Deliverable 2.1 EPICUR Qualitative researchers' Assessment Framework

European Partnership for an Innovative Campus Unifying Regions
EPICUR Research Agenda
Shaping European Society in Transition

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V1.1	08.12.2021	Addition of a footnote concerning the definition of early career researchers (page 11)
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Content

1. Introduction

1.1 Context

EPICUR, the European Partnership for an Innovative Campus Unifying Regions, is a first-generation European University Alliance, dedicated to shaping European Society in Transition through the development of collaborative inter- and transdisciplinary teaching and learning.

EPICUR-Research

The EPICUR-Research project, coordinated by Karlsruhe Institute of Technology, launched in January 2021 and funded by the European Commission's Horizon 2020 programme, is setting up new types of research collaborations at a European level for early career researchers. EPICUR-Research is primarily aimed at early career researchers in order to expand their field of research and improve the sharing of skills and knowledge within a European research area on interdisciplinary political and social issues.

Partners of the alliance

- Karlsruhe Institute of Technology "KIT" (Germany)
- University of Strasbourg "Unistra" (France)
- Adam Mickiewicz University in Poznan "AMU" (Poland)
- Aristotle University of Thessaloniki "AUTh" (Greece)
- University of Natural Resources and Lifes Sciences, Vienna "BOKU" (Austria)
- University of Haute-Alsace "UHA" (France)
- University of Freiburg "ALU-FR" (Germany)
- University of Amsterdam "UvA" (The Netherlands)

1.2 Objective of this deliverable

This deliverable comprises the core text of the EPIQAssess, including a model set of assessment criteria.

EPIQAssess is a flexible and dynamic model researchers' assessment framework, a deliverable for Task 2.1.1 (EPIQAssess) and part of EPICUR-Research Work Package 2 on 'Strengthening Human Capital'. EPIQAssess builds upon ongoing debates and publications focusing on fostering research careers in national and European contexts, including the recent Council Conclusions *Deepening the ERA: Providing Researchers with Attractive and Sustainable Careers and working conditions and making brain circulation a reality*. The framework is intended to provide an *actionable* model for fostering attractive and sustainable research careers, which can be deployed by universities. In doing so, EPIQAssess marries together both quantitative criteria as well as qualitative assessment practices.

EPIQAssess' key characteristic is that it is a practical tool offering concrete instruments to EPICUR universities aiming at igniting transformation in how staff performance is recognised and rewarded.

At a later stage, components of the EPICUR assessment framework will be integrated into an EPICUR gamification framework, which will include incentives and rewards for researchers' achievements.

EPIQAssess has been drafted in close consultation with an Expert Group, comprising researchers and senior staff of all eight EPICUR partner universities, as well as members from the Early Career Researcher Board. In addition, internal consultations within EPICUR partner universities have taken place and all feedback received has been taken into account.

2. Deliverable

2.1 Introduction

This document lays out the foundation for a new framework for researcher assessment principles and practices, called EPIQAssess, to be tested by EPICUR partner universities. This flexible and dynamic qualitative researchers' assessment framework is a deliverable for Task 2.1.1 (EPIQAssess) and part of EPICUR Research Work Package 2 on 'Strengthening Human Capital', which aims to enrich existing research evaluation systems in Europe. At a later stage, components of the EPICUR assessment framework will be integrated into an EPICUR gamification framework, which will include incentives and rewards (EPIGame) for researchers' achievements.

Universities and their academic staff are working in an increasingly demanding context; not only are contemporary researchers expected to be productive and impactful, they are also expected to undertake their work in collaborative settings (within and beyond the university) and to be able to explain how their results will benefit society. Meanwhile, current dominant practices of assessing academic performance are mainly based on quantitative measures (such as bibliometrics), leaving little opportunity to recognize and incentivize results beyond the scope of measurable indicators. This includes performance in teaching, societal engagement, and/or the development of specific skills and competences, which are without exception tasks contemporary researchers are expected to undertake as part of the core tasks of modern day universities. As a result, in recent years both individual researchers and institutions have called for the transformation of the ways in which academic performance is recognised and rewarded. Part of the ongoing debate revolves around growing scepticism about relying heavily on quantitative metrics in research assessment, such as the use of the number and citations of published papers and the number and amount of funded grants. Too often, these quantitative criteria fail to capture achievements in areas like teaching and service to society, which therefore remain "invisible". That said, EPICUR believes that researcher assessment can and should always be supported by objective data. Therefore, EPICUR's stance is that modern assessment models should ideally marry together both quantitative measures with newer qualitative assessment practices in a balanced fashion. Finally, other concerns about existing research systems include the impact on the wellbeing of individual researchers and the growing incidents of research integrity violations, which could be addressed more adequately in new models.

EPIQAssess builds upon ongoing debates and publications focusing on fostering research careers in national contexts[1], and the European context, including the European Research Area (ERA). The European Commission adopted the *European Skills Agenda* in June 2020 and called to develop a "European Competence Framework for researchers, supporting the development of a set of core skills for researchers, skills taxonomies, and related training". One year later the Council of Europe adopted conclusions[2] to "facilitate interoperability and comparability among research careers through the development of a European framework for research careers" and states that "European University Alliances are the most suitable platforms to test possible models for joint recruitment schemes, training and career development at transnational level". The Council also recognizes that a flexible European framework for research careers is essential for creating conditions to retain and attract talents to Europe. This is exactly what EPIQAssess aims to provide: an initial model to nurture sustainable researcher careers.

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[1] One example is the 'Reward & Recognition' initiative in the Netherlands: https://recognitionrewards.nl/

[2] Outcomes of proceeding of the Council of Europe: https://www.consilium.europa.eu/media/49980/st09138-en21.pdf

EPICUR wholeheartedly welcomes the growing attention for shaping attractive and sustainable research careers. In order to take a first step in achieving this objective, EPICUR believes that a more *actionable approach* is needed within universities to make the necessary transitions in human resource management a reality. Therefore, the distinctive feature of the EPIQAssess model is to offer a practical tool catering for universities to test new practices, fitting in the specific institutional context.

In sum, EPIQAssess is a practical tool, which offers concrete instruments and practices to EPICUR partner universities aiming at igniting transformation in how staff performance is recognised and rewarded. EPIQAssess is meant to be flexible and applicable in the context of all scientific disciplines by allowing tailor-made adaptations for specific disciplines (see also under section 3). EPIQAssess will initially be tested by the eight EPICUR partner universities at the institutional level. In addition, EPIQAssess will be offered for uptake by other European Universities alliances. This process will be facilitated in the context of EPIConnect, a platform for network-to-network collaboration EPICUR-Research is currently developing in the context of Work Package 4.

