Horizon Europe

Initial Methodology Playbook

101058572 Cardea

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HISTORY OF CHANGES		
Version	Publication date	Changes
1.0	30.11.2022	Initial Document
1.1	not published	updated during data collection
1.2	31.01.2023	updated during data analysis addition of survey questions and coding

Project Abstract

Cardea is the Roman Goddess of door pivots, ideal to describe our project to develop Research Managers (RM) who strengthen Europe's R&I excellence through a diverse set of support roles and responsibilities. Research Management as a profession is almost invisible from policy, career progression and tenure opportunities across Europe. Also, there is little consistency between countries, funders, policymakers and individual institutions. Cardea will develop supports to address this inequality. Our consortium has enjoyed considerable success doing this for Researchers already. We will create a detailed data-driven (500+ participants, 24 countries) knowledge space-defining and characterising the problem. Based on this, we will develop a range of solutions, including a Capacity Maturity Model to assess and improve RM activities and a novel RM Hub for networking and training to include a community of practice. Equality, Diversity and Inclusion, Widening Participation (EU13), and Public-Private partnership actions will be at the core of our research, training and enhancement activities. Additionally, the mobility and networking of RM and those with responsibility for developing RMs will be included to ensure the RM ecosystem grows transnationally. We will learn from each other and support one another in bringing RM careers to the next level. Significantly these actions will provide a significant evidence base to advocate the inclusion of RM exigences in policy, and we will target this proactively, targeting 38 key decision-making organisations. Amongst the impacts of Cardea will be an enduring network and Hub that can facilitate RM development and collaboration, a validated methodology to assess RM careers and a well-established baseline against which improvements can be objectively measured. This allows us to develop an RM Charter and offer a Concordat to institutions and organisations that make significant commitments to developing RM activities in a structured, mature manner.

Playbook Abstract:

This Initial Methodology Playbook outlines experimental methodologies for Cardea research. The report details the validated method for all Cardea research activities, including the questionnaires, instruments, data analysis plan, and research questions. Reference is made to relevant literature where appropriate. This Playbook is a living document that will be revised during the project lifecycle. The most up-to-date version will be available on the CARDEA website or on request by emailing cardea@ucc.ie. The interview schedule for the qualitative research will be added in future revisions of this document.

Project Details

Call:	HORIZON-WIDERA-2021-ERA-01
Type of Action	HORIZON-CSA
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Contents

Abbreviations and Acronyms

APA: American Psychological Association
CPD: Continuing Professional Development
CSO: Central Statistics Office (Ireland)
DMP: Data Management Plan
EARMA: European Association of Research Managers and Administrators
EDI: Equality, Diversity and Inclusion
ERA: European Research Area
GEP: Gender Equality Plan
INORMS: International Network of Research Management Societies
NA: Not Applicable
PDP: Personal/professional Development Plan
R: Research (Researcher)
RAAAP: Research Administration as a Profession
RM: Research Management (Manager)
RPO: Research Performing Organisation
SREC: Social Research Ethics Committee, UCC
T&D: Training and Development
UCC: University College Cork

Introduction

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Cardea will develop supports to address this inequality. Our consortium has enjoyed considerable success doing this for Researchers already. We will create a detailed data-driven (500+ participants, 24 countries) knowledge space-defining and characterising the problem. Based on this, we will develop a range of solutions, including a Capacity Maturity Model to assess and improve RM activities and a novel RM Hub for networking and training to include a community of practice. Equality, Diversity and Inclusion, Widening Participation (EU 13), and Public-Private partnership actions will be at the core of our research, training, and enhancement activities.

Additionally, the mobility and networking of Research Managers and those responsible for developing Research Managers will be included to ensure the Research Management ecosystem grows transnationally. We will learn from each other and support one another in bringing RM careers to the next level. Significantly these actions will provide a significant evidence base to advocate the inclusion of RM exigences in policy, and we will target this proactively, targeting 38 key decision-making organisations.

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Research Introduction

A key element of the project is the development of a comprehensive evidence-driven knowledge space that describes the roles and responsibilities and other employment characteristics of Research Managers in Europe for the first time. This document describes the data gathering and analytic strategy used to develop this knowledge and evidence base.

This approach will support one of the primary aims of CARDEA, to inform European policymakers about the career structures, unique skills, training, networking, and mobility patterns of Research Managers in Europe. The results of this Survey will inform the development of a Research Manager Framework and complementary policy for consideration by the European Commission

Research questions

In addition to the specific analytic outputs described below, the research was informed by three core research questions:

1. What are the roles, responsibilities, and skill sets that are described by the job title 'research manager'?

2. What are the identities experienced by research managers?

3. What are the career paths available to research managers?

Unique aspects of this research

The CARDEA research aims to supplement previous research (e.g., the RAAAP initiative from INORMS) by

- Viewing the Research Management Ecosystem through Human Resource and Human Capital Development lenses

- A focus on EU Research managers to articulate internal and external similarities and differences with other states

- Inclusion of workplace well-being and professional identity data

Data analysis techniques

The data was collected using an online survey on Qualtrics. Data was downloaded from the secure platform to MS excel, screened, cleaned, and uploaded to IBMs SPSS for analysis. Several calculations and groupings were developed. These are described below. Linear regression, ANOVA and MANOVA calculations are all included in the data analysis.

