use the RDF and provide feedback on their personal experiences through a local focus group.

The feedback from the six focus groups were collated and comparatively analysed to assess the usefulness of the RDF and identify recommendations for the next steps in this project.

A standard process was followed for each country participating in the study:

- Participating countries were asked to sign a licensing agreement regarding use of the RDF
- Institutions identified relevant researchers to participate in the study
- Participating researchers were asked to explore the RDF in advance of the workshop. Suggested preparative steps included:
 1. Read the background and instructions on a website private page
 2. Watch the RDF Professional Development Planner screen cast
 3. Download the RDF Professional Development Planner (PDP) and use it to:
 - a) Explore the content of the RDF
 - b) Identify strengths and areas for professional development (they could chose to complete the whole RDF or just a few areas)
 - c) Create a personal action plan for your professional development
 4. Explore the additional the RDF resources on the Vitae website
- Semi-structured focus groups were then held in each participating country to gather feedback on the overall content of the RDF and value of professional development planning

A wide range of researchers participated in the study from a variety of disciplines, nationalities and experience. Further details of the profile of participants can be found in Appendix 3.

Appendix 2: Participants Feedback

First impressions

The focus groups explored participants' first impressions of the RDF. Many researchers found the amount of information presented in the RDF initially overwhelming. Terms such as “complicated”, “confusing”, “disorientating” and “overwhelming” were mentioned in all six focus groups.

Other researchers in five of the focus groups reflected more positive first impressions. They particularly liked the structure, design, depth and flexibility of the RDF.

“Well organised and stimulating, full of hope”

Other initial themes that emerged in two focus groups were:

- The RDF raised further questions such as “Is everything equally important?”, “Is it just for doctoral candidates or all researchers?” and “How will it help me?”
- The use of general rather than discipline specific language was raised with researchers concerned about the immediate benefits.
- Researchers mentioned the top level of the four domains contained clear language and looked interesting, but they felt the lower levels provided too much detail.
- Several researchers mentioned the value of working with others when using the RDF, either wanting guidance on their own RDF assessment, or helping to guide the researchers they manage.

Content review

Once researchers had explored the RDF in more detail, they were very positive about having a comprehensive framework to describe their attributes and skills.

“A good investment”

“Good foundation and good tool”

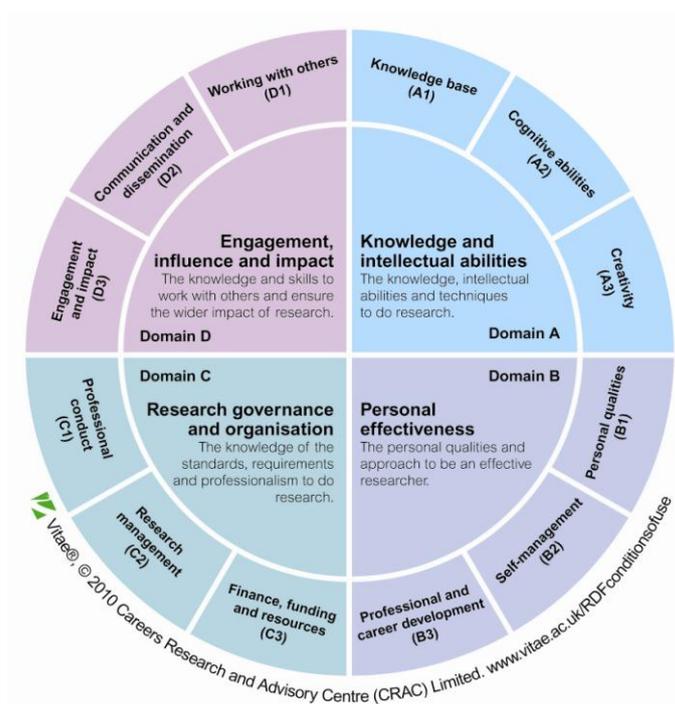
“As I got more familiar with it, it became clearer and I got interested”

“A good overview of my job”

“It made me think about things I didn't think were important before”

Several themes emerged from the discussions in more than one focus group:

- Participants appreciated the holistic recognition of the wide range of researchers' expertise. Providing a common conceptual framework and language was seen as beneficial for mobility, evidencing their skills and professionalisation of the research career.
- Researchers could recognise themselves in the framework and liked the balance between detail and flexibility.
- Researchers asked if the RDF would be integrated into organisations' training provision and promotional systems.
- Some felt the RDF was more suited for senior researchers, whilst others thought it was more suited to early career researchers.
- There was much discussion around the apparent equal weighting given to each of the domains and whether the order in which the descriptors were displayed highlighted any prioritisation.
- There were some comments regarding the complexity and language of the phases in the RDF and suggestions that this could be made easier to understand.