2.2 Context analysis and EPICUR position

The acknowledgement of the structural limitations of the current academic culture are not new. In recent years we have witnessed an increase of policy statements and the development of alternative frameworks for researcher evaluation, as well as political support at the national and European level. This paragraph attempts to provide a non-exhaustive overview of some key developments, some of which served as a source of inspiration for EPIQAssess.

The growing concerns pertaining to the traditional ways of evaluating scientific output and rewarding individual researchers has resulted in increasing support for international initiatives, such as The San Francisco Declaration on Research Assessment (DORA), The Leiden Manifesto for research metrics, The Metric Tide or the Hong Kong Principles for Assessing Researchers. More national funding agencies, universities and research institutes have expressed support to adopt a fairer and more transparent way of assessing research and researchers on the institutional, national and international level. University networks, such as LERU, have strongly voiced their concerns about the current research systems and strongly recommends to change our perspective in how researchers should be trained for different roles in society in addition to the traditional academic role. In brief, LERU's position is that current research career tracks are too linear and need to be transformed into multiple and dynamic career pathways which support more women in senior and leadership positions and encourages more diversity and inclusivity. Another university network EUA also supports "changes in research assessment based on peer-review and precise article-level metrics that contribute to a fairer and more transparent evaluation of research. These would focus on quality, openness, potential, originality, scientific and possible societal impact."

At the European level, the European Council acknowledged that current reward and assessment practices are largely based on bibliometrics rather than on excellence and impact, and should evolve towards a more qualitative approach. The Council also recognizes the importance of interdisciplinary research and international and intersectoral mobility on research careers development. The European Skills agenda emphasizes the need for a European Competence Framework for researchers and upskill scientists by supporting the development of a set of core skills for researchers, including digital, green, entrepreneurial and transversal skills. For years, initiatives like the Human Resources Strategy for Researchers and the European Charter & Code for Researchers have offered practical tools for Europeans universities to implement fair and transparent recruitment and appraisal procedure in their policies and practices. Tools such as the Open Science Career Assessment Matrix (OS-CAM) also encourage to evaluate European

researchers through the lens of Open Science, which incorporates broader aspects of being an excellent researcher, such as service and leadership, research impact and teaching.

Example box 1: Recognition & Rewards at UvA

At the University of Amsterdam (UvA) a university-wide Recognition & Rewards committee is investigating improvements for researcher assessment practices. The aim of Recognition & Rewards is to recognize and reward scientific staff for their broad contributions to science and scholarship. By recognising and rewarding not only publications in leading journals, but also other achievements in the areas of education, research, leadership and valorisation, UvA intends to achieve better alignment with the university's core tasks. This will enable employees to better explore various career opportunities, in keeping with the talents of each individual scholar. The initiative is part of a national programme on Recognition & Rewards in the Netherlands that unites not only individual institutions, but also research funding organisations and university associations. The Recognition & Reward movement intends to yield concrete ideas for making academics' careers more attractive, providing more room for everyone's talent and recognising and rewarding various achievements in 5 areas: education, research, (social) impact, leadership, and teamwork. For further information please visit the Recognition & Rewards webpage.

At the national level, Dutch universities and the employee association for Dutch universities (VSNU) prepared a joint position paper that calls for a new system of recognition and rewards. In this context all Dutch universities and research funding bodies are currently implementing actions focused on "Redesigning academic career paths" and "Quality assessment of research and research proposals". An concrete example is from Utrecht University in the Netherlands which recently decided to judge its scholars by other standards, including their commitment to teamwork and their efforts to promote open science by early 2022. Some bottom-up initiatives include initiatives led by employees such as *WOinactie* and the Manifesto for the Future of Work and Organizational Psychology initiated by European scholars in the field of work and organizational psychology.

Example box 2: Framework of competencies at KIT

Karlsruhe Institute of Technology (KIT) developed a framework of competencies in 2017, which specifies the elementary personal, interactional, methodological, and leadership skills for all employees. This general model applies to all job positions to give clear and transparent guidelines on what skill criteria KIT staff should meet for being successful in their jobs. It can be used for assessment and development centres as well as for individual coaching.

Besides professional excellence and corporate values, the key competencies are self-development and controlling (as personal skills), cognition and methods (as methodological skills), communication and cooperation (as social skills), and leadership and management (as leadership skills). A detailed description in German is available at the following website.

Example box 3: Wellbeing of (early career) researchers

The EU-funded Researcher Mental Health COST Action (ReMo) has recently published a manifesto in which its members voice the following ambitions related to wellbeing and mental health within academia:

1. Ongoing dialogue between all relevant stakeholders; systematic and structured data collection for evidence-based policy making; dissemination of state-of-the-art evidence and tools addressing mental health; and revising the academic reward system.

2. Recognizing mental health and well-being issues; sharing best practices across institutions; development of fair and personalized research performance assessment; addressing well-being in doctoral and staff professionalization; supporting change initiatives at the organizational level.

3. Supporting grassroots initiatives; peer-to-peer support actions; a person-centred approach to training and career management; anecdotal evidence collection.

ReMO COST Action aims to realize these ambitions by establishing a global discussion forum, creating an open evidence hub, and launching the researcher well-being ambassador programme.

A recent survey conducted among Global Research Council (GRC) participant organisations, which are mostly public research funding organisations, showed a clear shift away from reliance on metrics towards more qualitative or mixed-methods modes of assessment in an effort to make research assessment more objective and fair. This finding is corroborated by the 2019 Science Europe Study which showed that most participating research organisations rely, at least in part, on qualitative assessments of candidates or proposals, as opposed to relying solely on direct assessment using quantitative tools such as journal-based metrics.

The main trend in the aforementioned developments is the growing interest and support for a wider and more structural use of qualitative assessment criteria. That said, groups of academics also express concerns about the shift to solely relying on qualitative criteria by substituting (most of) the traditional quantitative measures. A recent critical statement of Dutch professors and researchers can be found here.

EPICUR's position

EPICUR's position in this context is that the alliance believes that there can be merits in deploying relevant criteria derived from both approaches, the quantitative as well as the qualitative ones. In both cases, researcher performance should be measurable to assess the quality of research against transparent and objective standards and to facilitate peer review, a corner stone of the scientific endeavour. The challenge here is to strike the right balance. Over and above that, EPICUR is mindful that researcher careers have become less linear and more dynamic, and this dynamism should be reflected in a multi-dimensional approach in assessment practices. In sum, the EPICUR alliance believes that a modernised assessment framework should ideally constitute a balanced mix of quantitative and qualitative criteria in the context of a multidimensional approach, comprising the four key components of the EPICUR "Knowledge Square": Teaching & Learning, Research, Innovation, and Service to Society.