Data Types

The data types and treatment for the CARDEA project are described in the associated Data Management Plan (D1.4). For the Survey, stored data is quantitative and qualitative responses to survey questions. No personally identifiable information was collected.

The following attributes were collected: racial or ethical origin, political opinions, religious or philosophical beliefs, trade union membership, genetic data, biometric dates, data concerning a person's sex life or sexual orientation, data from minors, criminal convictions/offences, or family status.

No data concerning name, photo, email address, bank details, posts on social media, medical information, or computer IP addresses for participants was collected

However, data concerning health will be collected; namely, the CSO measure of disability (long term) will be collected.

The Survey was designed in August 2022 and piloted with CARDEA partners and select collaborators (n = 21) at this time. The link to the Survey was then circulated widely, and Data collection commenced for a general Research Manager Audience in September 2023. It is expected to close the instrument to responses in December 2023.

Analytic strategy

The responses to each question were examined for response distributions and frequency characteristics. In addition, several grouping variables were calculated to facilitate inferential statistics to be calculated according to group characteristics. These are described in the calculation tables accompanying each section of the Playbook.

Analysis of the Free text responses proceeded with a word frequency analysis in the first instance. This analysis will be followed by thematic analysis where appropriate. Finally, the methodology for the Thematic analysis will be introduced in the revision of the Playbook in 2024.

Survey design and development

The Cardea 2022 survey is an online questionnaire designed to develop an understanding of the role of RM in Europe in 2022. It was presented in English and hosted on the Qualtrics platform. The questionnaire consisted of 12 sections. Section 1 introduced the questionnaire and obtained informed

consent. Sections 2-10 contained the core questions (see Table 1 for a summary). Section 11 offered respondents an opportunity to provide any additional information they felt was relevant, and section 12 gave the debrief. Full details of the ethical approval process for the research are given elsewhere (D1.4). In total, the questionnaire contained 422 response options. The average time to complete the Survey was 30 minutes.

Table 1: Summary of the sections in the Cardea 2022 survey

Section	Topic
1	Introduction and informed consent
2	Demographics
3	Education
4	Employment
5	Job Profile
6	Professional Development
7	Quality of Work Indicators
8	Networks, Mobility, Equality, Diversity, and Inclusion
9	Professional Identities
10	Skills
11	Final Comments
12	Debrief

Development process

The questionnaire had a deliberate focus on quantitative data but integrated extensive opportunity to resolve issues of definition, and individual understanding of response through the use of "please explain" boxes. The survey design involved a literature review (see bibliography), a review of previous instruments and consultation with the Cardea consortium. Where possible, published instruments were used to allow comparisons with other findings. Ethical approval for the research was provided by the UCC Social Research Ethics Committee (**2022-149**). The consortium piloted the questionnaire (n = 19) and revised to clarify working and remove redundancies.

Section 1: Introduction and consent

Figure 1 shows the elements of the informed consent used. Figure 2 gives the detail of the background introduction that appears at the start of the CARDEA survey 2022.

Figure 1: Introduction section of CARDEA survey 2022
Consent statement: If you have read and understood the information above and are happy to continue to the questionnaire, please complete the following confirmations.

☐ I have read the Information Statement above (or had it read to me).

☐ I understand the information provided.

☐ I am 18 or older.

I have read and understood the information provided. I consent to take part in this research project.

◯ Yes

Figure 2: Information provided to potential respondents to the Cardea survey 2022.

Understanding Research Managers roles, careers and professional contexts
Information statement

Thank you for your interest in this project. It is being undertaken as part of a Horizon Europe Project 'Cardea'
Cardea is a Horizon Europe funded project aimed at understanding, characterising, training and enhancing the role of Research Managers (RMs). Cardea stands for Career Acknowledgement for Research (Managers) Delivering for the European Area. The project is a joint initiative between Research institutions from
Ireland (University College Cork),
Belgium (Universite de Liege),
Croatia (Sveuciliste Jurja Dobrile U Puli) ,
Greece (Centre for Research and Technology - CERTH),
Italy (Universita Degli Studi Di Macerata),
Poland (Henryk Niewodniczanski Institute of Nuclear Physics, Polish Academy of Sciences),
Romania (Universitatea Politehnica Din Bucuresti), and
Spain (Fundacio Institucio Dels Centres De Recerca De Catalunya).

The CARDEA project aims to:

- Improve knowledge for policy-making about the training and networking patterns of research support staff and research management;
- Increase awareness amongst research management staff about existing training, networking and mobility opportunities at EU, national, and regional levels;
- Grow the capacity and compatibility of cooperation and funding systems throughout the European Research Area for research management, and support to scientists;
- Improve awareness of the EU policy drivers and the EU research peculiarity in the Higher Education Institutions and Research organisations;
- Establish central hubs to provide the EU research system with the most appropriate "fit for purpose" skills in EU research management, with active involvement of entities located in widening countries;
- Provide recommendations aiming at facilitating a clear career path for research managers at national and EU levels, enhancing their role towards the achievement of the new European Research Area objectives.