Vitae Researcher Development Framework: domains and sub-domains

Each of the four domains in the RDF was explored in depth at the focus groups. There were individual preferences for small changes to the content and presentation of the RDF however only a few of these emerged more than once. These were:

Domain A

- Languages (4/6 focus groups) – researchers discussed if this descriptor referenced understanding different languages or research terms (e.g. being able to understand the typical language used in a different discipline).
- Academic literacy and numeracy (3/6 focus groups) – researchers felt this descriptor could be split into two descriptors.

Domain B

- Work-life balance (2/6 focus groups) – this concept was difficult to understand for some and others felt it should be more integral to the whole framework.

Domain C

- Risk management and Health and safety (3/6 focus groups) – There was a little confusion as to the relevance of these descriptors to some researchers, particularly the non-laboratory disciplines.
- Legal requirements (3/6 focus groups) – Researchers suggested the specifics in this descriptor should be made more European, rather than UK-focused.

Domain D

- Teaching (3/6 focus groups) – Researchers suggested more detail should be provided in this descriptor, for example, the need to evaluate and reflect on your teaching practice.

Professional Development

Researchers were asked to create a professional development plan using the RDF Professional Development Planner. Researchers' reactions to using the professional development planner largely depended on their familiarity with the processes of self-reflection and appraisal. Those researchers who had experience and support in these areas found it easier to develop a plan.

“(It was) easy to choose areas to focus on as I have recently been through a similar process on a course”

“Confusing, do I choose the parts I don't have (skills in) or the parts I have?”

Those researchers who were new to professional development planning found the process of identifying their current ability, evidencing that ability and planning where and how to go next more difficult.

“Difficult to assess if I'm there”

“How do others see you, is it the same as how you assess yourself?”

“Career planning training needed”

Generally, researchers found the planner helpful as a mechanism for reflection and to structure their ideas about how they could develop as researcher. They appreciated the flexibility of how the planner could be used although they needed guidance on how much to complete in one session.

“I realised by going through the RDF today the level and skills I have developed”

“RDF helps with the big picture”

“(I will) work on Domains B and D, where I am below phase 1, and put in my calendar to look again in three months”

Thoughts about applicability of the framework to careers outside academia varied.

“Easily transferable tool for outside academia”

“Would not inform your career unless it was a research career”

Overall researchers felt the process of professional development planning was useful and of help when planning their careers.

“Self-learning is good – it provides a structure for your thoughts”

“Good for putting words on my skills”

“Good to make you reflect on your (career) stage”

“Helps me to think about what I would like to be as a researcher”

“The RDF is designed for researchers so it's focussed on our needs. I would use this framework rather than others”

Support and resources

A key theme from the discussions was that researchers felt it would be helpful to discuss their results and action plans with others, including their peers, supervisors and others who support them. Those in supervisory positions could see the value of using the RDF planner with their researchers individually or assessing their research team's overall strengths and areas to improve.

“I would like to look through it again and talk with my supervisor”

“Inspires me to have one-to-ones with my PhD students and mentees every six months”

“Use as a team building tool, not just self-development”

A common question arising from the focus groups was, having identified a goal, how do researchers find and access developmental opportunities to improve their capabilities?

“Needs links to training courses”

“I need help to see how to achieve my goals”

“I need concrete examples of how to reach the next step”

The researchers felt the current supporting resources provided by Vitae were very useful. There were requests for additional resources to be developed, as well as a more comprehensive glossary of terms and explanations of the individual descriptors. In particular, researchers wanted case studies and examples from their own country as well as from the UK. Several researchers asked if the RDF would be translated into their local language.

Researchers also requested that the process of identifying phases and creating action plans be made more user-friendly and interactive. Some of the researchers that were new to the concept of professional development planning would like to see a focussed version (lens) developed to highlight where to start with their RDF assessment. All of the ideas presented during the focus groups for additional resources are recorded in Appendix 4.

Additional messages

Several key messages emerged from the focus groups:

Clarity

Further clarity is required to ensure full understanding of the RDF and its potential. This can be achieved through a comprehensive glossary of terms, additional supporting resources and a more user-friendly interface.