More institutions and researchers are looking for alternative approaches to modernise, harmonise and transform the ways in which researchers are acknowledged, recognized and rewarded for their performance in research as well as their contributions to teaching, innovation, service to society and other core areas of university business. Therefore, EPICUR would like to seize the momentum and move towards more concrete actions to start realising these transformations at the institutional level. This is exactly what EPIQAssess aims to facilitate, as it is intended as a framework to guide and help deploy these improved assessment practices in the initial experimental phase. In doing so, EPICUR is contributing to realising the European Commission's ambitions as mentioned in the recent Council Conclusions which were adopted in May 2021 to improve conditions for research careers in Europe.

In this process, the EPICUR alliance takes a developmental approach by regarding the new framework as a dynamic and adaptive tool which supports both organisations and individuals in improving and modernising assessment systems and practices. The tool will evolve and can be adapted over time, taking into account results, new insights and experiences from institutional pilots. Researchers' assessment impacts all members of the academic community, including the assessors and the assessed. For this reason, EPICUR acknowledges the importance to involve researchers in different career stages as well as policy makers in the process of co-creating this new assessment framework. In the process of devising EPIQAssess, EPICUR greatly benefited from valuable expertise and experiences offered by experts from EPICUR partner universities and from a number of existing frameworks and other resources of which an overview can be found in appendices 1 and 2.

2.3 Goals of EPIQAssess

The main goal of EPIQAssess is to enrich existing research and career evaluation systems with qualitative criteria aiming at mastering a modern skill set which fits the needs of today's researchers, universities, research institutions and society at large. These evaluation systems should also recognise skills related to Open Science, green transition, leadership, entrepreneurship, and interculturality, as well as to foster diversity and inclusiveness, including gender balance.

A key feature of the EPICUR qualitative researchers' assessment framework (EPIQAssess) is the focus on actual deployment and practical implementation of the framework in real-life situation which will be supported by all EPICUR universities. Therefore, EPIQAssess aims to offer a practical tool for individual Early Career Researchers (ECRs), managers and supervisors of research units, researchers assessment committees, and university leaders to help develop and deploy qualitative ways in which staff performance is recognized and rewarded within the EPICUR alliance. It also aims to serve other practical purposes for policymakers and research managers from other European university alliances, national governments and research bodies.

EPIQAssess aims to offer a flexible and dynamic framework which can be used for two specific purposes:

Institutional level	Individual researchers/staff level
1. *Support researchers' appraisals and building a case for reward, recognition and promotion:* – Appreciate talents and capacities of (early career) researchers – Provide consistent and shared institutional model and languages for reward and recognition – Preparing and justifying cases for reward and recognition – Assessing and considering cases for promotion – Experiment with qualitative and quantitative assessment criteria for research staff – Managing career trajectories and research portfolio of research staff – (Re)designing researchers' roles and job descriptions – Facilitate staff training and career guidance – Implementing institutional human resources strategies	2. *Support for career development of (early career) researchers:* – Facilitate guidance to develop a research focus and career path – Help organise (re)assessment of individual research work and output to further training and development – Identify and develop different talents, dimensions and roles in research career – Identify individual development needs and skill gaps – Facilitate advice and feedback from supervisors, research peers and seniors – Find suitable job matches in diverse employment sectors, including academia, industry and society

The EPIQAssess model will initially be tested by the eight EPICUR partner universities in the institutional context and by a selection of other European Universities alliances. In practice this means that during the testing period the model will need to be adapted to specific needs of the individual users and that the new EPIQAssess model can be implemented within the involved institutions parallel to existing assessment models. Its flexibility and adaptability will make the model suitable for researchers from all scientific disciplines[3]. The goal is not to change assessment practices overnight, but to encourage experimentation with qualitative approaches to complement and enrich existing quantitative assessment models. The

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[3] All disciplines ranging from Arts, Humanities and Social Sciences to STEM

possibility to adapt and customize the framework to the actual needs of each individual and institution is therefore an important feature of the EPIQAssess model.

The EPICUR alliance is mindful that developing and implementing a new qualitative assessment system is a challenging endeavour which requires institutional and systemic change and that we need to deal with existing differences in support systems for researchers in different countries and institutions. Introducing a new assessment model does not come without any risks and might have impact on the status quo of institutions, such as the standing of universities in international rankings or research funding decisions. However, in the long run, the benefits of adopting a fairer and more transparent way of assessing will be considerable and will better fit the needs of today's researchers, contribute greatly to better research and improve the economic and societal impact of science.

2.4 Guiding principles of EPIQAssess

EPIQAssess builds upon the following guiding principles:

1. Point of departure is the **researcher perspective**, based on the entire life cycle of the career paths
2. The four corners and interactive crossroads of the **EPICUR knowledge square** form the 4 **key dimensions**: Learning & Teaching (LT), Research (R), Innovation (I) and Interaction with Society (S)
3. EPIQAssess marries together both **quantitative** and **qualitative** assessment criteria
4. The model framework is **flexible** and can be adapted to specific needs of individuals users from **all scientific disciplines**

A modernised framework for researcher assessment, ideally covers the cycle from (merit-based) recruitment and induction through professional development in all stages and could include the following central components (non-exhaustive):

- Equity will be a guiding principle for inclusion and empowerment of all EPICUR researchers
- Recognition of performance in teaching and supervision
- Encouragement of actively deploying Open Science practices (incl. transparency, openness research data and infrastructure)
- Advancement of inter- and transdisciplinary research[4] (not excluding mono-disciplinary research)
- Acquisition of specific skill sets (academic and non-academic), including in the area of green transition, (academic) leadership, digital skills, entrepreneurship and interculturality
- Appreciation and recognition of team science skills
- Support for service to society efforts
- Support for service, including "academic citizenship" (e.g. contributions to peer review, editorial positions, professional organizations)
- Diversifying academic career paths: dynamic and developmental approach
- Responsible use of bibliometrics

Example box 4: Rewarding service for organizational achievements at AMU

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[4] The EU-funded ShapeID project offers useful toolkit to facilitate inter- and transdisciplinary research:
https://www.shapeidtoolkit.eu/guided-pathways/evaluate-inter-and-trans-disciplinary-research/

Every year, the Rector awards academic teachers at Adam Mickiewicz University, Poznan (AMU) for their outstanding organizational achievements that have resulted in a significant improvement in the conditions of research and teaching at the level of the university or its organizational units. The Rector can award either individual or team achievements which includes a single discretionary bonus of which the amount is determined by multiplying the minimum basic salary of a full professor. Awards also exist for outstanding research (based on publication) and teaching achievements (based on teachers' evaluations by students). AMU deans can submit eligible applications for individual and team awards which should among others include the description of the achievement.

Rector's individual awards: 1st degree award: 300% of basic salary; 2nd degree award: 200%; 3rd degree award: 100%.