Purpose and type of research

As part of this project, <u>**we are interested in understanding your role as a research manager**</u>. In particular, we would like to use a questionnaire to ask about your career journey to date, your skills and work context as well as your career aspirations. To understand these characteristics, we invite you to complete this questionnaire. Also, demographic information will be collected to see if characteristics such as gender and age influence research manager role profiles. No personally indefinable information will be collected.

Benefits and risks

The anticipated benefit of participation in the research is an opportunity to contribute to a better understanding of the roles of research managers in a modern research ecosystem. At an individual level, participation will give you the opportunity to reflect on and quantify your career journey including the opportunity to capture a systematic characterisation of your skills and career experiences to date. No significant risks have been identified with this research but if you wish to discuss any aspect before, during or after participation, please contact us.

Participation

You are being invited to participate in this research as a member of the research ecosystem.

Participation in this research will involve the completion of an 30-minute questionnaire. We recognize that this is a significant investment of time, and thank you for contributing to the body of knowledge in this area. We recommend you complete the survey on a laptop or similar device as several of the questions have multiple parts which may take longer on a mobile device. The topics included in the survey include demographic characteristics, career to date (including career choices), current skills and skills gaps, networking and mobility patterns.

Participation in the Cardea research is entirely voluntary, and you have the right to refuse participation, refuse any question and withdraw at anytime without any consequence whatsoever. You can withdraw from the research at any time by simply closing your browser.

If you wish to be informed about the outcomes of the research, you will have the opportunity to opt in for updates at the end of the questionnaire.

Confidentiality and data procedures

No personally identifiable information will be collected from this questionnaire. Non-identifiable records will be stored indefinitely and archived on an open access repository in accordance with open science requirements. This data may be reused by the Cardea team (or other researchers) in the future (for example to assess improvements in research manager careers longitudinally). Note that the confidentially of information provided cannot always be guaranteed by researchers and can only be protected within the limitations of the law - i.e., it is possible for data to be subject to subpoena, freedom of information claim, or mandated reporting by some professions.

If you have any questions about the use of your data in this study, you should contact the project team in the first instance. If participants have concerns about the study and wish to contact an independent person, please contact UCC's Data Protection Officer Catriona O'Sullivan (gdpr@ucc.ie, +353(0)21 4903949).

The UCC Human Resources research team include
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Section 2: Demographics

Standard demographic information was gathered in section 1. The questions were informed by Eurostat and Ireland's Central Statistics Office. The tables below have the full details of the demographic questions. In summary, these included: gender, age, disability, nationality, country of residence, principal language, and other languages (and fluency).

Table 2: Questions in section 2 of Cardea Survey, demographic information

Variable name	Question text	Type	Response values
Gender	(Gender) How do you describe yourself?	Nominal	Male (1) Female (2) Non-binary (3) Prefer to self-describe (4)
Gender text	(Gender) How do you describe yourself? Prefer to self-describe	String	Free text
Age	(Age) What age are you in years?	Ordinal	Options range from 18 (1) 19 (2)…. 70+ (53)
Disability	(Disability) Do you have any of the following long-lasting conditions? (This question was adapted from the CSO census)	Nominal – multiple responses possible	Blindness, deafness, or a severe vision or hearing impairment (1) A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying (2) Learning or intellectual disability (3) A psychological or emotional condition (4) Other, including any chronic illness (5)

Variable name	Question text	Type	Response values
			None of these (6)
Nationality	(Nationality) What is your nationality? This question used a standard Qualtrics list of options	Nominal	see Qualtrics pre-made questions[1] for full list
Residence	(Residence) What is your country of residence? This question used a standard Qualtrics list of options	Nominal	see Qualtrics pre-made questions for full ilst
Language	(Language) What is your mother tongue/principle language? This question used a standard Qualtrics list of options	Nominal	see Qualtrics pre-made questions for full list
Language_other	(Language) If you selected other as your first language, please give details below	String	Free text
Language_additional	(Language) Enter other languages and fluency	Nominal and String	participants were asked to identify up to 3 additional languages and fluency (see Table 3)

Table 3: Format of the question of the additional languages.

	Language	Fluency		
	Enter your additional languages (1)	Basic user (1)	Independent user (2)	Proficient User (3)
Second Language (1)	_____	○	○	○
Third Language (2)	_____		○ ○	○
Fourth Language (3)	_____	○	○	○

The following calculations were made from the data in the Survey to facilitate the Analysis of Variance Calculations using demographic characteristics as the grouping variable.