Engagement

Facilitating initial engagement with the RDF is critical to getting past the ‘overwhelming’ first impression. It is important to design engagement to ensure it meets the needs of all learning preferences, for example ‘Reflectors’¹⁸ may find it easier to engage with the process than ‘Activists’. This also implies the value of skilled facilitators who have a deep understanding of the RDF and how to use it effectively.

Readiness

Some of the focus groups were more used to the concept of career development, appraisal and self-reflection as these are part of their normal research and professional environment. Others were less familiar with these concepts. In these environments, organisations may struggle to embed the RDF if they are using it as a stand-alone intervention.

Some researchers in the focus groups had access to more training and development support than others. In the UK one of the benefits of the RDF is that it provides researchers with links through to a range of Vitae resources and points them towards their institutional provision. Individual institutions in the UK are using the RDF internally to signpost their professional development provision.

¹⁸ Honey and Munford learning styles www.peterhoney.com/content/tools-learningstyles.html

A vehicle for discussion

Interestingly, most focus groups at some point evolved into more philosophical discussions about the roles and responsibilities of researchers, including their wider contribution to the academy, researchers' responsibilities to communicate their research to a wider audience and their contribution to enterprise and innovation.

“Sustainability covers more than just being green, it's about social and environment too”

“Communication should be left up to official departments”

“Lots of use of the word inspiration, how do you achieve that?”

Appendix3: Environment and context

Summary of the research landscape in participating countries

	Total Researchers (FTE) 2010 All sectors	Total Researchers (FTE) 2010 HE sector
Germany	327500 (e)	89600 (e)
Estonia	4069 (e)	2179
France	-	-
Italy	105846 (p)	43470 (p)
Luxembourg	2536 (p)	518 (p)
Norway	26537 (p)	9470 (p)

e = estimated p = provisional

Source: Eurostat, Science & Technology, Statistics on Research & Development

Estonia

- 18 research and development institutions
- University of Tartu is the largest public research university (19,000 students), followed by the Tallinn University of Technology (10,500), Tallinn University (7,500) and the Estonian University of Life Sciences. (4,500)
- There are also several independent research institutes that perform research at a high level, for instance the National Institute of Chemical Physics and Biophysics and the Estonian Biocentre.
- There are seven Centres of Excellence, which support Estonian top-level research to strengthen the position of Estonian research co-operation and competitiveness in European research field
- The Estonian Academy of Sciences (EAS) unites top-level Estonian scientists and scholars and acts as an umbrella organisation for a number of associated learned societies and one research institute.
- Approximately 2928 doctoral candidates in 2011
- 175 doctoral graduates in 2009/10
- Doctoral graduates by subject 2000-2009
 - Humanities 193
 - Physical Sciences 192
 - Life Sciences 157
 - Health 148
 - Engineering 138

Source Euraxess/www.kupress.ee/rd/RD_Estonia.pdf

France

- 82 state universities, plus 5 Catholic universities (and a large number of private "institutes", some of which award degrees.)
- French universities are undergoing a restructuring process. The aim is to improve their competitive status in the European and international arena, making them major players in the future of French education, research and innovation. France's 20 PRES (Pôle de recherche et d'enseignement supérieur – higher education and research poles) are

clusters of universities, specialised schools, and research organisations. The cluster structure enables members of the cluster to combine their activities and resources.

- There are than 300 doctoral departments staffed by a teaching and research faculty of 62,000 professors provide training in research in close cooperation with more than 1,200 research laboratories and centres.
- In 2010/11 6427 were studying for a doctorate

Source www.aboutfrance/www.campusfrance.org/www.insee.fr

Germany

- 140 universities are entitled to award doctorates
- Non-university research establishments also offer opportunities Amongst these are the Max Planck Society (MPG), Helmholtz Association, Leibniz Association (WGL) and Fraunhofer-Gesellschaft (FhG) The institutes that do not have the right to award doctorates themselves collaborate with universities for that purpose
- It is also possible to study for a doctorate while working in a research job in industry
- Approximately, 25,000 graduates successfully complete the doctoral process every year – far more than in any other European country.
- There are different ways of doing a PhD:
 - Individual Doctorate – at university, non-university establishment or industry
 - Structured PhD Programmes - There are some 700 PhD programmes in Germany which are very similar to the PhD programmes in English-speaking countries.
- Junior researchers can become eligible for appointment to a professorship by completing the habilitation process, working as a junior professor or leading a junior research group. Industry also offers alternative career opportunities.