Rector's team awards: 1st degree award: up to 600%; 2nd degree award: up to 400%; 3rd degree award: 200%.

Examples of awarded achievements from an AMU professor who performs these tasks/functions pro bono:
- Member of the AMU Commission for Counteracting Discrimination
- Co-organizing events that promote equality and tolerance (e.g. Language of Empowerment: International Week for Equality and Tolerance at the Faculty of English AMU)
- Coordinating activities promoting bi- and multilingualism (e.g., as part of the Bilingualism Matters @Poznań Center)

Example box 5: Suggestions for Open Science and Green Transition skills indicators
The newly established EPICUR Early Career Researcher (ECR) Board suggested the following examples of quantitative "Open Science skills" indicators: release of raw data and code used for data analysis and/or an open access software, ratio of total number of published articles in an open access journal or publicly available archives before peer-review (e.g.: bio-archive). The ECR board also proposed to break down "Green transition skills" into different axes of work, such as actions for waste reductions (e.g. physical, and digital through better data storage protocols), effort to develop research topics related to green transition and actions to make the University more sustainable.

2.5 Research career stages - definitions

The EPICUR alliance decided to adopt the European commission's descriptions and definitions of the following four identified research career stages[5].

European Commission definition of Early-Stage Researcher (ECR): "The term Early-Stage Researcher refers to researchers in the first 4 years (full-time equivalent) of their research activity, including the period of research training."

1. PhD candidate (R1):
First Stage Researcher including doctoral candidates doing research under supervision in industry, research institutes or universities

2. Early Career Researcher (R2):
PhD holders or equivalent who have not yet established a significant level of independence

3. Mid-Career Researcher (R3):
Established researchers who have developed a level of independence

4. Late Career Researcher (R4):

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[5] KIT adds to this definition by including all researchers on their pathway to become a full professor.

Senior researchers leading his/her research area or field, including the team leader of a research group or head of an industry R&D laboratory and may include individuals who operate as lone researchers

2.6 EPICUR Knowledge Square: basis for a multi-dimensional assessment

The European Knowledge Square highlights the importance of research reaching out and impacting beyond the academic community by engaging different sectors of higher education and society. The Knowledge Square distinguishes the following four corners: Research, Innovation, Learning & Teaching, Interaction with Society (see visual below). The EPICUR Knowledge Square has been broken down into four dimensions and accompanying measures. This chapter lists and describes the breakdown and application of the four dimensions and the related criteria sets in the assessment of researchers which covers the four identified research career stages (from R1-4).

Open science principles will be included in the descriptions of relevant dimensions, which could describe to what extent researchers make their publications available through open access, make their data available through open data, the degree to which their research is utilising open platforms, tools and services, that their research is being conducted in an open collaborative manner; or have engaged in open peer review and citizen science. At a later stage, an EPICUR taxonomy of competencies and skills (horizontal/cross-cultural) will be developed.
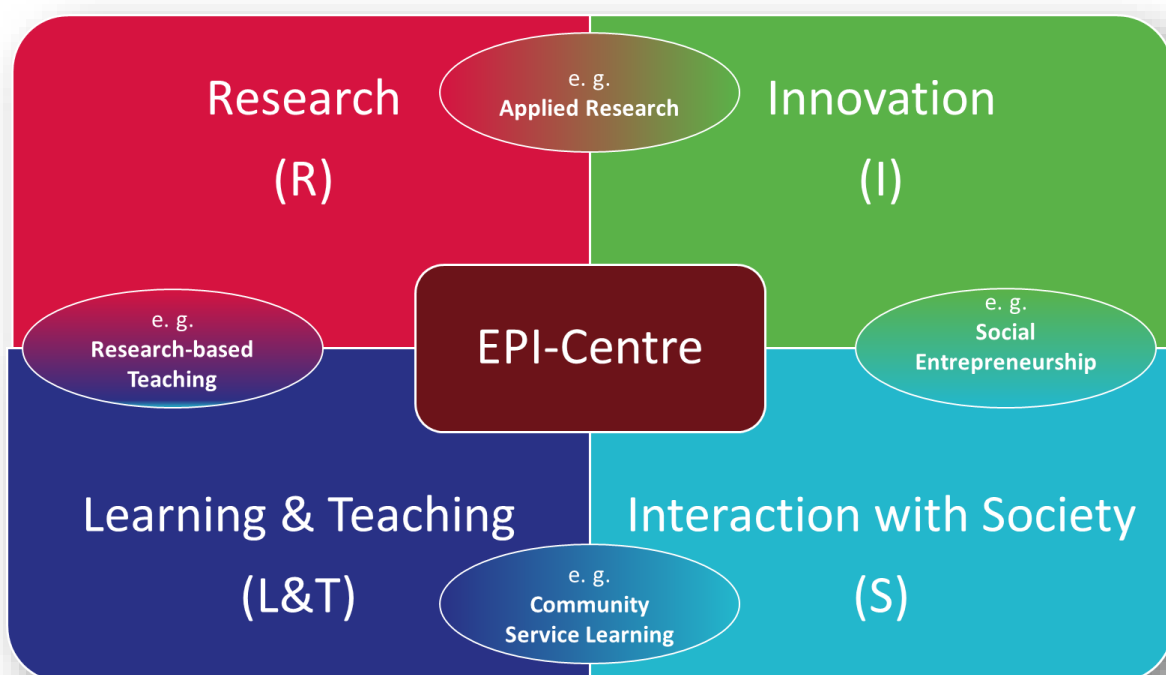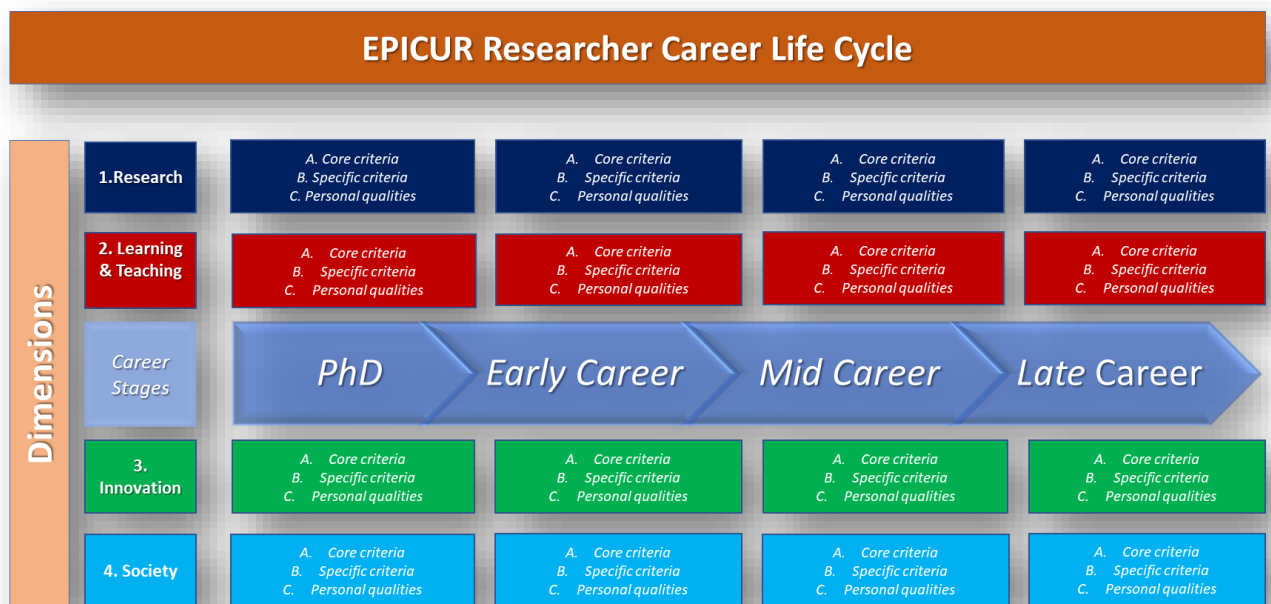
EPIQAssess criteria sets in the 4 dimensions