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[1] Qualtrics pre-made list of countries available from: https://www.qualtrics.com/support/survey-platform/survey-module/editing-questions/question-types-guide/pre-made-qualtrics-library-questions/

Table 4: Calculated grouping and/or composite values from respondents' demographic characteristics (section 2) responses.

variable name	format	type	values
Age_actual	adding 17 to recorded Qualtrics value to give actual age in years	string	18, 19, 20….
Age_group	grouping of respondents in 10-year age brackets	Ordinal	≤29 (1) 30-39 (2) 49-49 (3) 50-59 (4) 60+ (5)
Disability_Groups	characterisation of all respondents with at least one disability	Nominal	1 no disability 2 has a disability
Disability_No_Cats	the number of categories of disability reported by individuals	Ordinal	0 – no disability 1 – one disability 2- two disabilities… 5 – five disabilities
Nationality_statistics	Countries that are part of the CARDEA consortium and those with more than 20 responses to the Survey are considered as distinct groups. Countries with fewer responses were groups.	Nominal	Ireland (1) Italy (2) Croatia (3) Belgium (4) Greece (5) Poland (6) Hungary (7) Spain (8) Germany (9) France (10) Other Europe (11) Other Rest of World (12) Portugal (13)
Nationality_groups	grouping by the membership of EU and Geographical location	Nominal	EU (1) Rest of Europe (2) Rest of World (3)

variable name	format	type	values
	(Europe and rest of world)		
Nationality_match	idntifying those whose nationality matches their residenve	Nominal	True False

Section 3: Education

Section 3 contained seven questions to capture the educational profile of research managers. This included the highest level of educational attainment (using the European Framework of Qualifications), disciplinary areas, research management qualifications and other relevant qualifications. This section also asked about professional memberships. See Table 5 for details.

Table 5 Questions in section 3 of Cardea Survey, educational profile

variable name	question text	type	response values
Education	(Education) What is your highest level of education?	Ordinal	EFQ level 3: upper secondary education (1) EFQ level 4: post-secondary, non-tertiary education (FET, VET) (2) EFQ level 5: Short cycle tertiary education (e.g., Bac-2, associate degree) (3) EFQ level 6 Bachelor's or equivalent level (4) EFQ level 7, Master's, or equivalent level (5) EFQ level 8, Doctoral or equivalent (6) *Other, please provide details (7)*
Education_other	(Education_other) What is your highest level of education? Other, please provide details	String	Free text
Discipline	What is the discipline of your highest level of education?	Nominal	Applied science (1) Education (2) Formal science (maths, computer science) (3) Humanities (4) Law (5)

			Natural science (6)
			Public administration (7)
			Social science (8)
			Other, please specify (9)
Discipline_other	What is the discipline of your highest level of education? Other, please specify (9)	String	Free text
RMCertification	Do you have any formal Research Management qualifications or certifications?[2]	Nominal, multiple selections possible	Bachelor's degree in Research Administration (academic programme) (1)
			Master's in research administration (academic programme) (2)
			Certificate in Research Administration (CRA) (3)
			Certificate in Research Management (CRM) (4)
			Certificate in the Leadership of Research Management (CLRM) (5)
			Foundation Level (ARM(F)) (6)
			Advanced Level (ARM (A)) (7)
			Canada - Certificate in Research

			Administration (CRA) (8)
			Canada - Certificate in Research Management (CRM) (9)
			US - Certified Research Administrator (CRA) (10)
			US - Certified Pre-Award Research Administrator (CPRA) (11)
			US - Certified Financial Research Administrator (CFRA) (12)
			US - Certified Professional IACUC Administrator (CPIA) (13)
			US - Certified IRB Professional (CIP) (14)
			None, I do not have any of these certifications (15)
RMCertification_other	Do you have any formal Research Management qualifications or certifications?[3] Other, please specify	String	Free text
RMMembership	Are you a member of any Research Manager associations or networks?	Nominal, multiple selections possible	I am not a member of any Research Manager Associations (1) EARMA (2) INORMS (3)

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[3] list adapted from INORMS Research Administration as a Profession (RAAAP) Taskforce.

			BESTPRAC (4)
			ARMA (UK) (5)
			ARMA (NL) (6)
			ARMS (AUS) (7)
			BRMA (Brazil) (8)
			CARA/ACAAR (Canada) (9)
			CASSSP (China) (10)
			DARMA (DK) (11)
			FINN_ARMA (12)
			FORTRRAMA (13)
			My-RAMA (14)
			NCURA (US) (15)
			NORDP (US) (16)
			NARMA (NO) (17)
			PraxisAuril (UK) (18)
			RMAN-J (Japan) (19)
			SARIMA (SA) (20)
			SRA international (21)
			WARIMA (West Africa) (22)
			The association of commonwealth universities (23)
			Other, please specify (24)
RMMembership_other	Are you a member of any Research Manager associations or networks? Other, please specify (24)	String	Free text
Membership_other	Are you a member of any other professional organisations? If so, give details (organisation name, level of membership,	String	Free text

variable name	question text	type	response values
	admittance criteria (e.g., experience, exam, invitation)		
Certification_other	Do you have other relevant qualifications that specifically support or assist you in your Research Management role?	String	Free text
Certification_other2	Do you have any other currently active professional certification or a state or industry license, e.g., LEAN Black belt? If so, : please provide details.	String	Free text

Table 6: Calculated grouping values from respondents' education responses.

variable name	question text	type	response values
Edu_coded	What is your highest level of education with 'other' responses coded for best fit with standard categories	Nominal	same categories as discipline: Applied science (1) Education (2) Formal science (maths, computer science) (3) Humanities (4) Law (5) Natural science (6) Public administration (7) Social science (8)
Edu_level_gp	level of education grouped into three lelvels	Ordinal	Bachelors or below (1) Masters (2) Doctorate (3)
Certification_group	Grouping of responses by whether they hold at least one RM certification	Nominal	No certification (1) Has certification (2)
RMMember_Group	Grouping of responses by whether the respondent is a member of at least one RM group. Note, this	Nominal	No membership (1) RM memberEARMA (2) RM Member Other (3)

variable name	question text	type	response values
	concatenates responses to RMMembership_other and Membership_other		

Section 4: Employment

Section 4 contained 12 questions examining the employment characteristics for research managers, including working hours, contract types, flexible and hybrid working arrangements, out-of-hours working, level of responsibility, length of service, organisation characteristics, salary, and pathway to rm career. See profile for complete details.