Source: www.research-in-germany.de

Italy

- 58 State universities
- 25 non-State universities (legally recognised by the State) including two universities for foreigners and six telematic (distance learning) universities
- 6 higher schools specialised in postgraduate university studies
- 98 Research Institutions, Consortia and Foundations
- 39,000 PhD students (2008/09)
- 10,500 doctorates awarded in 2009
- 2145 PhD courses in 2008/09
 - 28.2% Natural science
 - 38.8% Medical and Life sciences
 - 24.3% Technology
 - 25.8% Humanities
 - 28.5% Economic and Social sciences

Source: <http://statistica.miur.it/>, www.cnvsu.it

Luxembourg

- One University - the University of Luxembourg, (4934 students in 2009/2010 and ca. 420 PhDs) including two internationally renowned interdisciplinary centres, the Interdisciplinary Centre for Security, Reliability and Trust and the Luxembourg Centre for Systems Biomedicine.
- 4 public research organisations::PRC Gabriel Lippmann, PRC Henri Tudor, PRC Santé and CEPS/INSTEAD.
- Further changes are being implemented within the next few years with the establishment of a vast research complex in Belval “La Cité des Sciences” in 2012, which will become the flagship of R&D in Luxembourg, hosting all the major public R&D institutes of Luxembourg, as well as private and start-up companies, a new technical school, university campus, the National Archives and cultural centres.

Source Euraxess/www.statec.public.lu

Norway

- 8 universities
- 7 university institutions
- 2 university centres
- 21 state university colleges
- 10,000 doctorates awarded between 2000-2010
- 1184 doctorates awarded in 2009
 - Humanities 98
 - Social sciences 247
 - Natural sciences 282
 - Technology 127
 - Medical and health sciences 386
 - Agriculture and veterinary science 44

Source: The Doctoral Degree Register/NIFU and Euraxess

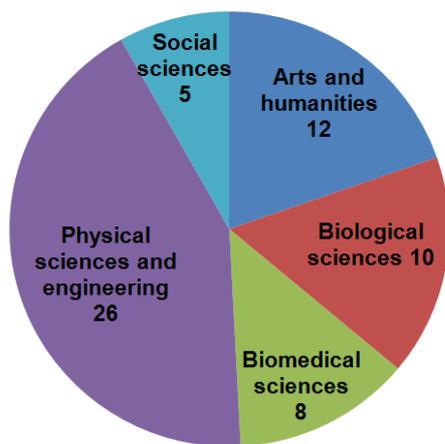
Appendix 4: Focus group participants

Summary of participants:

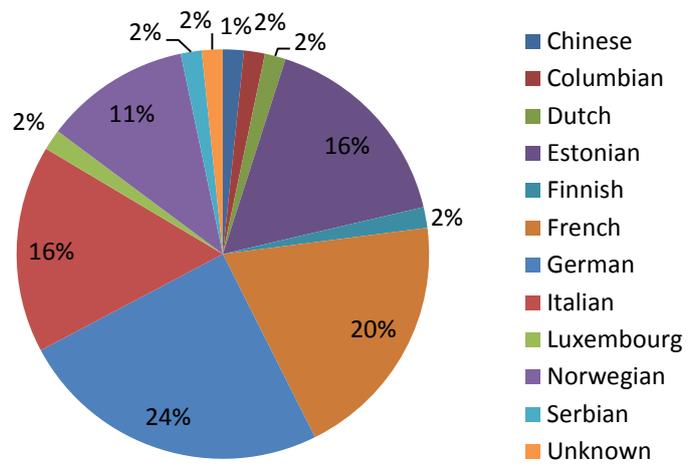
Number of participants: 61

Number of institutions: 19

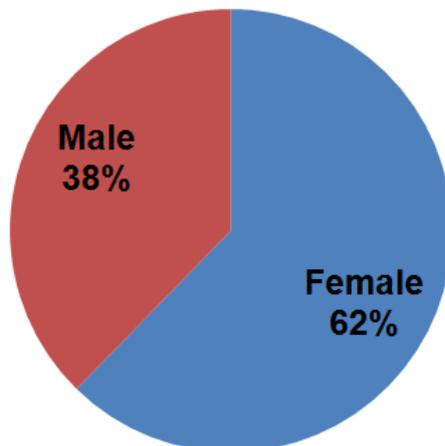
Discipline:



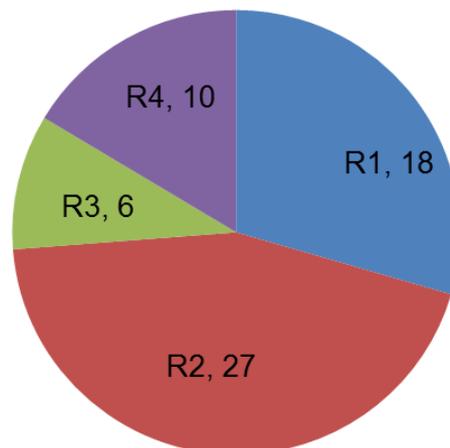
Nationality:



Gender:



Stage of research career:



European Framework of Research Careers

Participants' career stages have been categorised by the European Framework of Research Careers:

R1 First Stage Researcher (up to the point of PhD)

R2 Recognised Researcher (PhD holders or equivalent who are not yet fully independent)

R3 Established Researcher (researchers who have developed a level of independence.)

R4 Leading Researcher (researchers leading their research area or field)

Participants per country

Estonia

Participants

Discipline	Stage	Nationality	Gender
Arts and humanities (Philology and linguistics)	R3	Estonian	Female
Biological sciences (Life sciences)	R2	Estonian	Female
Biological sciences (Life sciences)	R2	Estonian	Female
Biomedical sciences	R3	Estonian	Male
Biomedical sciences (Veterinary medicine)	R4	Estonian	Female
Physical sciences and engineering (IT)	R2	Estonian	Male
Physical sciences and engineering (Physics)	R1	Estonian	Female
Physical sciences and engineering (Physics)	R1	Estonian	Female
Physical sciences and engineering (Nanotechnology)	R3	Estonian	Male
Physical sciences and engineering (Mathematics)	R4	Estonian	Male

Participants' institutions

Estonian University of Life Sciences
Tallinn University
Tallinn University of Technology
University of Tartu

France

Participants

Discipline	Stage	Nationality	Gender
Biological sciences (Life sciences)	R1	Chinese	Female
Biological sciences (Life sciences)	R1	French	Male
Biological sciences (Biophysics)	R2	French	Male
Biological sciences (Life sciences)	R2	French	Female
Physical sciences and engineering (Chemistry)	R1	French	Female
Physical sciences and engineering (Chemistry)	R1	French	Female
Physical sciences and engineering (Mechanics)	R4	French	Male

Participants' institutions

Centre national de la recherche scientifique (CNRS)
University Pierre and Marie Curie (UPMC)

Germany

Participants

Discipline	Stage	Nationality	Gender
Arts and humanities (German linguistics)	R1	German	Female
Arts and humanities (German linguistics)	R1	German	Female
Arts and humanities (Art history)	R1	German	Female
Arts and humanities (North America studies)	R1	German	Female
Arts and humanities (East Asian art history)	R1	German	Female
Arts and humanities (Japanese studies)	R2	German	Female

Arts and humanities (Islam studies)	R4	German	Female
Biological sciences (Biology)	R3	German	Male
Biological sciences (Biochemistry)	R3	Dutch	Male
Biomedical sciences (Pharmacy)	R1	German	Female
Biomedical sciences (Medical biology)	R1	German	Male
Biomedical sciences (Developmental psychology)	R2	German	Female
Physical sciences and engineering (Physics)	R2	German	Male
Social sciences (Economics)	R4	German	Female

Participants' institutions

University of Göttingen

Freie Universität Berlin

Heinrich Heine University Düsseldorf

Italy

Participants

Discipline	Stage	Nationality	Gender
Arts and humanities (Philosophy)	R2	Italian	Female
Biological sciences (Anthropology)	R2	Italian	Female
Physical sciences and engineering (Physics)	R2	Italian	Female
Physical sciences and engineering (Physics)	R2	Italian	Male
Physical sciences and engineering (Physics)	R2	Italian	Female
Physical sciences and engineering (Physics)	R2	Italian	Male
Physical sciences and engineering (Physics)	R4	Italian	Male
Physical sciences and engineering (Physics)	R3	Italian	Female
Physical sciences and engineering (Physics)	R3	Italian	Female
Physical sciences and engineering (Maths)	R4	Italian	Female

Participants' institutions

Consiglio Nazionale delle Ricerche (CNR)

Istituto Nazionale di Fisica Nucleare (INFN)