The analysis of existing research assessment frameworks and relevant literature (see appendix 2), as well as valuable input from EPICUR experts resulted into the following break-down of three possible assessment criteria sets for each of the four dimensions and roles. The EPIQAssess model distinguishes the following three types of criteria in the context of four different roles which an Early Career Researcher (ECR) may wish to pursue. It is important to note that these roles are not mutually exclusive as the majority of researchers is also active in a teaching role and may engage in activities involving private or societal partners:

1. Core criteria: activities, skills, competences and/or qualities that are essential and required for all researchers pursuing this specific career pathway
2. Specific criteria: additional activities, skills, competences and/or qualities that are relevant for a specialized research focus based on the needs of a research team/individual
3. Personal qualities: the impact and outcomes of personal (soft) skills and competences that are required in a specific research pathway

The EPIQAssess model offers a multi-dimensional set of assessment criteria (see appendix 3) that fits the needs of today's researchers, including skills related to Open Science, green transition, leadership, entrepreneurship, and interculturality. Since certain criteria could be relevant for different roles, some of these have been listed in more than one dimension. The relevance and importance of the proposed longlist of criteria and the relevant indicators can be prioritized, valued and weighted for each career stage and different scientific disciplines by using the following values:

1. : Least relevant/important
2. : Relevant/important
3. : Most relevant/important

A more detailed description of the four dimensions and roles and suggestions for the relevance in each of the career stage is the attached as an excel document (see appendix 3). The excel sheet can be adapted and customized based on the specific situation, purpose, and needs of the user.

1)   Dimension of Research (R)

Researcher role

No	Criteria
A. Core criteria	
A.1	Carry out research
A.2	Subject matter and expertise
A.3	Value team science
A.4	Supervision of research and mentorship
A.5	Open Science skills
A.6	Scientific publications and impact
B. Specific criteria	
B.1	Inter- and transdisciplinary research
B.2	Academic collaboration
B.3	Acquisition of funding
B.4	Research-based teaching
B.5	International portfolio
B.6	Digital skills
C. Personal qualities	
C.1	Academic leadership and management
C.2	Professional role model for others
C.3	Intercultural awareness and competences
C.4	Communication
C.4	Professional development
D. Emerging criteria	
D.1	Please add if necessary

2) Dimension of Learning & Teaching (L&T):

Teacher role

No	Criteria
A. Core criteria	
A.1	Research-based teaching
A.2	Curriculum revisions/ educational design
A.3	Supervision and mentorship
B. Specific criteria	
B.1	Collaboration and networking
B.2	International portfolio
B.3	Interdisciplinarity
B.4	Digital skills
C. Personal qualities	
C.1	Educational leadership and management
C.2	Professional role model for others
C.3	Intercultural awareness and competences
C.4	Communication
C.5	Professional development
D. Emergent criteria	
D.1	Please add if necessary

3)   Dimension of Innovation (I):

Entrepreneurial role

No	Criteria
A. Core criteria	
A.1	Carry out research
A.2	Subject knowledge and expertise
A.3	Business development and Intellectual property (IPR)
A.4	Collaboration with business and industry
A.5	Supervision and mentorship
B. Specific criteria	
B.1	Inter- and transdisciplinary research
B.2	Scientific publications and impact
B.3	International portfolio
B.4	Acquisition of funding
B.5	Research-based teaching
B.6	Value team science
B.7	Digital skills
C. Personal qualities	
C.1	Leadership and management
C.2	Coping with uncertainty, ambiguity and
C.3	Professional role model for others
C.4	Intercultural awareness and competences
C.5	Communication
C.6	Professional development
D. Emerging criteria	
D.1	Please add if necessary

4)   Dimension of Society (S):

Service role

No	Criteria
A. Core criteria	
A.1	Carry out research
A.2	Societal impact, incl. citizen science and science popularisation projects
A.3	Collaboration with government and society
A.4	Subject knowledge and expertise
A.5	Supervision and mentorship
B. Specific criteria	
B.1	Scientific publications and impact
B.2	Acquisition of funding
B.3	International portfolio
B.4	Green transition skills
B.5	Value team science
B.6	Research-based teaching
B.7	Digital skills
C. Personal qualities	
C.1	Leadership and management
C.2	Professional role model for others
C.3	Intercultural awareness and competences
C.4	Communication
C.4	Professional development
D. Emerging criteria	
D.1	Please add if necessary