Table 7: Questions in section four of Cardea Survey, Employment Profile

Variable name	Question text	Type	Response values
Empl_Hrs	(Working hours) What is your current employment status?	Nominal	Working full time >35 hours per week (1) Working part-time (2) Retired (3) Career break or extended leave (e.g., parental leave) (4) Currently seeking employment (5) Student (6) Other, please specify (7)
Empl_Hrs_other	Working hours) (Working hours) What is your current employment status? Other, please specify (7	String	Free text
Total_hrs_Wked	(Working Hours) How many hours a week do you typically work? Total hours worked	Continuous	Free text
Total_Hrs_site	(Working Hours) How many hours a week do you typically work? Hours worked on-site	Continuous	Free text
Total_Hrs_wfh	(Working Hours) How many hours a week do you typically work? Hours worked from home	Continuous	Free text
Empl_hybrid	Does your organisation offer hybrid arrangements? Hybrid allows you to work from home on	Nominal	Yes, please describe the nature of the hybrid arrangement (1)

Variable name	Question text	Type	Response values
	some days and from the office, laboratory etc. on others.		No (2) Other, please specify (3)
Empl_hybrid_txt	Does your organisation offer hybrid arrangements? Hybrid allows you to work from home on some days and from the office, laboratory etc. on others. (responses to yes or other)	String	Free text
Empl_flex	Does your organisation offer flexitime arrangements? flexitime allows you to choose your own start and finish times, often with small number of core working hours	Nominal	Yes, please describe the nature of the flexibility (1) No (2) Other, please specify (3)
Empl_flex_txt	Does your organisation offer flexitime arrangements? flexitime allows you to choose your own start and finish times, often with small number of core working hours. (Responses to yes or other)	String	Free text
Empl_OOH	How often do colleagues/collaborators contact you out of working hours with an expectation of a reply?	Ordinal	Never (1) Rarely (2) More than once per week (3) Daily (4) Multiple time daily (5) Other, please specify (6)
Empl_OOH_other	How often do colleagues/collaborators contact you out of working hours with an expectation of a reply? Responses to other	String	Free text
RM_Service_Len	How long have you been employed as a Research Manager?	Ordinal	< 1 year (1) 1-2 years (2)

Variable name	Question text	Type	Response values
			2+-3 years (3)
			3=-4 years (4)
			4+-6 years (5)
			6+-10 years (6)
			10+ years (7)
Empl_level	Which of the following best describes your level of responsibility?	Ordinal	I manage an individual project (1)
			I provide specialised professional services to a range of projects (2)
			I lead a team that provides professional services to a range of research projects (3)
			I manage several research projects directly e.g., a department head (4)
			I am both a researcher and research manager (5)
			I lead research management across an entire institution (6)
			I lead research management across multiple institutions (7) Other, please explain (8)
Empl_level_other	Which of the following best describes your level of responsibility? Response to other option	String	Free text
Empl_size_total	Please tell us about the size of your organisation. You can leave the box blank for any values you do not know. Total number of staff in organisation (1)	continuous	Free text

Variable name	Question text	Type	Response values
Empl_size_R+RM	Please tell us about the size of your organisation. You can leave the box blank for any values you do not know. Number of research and research management staff (2)		
Empl_size_RM	Please tell us about the size of your organisation. You can leave the box blank for any values you do not know. Number of research managers (3)		
Org_Ser_len	ow long have you been working with your current organisation?	Ordinal	< 1 year (1) 1-2 years (2) 2+-3 years (3) 3=-4 years (4) 4+-6 years (5) 6+-10 years (6) 10+ years (7)
Empl_Sal	Which of the following best describes your gross income before taxes last year?	Ordinal	<€20,000 (1) €20,000 – 29,999 (2) €30,000 - €39,999(3) €40,000 - €49,999(4) €50,000 - €59,999(5) €60,000 - €69,999(6) €70,000 - €79,999(7) >€80,000 (8)
Route_skills	How did you become a Research Manager? I have the correct skills profile	Ordinal	1 not at all true for me (1) 2(2) 3(3) 4(4) 5 completely true for me(5)
Route_inter	How did you become a Research Manager? I was interested in	Ordinal	1 not at all true for me (1) 2(2)