Luxembourg

Participants

Discipline	Stage	Nationality	Gender
Biological sciences (Life sciences)	R2	Luxembourg	Female
Biomedical sciences (Psychology)	R1	French	Male
Biomedical sciences	R2	Serbian	Female
Physical sciences and engineering (Environmental Science)	R1	Columbian	Male
Physical sciences and engineering (Engineering)	R1	German	Male
Physical sciences and engineering (Material science)	R2	French	Male
Physical sciences and engineering (Computer science)	R2	French	Male
Social sciences	R2	French	Female
Social sciences	R2		Male

Social sciences	R2	French	Female
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Participants' institutions

Centre d'Etudes de Populations, de Pauvreté et de Politiques Socio-Economiques /
 International Networks for Studies in Technology, Environment, Alternatives, Development
 CEPS/ INSTEAD
 PRC Gabriel Lippmann
 PRC Henri Tudor
 PRC Santé
 University of Luxembourg

Norway

Participants

Discipline	Stage	Nationality	Gender
Arts and humanities (Gender studies)	R1	German	Female
Arts and humanities (Theology)	R4	Norwegian/ Danish	Female
Arts and humanities (Media)	R2	Norwegian	Female
Biomedical sciences (Medicine)	R4	Norwegian	Female
Physical sciences and engineering (Metallurgy)	R2	Norwegian	Female
Physical sciences and engineering (IT)	R2	Norwegian	Male
Physical sciences and engineering (Civil engineering)	R2	French	Female
Physical sciences and engineering (IT)	R2	Finnish	Male
Physical sciences and engineering (Physics)	R4	Norwegian	Male
Social sciences (Supply chain management)	R2	Norwegian	Female

Participants' institutions

University of Oslo
 SINTEF

Appendix 5: Glossary implications

The following words/terms require further explanation for the full meaning to be understood:

- All acronyms to be expanded e.g. HE, IT, IPR etc.
- Lots of use of slashes (/) which can be confusing
- Agenda can be ambiguous term (France)
- Astute (no understanding of this word)
- Career management (not a common concept)
- Citizenship (no understanding of this word)
- Collegiality (is this different from team working?)
- Corporate social responsibility (remove corporate)
- CPD (not fully understood)
- Engagement (what does this mean)
- Enthusiasm (some equated this to motivation, others to engagement)
- Equality and diversity (more definition, EU legislation needed)
- Innovation (is this invention or something different?)
- Intrapreneurship (term not understood)
- Professional development (not a common concept)
- Public engagement (not a known concept or priority)
- Real world affairs (a lot of confusion over this term)

Appendix 6: Resources and support ideas

Professional Development Planner and content:

- Selection process needed to help identify areas to focus on
- Simplify – most important to start, then what will follow
- Need a first steps or light version
- Link the sections of the screencast into the relevant places of the PDP
- Question marks with hover capability to show more information if needed
- Need an explanation of each descriptor
- Series of questions/tick boxes to score which phase you are nearest to
- More specifics to help in assessing and planning development
- Negative comments/descriptions would be useful
- Match language with EU charter and code – refer to same definitions
- Need to add 'Why do you want to improve in this area'? to action planning
- Lots of overlapping – could say it in fewer words
- Links between different subjects and descriptors needed to help ideas and create visualisation (helps to identify blind spots)
- Intermediate phases can be identified – steps towards next phase
- Transform targets to a timetable
- Resources useful, but links needed from relevant sections of the PDP
- More links to training or literature/websites
- Visualisations needed
- User interaction with each other and help each other
- Appeal to human playfulness but not silly
- Social network

Additional resources:

- Role models and use statistics
- Researchers interviewed from private industry
- Share action plans on website including discipline-specific examples
- Needs more resources e.g. example profiles of French researchers
- Can the framework be implemented using existing social tools e.g. ResearchGate
- Text version of the screencast, as audio sometimes difficult to understand
- Language translation needed
- Concrete examples of evidence of development eg organised conference
- Resources too UK-focussed
- Clearer introduction on the website
- Collaborative production of resources to widen appeal

Training and other local support:

- Align and pick out most relevant descriptors for organisations
- Early career researchers need more help to complete their RDF
- More support for development of general competencies
- RDF lenses will help (www.vitae.ac.uk/rdfenses)
- Needs to be made clearer that phase five is not the end goal for everyone
- Good to have support for researchers not used to the process of self-reflection
- Courses not enough to prove competency
- Address lack of time to complete – have a 'five minutes to spare' activity