3. Appendices

3.1 Appendix 1: List of key resources and recommended readings

- ALLEA - All European Academies (2017), The European Code of Conduct for Research Integrity- Revised Edition, https://www.allea.org/wp-content/uploads/2017/05/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017.pdf
- Cañibano, C., Woolley, R., Iversen, E.J. et al. "A conceptual framework for studying science research careers" in Journal of Technology Transfer 44 (2019). https://doi.org/10.1007/s10961-018-9659-3
- Council of Europe (2021), Deepening the European Research Area: Providing researchers with attractive and sustainable careers and working conditions and making brain circulation a reality, Council conclusions, https://www.consilium.europa.eu/media/49980/st09138-en21.pdf
- Dutch Recognition & Rewards programme (2019), Room for everyone's talent: towards a new balance in the recognition and rewards for academics, https://recognitionrewards.nl/about/position-paper/
- European Commission, European Charter & Code for Researchers, https://euraxess.ec.europa.eu/jobs/charter-code-researchers
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3.2 Appendix 2: Brief overview of existing researcher assessment models

a) *Vitae Researcher Development Framework (RDF)*
b) *Evaluation of Research Careers fully acknowledging Open Science practices -Rewards, incentives and/or recognition for researchers practicing Open Science*
c) *U21 Conceptual Framework for Teaching*
d) *Dutch position paper 'Room for everyone's talent: towards a new balance in the recognition and rewards for academics'*
e) *KIT Framework of Competencies*
f) *UCL Academic Career Framework*

a) *Vitae Researcher Development Framework (RDF)*

The Researcher Development Framework (RDF) was developed in 2009 by the British non-profit programme Vitae as part of the Career Development Organisation (CRAC). More than 100 UK organisations have endorsed the Researcher Development Statement (RDS) including policymakers, funders of researchers and other UK institutions such as Research Councils UK and Universities UK. It aims to describe the characteristics of excellent researchers and identified the following four domains of 1) Knowledge and intellectual abilities, 2) Personal effectiveness, 3) Research governance and organization, 4) Engagement, influence and impact, which each has been sub-divided into 3 sub-domains.

A. Knowledge and intellectual abilities							
1. Knowledge base	Subject knowledge	Research methods - theoretical knowledge	Research methods (practical application)	Information seeking	Information literacy and management	Languages	Academic literacy and numeracy
2. Cognitive abilities	Analysing	Synthesising	Critical thinking	Evaluating	Problem solving		
3. Creativity	Inquiring mind	Intellectual insight	Innovation	Argument construction	Intellectual risk		
B. Personal effectiveness							
1. Personal qualities	Enthusiasm	Perseverance	Integrity	Self-confidence	Self-reflection	Responsibility	
2. Self-management	Preparation and prioritisation	Commitment to research	Time management	Responsiveness to change	Work-life balance		
3. Professional and career development	Career management	Continuing professional development	Responsiveness to opportunities	Networking	Reputation and esteem		
C. Research governance and organization							
1. Professional conduct	Health and safety	Ethics, principles and sustainability	Legal requirements	IPR and copyright	Respect and confidentiality	Attribution and co-authorship	Appropriate practice
2. Research management	Research strategy	Project planning and delivery	Risk management				
3. Finance, funding and resources	Income and funding generation	Financial management	Infrastructure and resources				
D. Engagement, influence and impact							
1. Working with others	Collegiality	Team working	People management	Supervision	Mentoring	Influence and leadership	Collaboration	Equality and diversity
2. Communication and dissemination	Communication methods	Communication media	Publication				
3. Engagement and impact	Teaching	Public engagement	Enterprise	Policy	Society and culture	Global citizenship	

The RDF focuses on knowledge, intellectual abilities, behaviours, competences and skills of researchers and distinguishes 5 different levels of distinct stages of career development or levels of performance. Three main groups of users are targeted:

1. Researchers
2. Research managers, principal investigators, and supervisors
3. Researcher developers, HR specialists, careers advisors and trainers

Useful tools, such as Development Cards and a downloadable Professional Development Planner are available to users to identify development and to create an action plan. This model does not clearly allow the user to select different roles or types of researcher they wish to pursue in future career paths and does not pay specific attention to research-based teaching, inter- and transdisciplinary research, team science and international engagement.

The user report '*Understanding the experience of postgraduate researchers (PGRs) using the Vitae Researcher Development Framework (RDF) at UK universities*' concluded among others that convincing users to regard the framework as an interactive career and professional development tool instead of administrative task or 'tick-box' exercise remains a challenging task. Encouragement and support from institutions and supervisors (e.g. extensive training for users) is essential to convince postgraduate researchers (PGRs) to prioritize their professional and career development and actually use the RDF tool. (Virtual) Interaction and discussions about career and professional development between PGR peers as well as researchers of different seniority should be facilitated.

Sources:

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b) Evaluation of Research Careers fully acknowledging Open Science practices
Rewards, incentives and/or recognition for researchers practicing Open Science

This report was published in 2017 by the Open Science Working Group on Rewards/Recognition and commissioned by the European Commission. It contains a list of recommendations to promote and engage in the practice of Open Science in Europe. The main conclusion is that evaluating the complex sets of different variables representing the merits, achievements, usefulness of an individual researcher cannot be reduced to a limited set of criteria or 'single figure'. A multi-dimensional approach to the evaluation is considered to be more reliable and will provides a more realistic base for measuring the quality of researchers.

Key recommendations:

1. Introduce a more comprehensive recognition and reward system incorporating Open Science as part of the recruitment criteria, career progression and grant assessment procedures for researchers at all levels
2. Where needed, review and update ERA policies, ERA roadmaps and National Action Plans through the lens of Open Science to ensure compatibility with Open Science
3. Encourage and incentivize researcher participation in Open Science at European, national and regional level through support and funding mechanisms, such as the Human Resources Excellence in Research Award (HRS4R), Work Programmes of Horizon 2020 and in the future Framework Programme 9 and national and regional mechanisms
4. Implement a multi-dimensional approach to evaluating researchers considering the full range of their achievements including Open Science using the OS-Career Assessment Matrix (CAM)

The purpose of the Open Science Career Assessment Matrix (OS-CAM) is to facilitate the process of making the practice of Open Science more mainstream, which requires employers and funders to change their approach in research career assessment for recruitment and promotion. This includes broader assessment criteria, such as service and leadership, research impact and contribution to teaching. The report acknowledges the need for a cultural change in research organisations and in the research community to successfully promote of and engage in Open Science.

The assessment matrix provides a framework to develop evaluation systems that can be applied for different levels, contexts and purposes. It lists possible evaluation criteria for different OS activities differentiated by the following 6 categories:

1. Research output
2. Research process
3. Service and leadership
4. Research impact
5. Teaching and supervision
6. Professional experience

Open Science Career Assessment Matrix (OS-CAM)	
Open Science activities	*Possible evaluation criteria*
RESEARCH OUTPUT	
Research activity	Pushing forward the boundaries of open science as a research topic
Publications	Publishing in open access journals Self-archiving in open access repositories
Datasets and research results	Using the FAIR data principles Adopting quality standards in open data management and open datasets Making use of open data from other researchers

Open source	Using open source software and other open tools Developing new software and tools that are open to other users
Funding	Securing funding for open science activities

RESEARCH PROCESS

Stakeholder engagement / citizen science	Actively engaging society and research users in the research process Sharing provisional research results with stakeholders through open platforms (e.g. Arxiv, Figshare) Involving stakeholders in peer review processes
Collaboration and Interdisciplinarity	Widening participation in research through open collaborative projects Engaging in team science through diverse cross-disciplinary teams
Research integrity	Being aware of the ethical and legal issues relating to data sharing, confidentiality, attribution and environmental impact of open science activities Fully recognizing the contribution of others in research projects, including collaborators, co-authors, citizens, open data providers
Risk management	Taking account of the risks involved in open science