Variable name	Question text	Type	Response values
	supporting research but not conducting research.		3(3) 4(4) 5 completely true for me(5)
Route_recom	How did you become a Research Manager? It was recommended to me	Ordinal	1 not at all true for me (1) 2(2) 3(3) 4(4) 5 completely true for me(5)
Route_transfer	How did you become a Research Manager? I worked in a different area of management/ administration and transferred to a research focus	Ordinal	1 not at all true for me (1) 2(2) 3(3) 4(4) 5 completely true for me(5)
Route_job	How did you become a Research Manager? I needed a job, and Research Management opportunities were available	Ordinal	1 not at all true for me (1) 2(2) 3(3) 4(4) 5 completely true for me(5)
Route_reward	How did you become a Research Manager? I saw the opportunity for a rewarding career in Research Management	Ordinal	1 not at all true for me (1) 2(2) 3(3) 4(4) 5 completely true for me(5)
Route_bestalt	How did you become a Research Manager? I tried for research opportunities, but they didn't materialise	Ordinal	1 not at all true for me (1) 2(2) 3(3) 4(4)

Variable name	Question text	Type	Response values
			5 completely true for me(5)
Route_Other	How did you become a Research Manager? Text responses to other option	String	Free text

Note that for the number of hours a week respondent worked, manual adjustments were made to ensure consistency between ',' and '.' For the decimal point.

A grouping variable was calculated depending on whether participants reported working full-time, part-time or another working pattern. This grouping facilitates the identification of any difference's experiences based on working hours. A ratio between working on-site and working from home was calculated to examine the influence of hybrid working practices on Research Manager activities and lived experience. To understand the relative prevalence of Research Management roles in a wider organisational and research setting, the ratio of total staff and research (including RM) staff was calculated. Similarly, a ratio of research to research management staff in the organisation was calculated.

Table 8: Calculated grouping and / or composite values from respondents' Employment characteristics (section 4) responses.

variable name	Format	type	response values
Contract_gp	grouping of resposnes by wheter the respondent is working on a permanent, temporary or othre type of contract		
Total_hrs_dec	manual adaptation of the hours per week worked to bring alignem ent between resposnes that used ',' or '.' For decimal point	Continious	0-80
Empl_Hrs_group	Grouping of responses by whether the respondent is working full-time, part-time or other	Nominal	Fulltime (1) Parttime (2) Other (3)
hybrid ratio	calculation of a ratio between hours worked on-site compared to hours worked from home (= site/home)	Continuous	calculated value

Org_Siz_gp	A grouping variable was calculated based on the overall size of the organisation.	Ordinal	Micro (<10) (1) SME (11-250) (2) Large (251+) (3)
Empl_Size_Res	calculations of a ratio between the total number of institutional staff and Research/Rm staff = (R+RM)/total	continuous	calculated value
Empl_Size_R/RM	calculation of a ratio between research staff and RM staff = RM/R	continuous	calculated value

Section 5: Job profile

Section 5 contains 15 questions examining the nature of the profile role research management beyond the individual and then probed the identification of individual characteristics associated with research management. The role attributes examined include job titles, agreement between title and actual role, national and organisational recognition of RM as a defined role, dimensions of research management roles, relative generality v speciality of Rm roles, funding promotion and progression and salary scales conditions for RM roles. Finally, the section on RM job profiles looks at the organisational context (team size) for research managers and asks if the respondents are committed to a long-term career in research management

Table 9 Questions in section 5 of Cardea Survey, Job profile

variable name	question text	type	response values
Job_Cont	What is your job title, according to your contract of employment?	String	Free text
Job_Agree	Does this agree with your role as you deliver it?	Nominal	Yes(1) No, please suggest a more appropriate job title that matches your actual role (2)
Job_Agree_No	Does this agree with your role as you deliver it? Additional response to 'no'	String	Free text
Job_Defn	My role is well defined with clear objectives.	Ordinal	1 Strongly agree (1) 2 (2) 3 (3) 4 (4) 5 Strongly disagree (5)

variable name	question text	type	response values
Job_Defn_country	Is RM, as a profession, a defined job title and role in your **country**, i.e., is it recognised by legislation or funded explicitly by research funders?	Ordinal	Yes (1) Somewhat (2) No (3) I don't know (4) Other, please specify (5)
Job_Defn_co_other	Is RM, as a profession, a defined job title and role in your **country**, i.e., is it recognised by legislation or funded explicitly by research funders? Responses to other option	String	Free text
Job_Defn_Org	Is RM a defined job title and role in your **organisation**?	Ordinal	Yes (1) Somewhat (2) No (3) I don't know (4) Other, please specify (5)
Job_Defn_Org_other	Is RM a defined job title and role in your **organisation**? Responses to other option	String	Free text
Job_ID_AcadPrac	Please rate how closely you identify with the following Research Management roles. Academic practice, e.g., technology-enhanced learning management	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 1 - 'I do not identify with this role at all' and 5 - This explains my role completely' (repeated in following options)

variable name	question text	type	response values
Job_ID_Admin	Please rate how closely you identify with the following Research Management roles. Administrator	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Comm	Please rate how closely you identify with the following Research Management roles. Commercialisation manager	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Fund	Please rate how closely you identify with the following Research Management roles. Funding agency professional	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Indust	Please rate how closely you identify with the following Research Management roles. Industry based Research Manager	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Plan	Please rate how closely you identify with the following Research Management roles. Institutional planning and strategy professional	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_PI	Please rate how closely you identify with the following Research Management roles. Manager/ Coordinator and the principal investigator (budget holder)	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Coor	Please rate how closely you identify with the following	Ordinal	1(1) 2(2)

variable name	question text	type	response values
	Research Management roles. Manager/Coordinator (but not Principal Investigator)		3(3) 4(4) 5(5)
Job_ID_PPI	Please rate how closely you identify with the following Research Management roles. Managing public-private-community partnerships, e.g. incubation activities	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Trans	Please rate how closely you identify with the following Research Management roles. Managing researcher transitions, e.g., careers advisor	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_PIwM	Please rate how closely you identify with the following Research Management roles. Principal investigator with dedicated management support	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_RSP	Please rate how closely you identify with the following Research Management roles. Research Support Professional	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Data	Please rate how closely you identify with the following Research Management roles. Specialist in data management	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_KTT	Please rate how closely you identify with the following Research Management roles.	Ordinal	1(1) 2(2) 3(3)

variable name	question text	type	response values
	Specialist in knowledge transfer and/or citizen science		4(4) 5(5)
Job_ID_Outreach	Please rate how closely you identify with the following Research Management roles. Specialist in outreach and engagement	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_PM	Please rate how closely you identify with the following Research Management roles. Specialist in research project management	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_T&D	Please rate how closely you identify with the following Research Management roles. Training and development specialist.	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_WellBe	Please rate how closely you identify with the following Research Management roles. Well-being and pastoral support	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Wide	Widening participation expert	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Job_ID_Other	Please rate how closely you identify with the following Research Management roles. Other	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)

variable name	question text	type	response values
Job_ID_New	To date, there has been no comprehensive study of the range of professional roles that can be considered under the umbrella profession of Research Management. Please tell us about any additional roles in your organisation and professional network that do not appear in the list above	String	Free text
Gen_v_Spec	Do you consider yourself a generalist or a specialist? Note, by a 'generalist'; we are interested in how varied your interest, skills and knowledge are for your role (e.g., general manager) compared to specialising in a specific professional practice (e.g., scientific outreach manager	Ordinal	100% Generalist (1) 75 % Generalist, 25% Specialist (2) 50 % Generalist, 50% specialist (3) 25 % Generalist, 75% Specialist (4) 100 % Specialist (5) Other (6)
Gen_v_Spec	Do you consider yourself a generalist or a specialist? Note, by a 'generalist', we are interested in how varied your interest, skills and knowledge are for your role (e.g., general manager) compared to specialising in a specific professional practice (e.g., scientific outreach manager – response to other option	String	Free text

variable name	question text	type	response values
Job_Fund	Which of the following best describes how your position is funded?	Nominal	Linked to core institutional staff budget (1) Linked to department, facility, or local core budget (2) Linked to a particular project (ongoing for more than 5 years) (3) linked to a specific project (fixed term) (4) I don't know how my position is funded (5) Other, please specify (6)
Job_Fund_other	Which of the following best describes how your position is funded? Response to other option	String	Free text
Job_salary	Is there a defined salary scale for your position?	Nominal	Yes (1) No (2) Other, please specify (3)
Job_salary_other	Is there a defined salary scale for your position? Response to other option	String	Free text
Job_progession	Are there defined opportunities for progression for your role?	Nominal	Yes (1) No (2) Other, please specify (3)

variable name	question text	type	response values
Job_progess_other	Are there defined opportunities for progression for your role? Response to other option	String	Free text
Job_promotion	Have you been promoted since you first became a Research Manager?	Ordinal	Yes, formally (1) Yes, informally (2) No (30
Job_team_total_form	How many people are formally on your research team?	Ordinal	0(1) 1(2) 2(3) 3(4) 4(5) 5(6) 6+(7)
Job_team_total_inform	How many people are informally on your research team?	Ordinal	0(1) 1(2) 2(3) 3(4) 4(5) 5(6) 6+(7)
Job_team_report_form	How many people formally report to you?	Ordinal	0(1) 1(2) 2(3) 3(4) 4(5) 5(6) 6+(7)
Job_team_report_inform	How many people formally report to you?	Ordinal	0(1) 1(2) 2(3) 3(4) 4(5) 5(6)

variable name	question text	type	response values
			6+(7)
Job_long_term	Do you see your long-term career in Research Management?	Ordinal	Yes(1) Unsure (2) No(3)
Job_LT_rationale	Why did you choose this answer about your long-term career?	String	Free text
Satisf_Best	Please answer the following questions using a scale from 1 – extremely dissatisfied to 5 – extremely satisfied: At work, I have the opportunity to do what I do best every day	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) NA(6)
Satisf_Opionion	At work, my opinions seem to count	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) NA(6)
Satisf_BF	I have a best friend at work	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) NA(6)
Satisf_Equip	I have the materials and equipment I need to do my work right	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) NA(6)
Satisf_Expect	I know what is expected of me at work	Ordinal	1(1) 2(2)

variable name	question text	type	response values
			3(3)
			4(4)
			5(5)
			NA(6)
Satisf_recognition	In the last seven days, I have received recognition or praise for doing good work	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			NA(6)
Satisf_Progress	In the last six months, someone at work has talked to me about my progress	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			NA(6)
Satisf_Commit	My associates and fellow employees are committed to doing quality work	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			NA(6)
Satisf_SupCare	My supervisor, or someone at work, seems to care about me as a person	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			NA(6)
Satisf_Mission	The mission or purpose of my makes me feel my job is important	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)

variable name	question text	type	response values
			NA(6)
Satisf_Encourage	There is someone at work who encourages my development	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) NA(6)
Satisf_Grow	This last year, I have had opportunities at work to learn and grow	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) NA(6)