SERVICE AND LEADERSHIP

Leadership	Developing a vision and strategy on how to integrate OS practices in the normal practice of doing research Driving policy and practice in open science Being a role model in practicing open science
Academic standing	Developing an international or national profile for open science activities Contributing as editor or advisor for open science journals or bodies
Peer review	Contributing to open peer review processes Examining or assessing open research
Networking	Participating in national and international networks relating to open science

RESEARCH IMPACT

Communication and Dissemination	Participating in public engagement activities Sharing research results through non-academic dissemination channels Translating research into a language suitable for public understanding
IP (patents, licenses)	Being knowledgeable on the legal and ethical issues relating to IPR Transferring IP to the wider economy
Societal impact	Evidence of use of research by societal groups Recognition from societal groups or for societal activities
Knowledge exchange	Engaging in open innovation with partners beyond academia

TEACHING AND SUPERVISION

Teaching	Training other researchers in open science principles and methods Developing curricula and programs in open science methods, including open science data management Raising awareness and understanding in open science in undergraduate and masters' programs
Mentoring	Mentoring and encouraging others in developing their open science capabilities
Supervision	Supporting early stage researchers to adopt an open science approach

PROFESSIONAL EXPERIENCE

Continuing professional development	Investing in own professional development to build open science capabilities
Project management	Successfully delivering open science projects involving diverse research teams
Personal qualities	Demonstrating the personal qualities to engage society and research users with open science Showing the flexibility and perseverance to respond to the challenges of conducting open science

Source:
https://cdn1.euraxess.org/sites/default/files/policy_library/os-rewards-wgreport-final_integrated_0.pdf

c)   U21 Conceptual Framework for Teaching

The U21 Conceptual Framework for Teaching was developed by the U21 Educational Innovation Steering Group consisting of experts from the Universitas 21 Network members. The teaching framework recognizes

that those involved in teaching in research intensive universities engage in the following four key areas or dimensions of teaching related activity:
1. Learning Facilitation
2. Educational Design
3. Reflective Practice
4. Scholarly Practice

These dimensions should be assessed in one or more of the three following roles taking into account the nature of their appointment (Research and Teaching or Teaching Focused), their job description (instructor or manager), and the stage of their career (from tutor to full professor). See figure below:

Teaching roles:	Levels of academic appointment:	Types of academic appointment:
1. Teacher Practitioner 2. Teacher Leader 3. Teacher Manager	1. Level I – Tutor 2. Level II – Lecturer 3. Level III – Assistant Professor 4. Level IV – Associate Professor 5. Level V – Full Professor	1. Research and Teaching (RT) 2. Teaching Focused (TF)

Academic Appointment/Promotion Structure Used to Define U21 Teaching Standards

Appointment Type	Level of Appointment / Promotion					Responsibilities Include FPMR*
	Level I	Level II	Level III	Level IV	Level V	
Research and Teaching	Tutor	Lecturer	Assistant Professor	Associate Professor	Full Professor	Yes
						No
Teaching Focused	Tutor	Lecturer	Assistant Professor	Associate Professor	Full Professor	Yes
						No

* FPMR - Formal Position of Management Responsibility - any position that includes responsibility for managing aspects of teaching and learning beyond those associated with the Subjects/Courses/Modules/Topics for which the individual is responsible.

The framework defines four indicators of performance and contribution which can differentiated by the size of and the period over which their performance or contribution has been made:
1. the esteem in which the individual is held by students and peers in relation to the work they do as a Teacher Practitioner, Teacher Leader, and /or Teacher Manager in each of the four core dimensions of teaching (learning facilitation, educational design, reflective and scholarly practice).
2. the objective measurable impact the individual has had on improving those things to which teaching, either as a practitioner, leader or manager, is directed
3. the influence the individual has had on another's thinking, practice or development as a teacher.
4. the sustainability of the individual's performance or contribution.

The second section (part B) of the framework summarizes the teachings standards for all 5 levels (I to V) categorized by overall, standard and specific standards, for the 3 teaching roles (Teacher Practitioner, Leader and Manager) by type of appointments (Research and Teaching or Teaching Focused) are. The third section (part C) describes the teaching standards for each of the 5 level of appointment. The last section of the framework (part D) lists examples of evidence that might be used for assessment for appointment or promotion in one of the 5 levels. The possible evidence is categorized by one of the 4 dimensions of teaching related activity (Learning Facilitation, Educational Design, Reflective Practice, Scholarly Practice).

d) Dutch position paper 'Room for everyone's talent: towards a new balance in the recognition and rewards for academics'

Dutch universities, university medical centers, research institutes and research funders (VSNU, NLU, NFU, KNAW, NWO en ZonMw) are currently participating in the national Recognition & Rewards programme which started in November 2019. As a result the position paper 'Room for everyone's talent: towards a new balance in the recognition and rewards for academics' was published which describes how Dutch stakeholders aim to more broadly recognize and reward the work of academic staff. This includes placing less emphasis on the number of publications, and more on the other domains in which the academic is active, such as education and impact. The following two lines of actions are currently being taken: 1) Redesigning academic career paths and 2) Quality assessment of research and research proposals. Below activities related to these 2 lines have been described which are currently being implemented.

1. Redesigning academic career paths

Dutch institutions will create greater diversity in career paths for academic staff in the following key areas: education, research, impact, leadership and patient care (in university medical centres). The guiding principle will be the interrelatedness of education and research and the possibility of adapting a researchers profile which will be the main starting point in the assessment of academics.

- The principles of the new recognition and rewards framework will be included in a national framework for assessment, development and promotion and integrated with the standard national University Job Classification System (UFO), which will be translated into institution-specific assessment criteria and narratives for all key areas and team achievements.
- Institution-wide committees have been set up within the institution to discuss the new recognition and rewards system and set up programmes to stimulate and supervise academics in their career.
- Academic leadership courses are being developed aimed at the university's key areas: education, research, impact and (in university medical centres) patient care and at facilitating the envisaged culture change.
- Criteria that (within disciplines or universities) apply to doctoral programmes will be adjusted to fit the assessment of research quality and meet the DORA principles. Quantitative indicators, such as number of publications or the journal impact factor of the journal in which one has published, will not be the only criteria.
- Further steps will be taken to support the international coordination and harmonization and fomenting of the international debate around the recognition and rewards of academics.

2. Quality assessment of research and research proposals

All stakeholders agree that research should be mainly assessed for its content and quality and not only for its quantity or for the journal it was published in.

- Research funders will create an array of funding instruments with clearly differentiating criteria which will take into account a more diverse group of researchers and place a greater emphasis on team science and on cross-disciplinary collaboration. Relevant research assessment committees will receive training and instruction accordingly.
- Research funders will also work on further implementing the DORA principles in procedures and criteria. Among other things, bibliometric publication indicators (h-index, journal impact factor) will no

longer be requested and that the inclusion of research output on curricula vitae and application forms will take on a more narrative character.

- The new Strategy Evaluation Protocol (SEP) for research has been revised and now includes the principles of the new recognition and rewards framework with more emphasis on societal impact, open science, diversity and talent policy. Academic research evaluations in the Netherlands are carried out with this evaluation protocol developed by KNAW, NWO and VSNU. The SEP provides standard guidelines to research boards and research units within universities and research institutes for drafting self-assessment report about the quality of research and research policy which is judged by a national evaluation committee.

All Dutch stakeholders share their experiences in an online dashboard and on a dedicated website. Most universities are in the internal process of discussing and establishing institution-wide recognition and rewards programmes. The implementation of these institutional programmes are leading to new policy priorities, such as Utrecht University which recently decided to formally abandon the journal impact factor in hiring and promotion decisions of academics and judge its scholars by other standards, including their commitment to teamwork and their efforts to promote open science by early 2022.

Source: https://recognitionrewards.nl/

e) KIT Framework of Competencies

The KIT Framework of Competencies was developed by the (internal) HR development team of the Karlsruher Institut für Technologie (KIT) in line with the strategy KIT 2025 to provide a clear and transparent idea of what (soft) skills are expect at KIT. The framework is aimed at supporting the description of single job specifications and/or categories for all employees at KIT and for strategy issues as a whole. It is currently being used by assessment centers (e.g., tenure track professorships), in development centers (e.g., talent management) and for individual coaching and feedback (e.g., annual evaluation interview).

Exercising methodological expertise	Cognition	The person thinks logically and links information. S/He understands and assesses complex and unknown aspects quickly; s/he turns them into coherent, usable concepts.
	Methods	The person organizes tasks and solutions in a methodical-creative way. S/He acts instrumentally and includes his/her knowledge and experience.
Leading people and business	Management	The person takes and anticipates chances and arranges changes proactively. S/He sets goals and priorities in accordance with the strategy (of the organization).
	Leadership	The person wants to lead, motivate and empower others. S/He appoints others according to their capabilities, encourages their development and considers their diversity.
Leading yourself	Self development	The person takes changes and is open-minded. S/He reflects his/her actions, asks for feedback and refines his/her behavior. S/He applies his/her own resources in a responsible way.
	Controlling	The person works in a result-oriented way and arranges his/her scope of responsibilities efficiently. S/He appoints resources appropriate to the target result.
Interacting with others	Communication	The person communicates in a clear and target group related way and behaves adequate to the situation. S/He behaves and negotiates in a persuasive manner and considers the needs of the vis-à-vis.
	Cooperation	The person is aware how relevant contacts are and uses them purposefully. S/He designs collaborations in a constructive and respectful manner—even in conflict situations.

Source: https://www.peba.kit.edu/2842.php

f) UCL Academic Career Framework

The University College London (UCL) developed the UCL Academic Careers Framework in order to facilitate the measurement of the personal impact of its staff and help plan and support career development. It describes and codifies the types of activity that may feature within an academic career within UCL which can be used as reference points to plan staff careers and support appraisal and promotion discussions and decisions for staff on academic, research or teaching contracts.

UCL distinguishes the following 4 academic career paths:

1. Research:

All aspects of the creation and application of new knowledge, however that manifests itself within specific discipline or disciplines. This covers the following: the production and dissemination of
research outputs, including informing policy through research insights, supporting and nurturing early career researchers, and enabling and leading research activities.
UCL research activities are being assessed with qualitative and quantitative evidence of achievement, including appreciation by peers, impact, scale, originality, rigour and significance of research outputs taking into account the DORA principles. The UCL framework states that it favours quality over quantity in research outputs and research active staff are expected to produce at least one paper-scale output of world leading or internationally excellent quality per year. Research outputs of lower quality are accepted only when they are significant for the relevant discipline and career stage and when they contribute to enabling, leadership and impact. UCL also emphasises cross-disciplinary collaboration within research work, but acknowledges that that it is harder to evaluate the success and significance of the contributions to these type of activities.

2.   Education:

Any activities which support student learning, including establishing new modules, programmes and short courses, developing subject materials, curriculum development and learning design, personal tutoring, consultation and collaboration with professional bodies on course design and accreditation, and working with students on curriculum reform projects. These activities may also include cross-disciplinary teaching opportunities, works of scholarship of teaching and work with external partners that supports learning, teaching and assessment development.

3.   Enterprise & External Engagement:

These include any research and/or education activities, in particular, knowledge exchange activities directed at collaboration with external agencies and stakeholders outside of academia, including businesses and the public. UCL specifically emphasizes the practical application of research discoveries and other income-generating activity which help realise the impact/benefits of research and education upon public discussion, media discussion, cultural life, quality of life, communities, equality and social justice, justice, education, public policy, commercial and social enterprise activity, infrastructure, technology and materials, healthcare, professional practice, and the natural environment.

4.   Institutional citizenship:

Activities which contribute to promoting positive collegial behaviour across a department or faculty; as well as contributing to the effective running of the administration and governance of UCL.. This includes 1) serving on departmental, faculty or institutional committees, 2) involvement in, or leadership of, culture change within a discipline or department, 3) mentoring within own department or faculty 4) advancing equality, diversity and inclusivity for staff and students 5) contributing to local or institutional policy development 6) contributing to intra-departmental or cross institution strategic activity 7) co-ordinating or leading aspects of the university administrative function as they relate to a department or faculty. Evidence of effective personal impact at UCL will have to be submitted in order to build a case for promotion

Grading system

For each type of the 4 above-mentioned paths, specific qualities have been differentiated into 4 different levels of grades (from 7 to 10) which are expected of all staff on academic contracts at that grade, and those seeking to make a case for promotion to that grade. For each grade, the minimum threshold and networks/reach is specified, as well as the expected core and specialist activities, which are not exhaustive and should be considered in the context of relevant discipline(s). Examples of impact indicators which could be expected at each grade have been listed in the UCL framework. All UCL academic, research and teaching staff are also expected to demonstrate at least some core activities under enterprise/external engagement and/or institutional citizenship.

Source: https://www.ucl.ac.uk/human-resources/policies/2021/mar/academic-career-framework

3.3 Appendix 3: EPICUR criteria sets in 4 dimensions and roles

To consult the Excel-document, contact the project coordinator.