Gallop's Q12® workplace survey was used to assess Research Managers' Workplace satisfaction. The 12-item scale allows the calculation of workplace engagement and /facilitates comparisons with other sectors. Note this data can be used in conjunction with the Utrecht Workplace Engagement Survey Data in Section 9.

Table 10: Calculated grouping and / or composite values from respondent's Job Profile (section 5) responses

variable name	Format	type	response values
Satisfaction_total	calculated a total score for all the satisfaction items excluding NA responses to give a Composite GallupQ12 score = Satisf_Best + Satisf_Opionion + Satisf_BF + Satisf_Equip +	continuous aggregate score	12-60

variable name	Format	type	response values
	Satisf_Expect +		
	Satisf_recognition +		
	Satisf_Progress +		
	Satisf_Commit +		
	Satisf_SupCare +		
	Satisf_Mission +		
	Satisf_Encourage +		
	Satisf_Grow		
Satisfaction_av	average satisfaction score (total/12)	Ordinal	1-5

Section 6: Professional Development

Section 6 is a short section looking at the professional development and professional support activities for RM. The questionnaire examines whether RM has a Professional Development Plan (PDP) and whether they engage in continuing professional development (CPD). Respondents are also asked about additional supports that would be beneficial in the context of professional development for workplace efficacy. There are no derived variables in this section of the Survey.

Table 11: Questions in section 6 of Cardea Survey, Professional Development

variable name	question text	type	response values
PD_PDP	Do you have a professional development plan? Multiple responses possible	Nominal	Yes, personal (1) Yes, institutional (2) Yes, from the funding agency (3) Yes, national initiative (4) No (5) Other, please specify (6)
PD_PDP	Do you have a professional development plan? Response to other option	String	Free text
CPD_binary	Have you completed any continuing professional development in the last year?	Nominal	Yes, during work hours (1) Yes, outside work hours (2) No (3)
CPD_Quant	If you have completed continuing professional development (CPD), how much CPD do you typically complete per annum?	Ordinal	none (1) < 8 hours (2) 9-40 hours (3 41-80ours (4) >80 hours(5))

variable name	question text	type	response values
PD_supports	Are there other supports, not identified here, that would be beneficial to you in completing your Research Management responsibilities?	String	Free text

Section 7: Quality of Work Indicators

Section seven considers a range of workplace quality indicators. These include examining the congruence of individual and organisational values., the fit of the Rm role within the organisation and the role of the Research Manager in organisational decision making. In addition, participants were asked about any workplace benefits, irregular working practices and their perception of job security.

Table 12: Questions in section 7 of Cardea Survey, Quality of Work Indicators

variable name	question text	type	response values
Work_Val	Do you feel your organisation values and recognises your contribution to research management appropriately?	Nominal	Yes (1) No (2)
Work_Val_explain	Please explain why you believe (or not) that our organisation values and recognises your contribution to research management appropriately?	String	Free text
Work_ben	Does your organisation provide any of the following benefits? Please select as many as apply.	Nominal	Bonus payments (1) Flexible time (2) Hybrid office/home working (3) Education opportunities (4) Other, please specify (5)
Work_Ben_Other	Does your organisation provide any of the following benefits? Responses to other option	String	Free text

variable name	question text	type	response values
Work_OT	Do you ever complete involuntary overtime hours?	Nominal	Yes (1) No (2)
Work_OT_Y	If so, approximately how many overtime hours do you work per month?	Ordinal	<5 hours (1) 6-10 hours (2) 11-15 hours (3) 16-20 hours (4) 21-25 hours (5) 26-30 hours (6) >30 hours (7)
Work_OT_Ben	Are you paid an additional salary or offered time off in lieu when you work overtime?	Nominal	yes, both (1) yes, time off in lieu (2) yes, additional payment (3) No (40 Other, please specify
Work_OT_Ben_Other	Are you paid an additional salary or offered time off in lieu when you work overtime? Responses to other	String	Free text
Work_patterns	In your current role, do you regularly (i.e., more than once per month) work according to the following patterns? Please tick as many as apply	Nominal	Nighttime (1) Evening (after regular work hours) (2) Flexible schedules (of your choice) (3) Flexible schedules (of your employer's choice) (4) Other irregular working patterns, please specify (5)
Work patterns	In your current role, do you regularly (i.e., more than once per	String	Free text

variable name	question text	type	response values
	month) work according to the following patterns? Responses to 'other'		
Work_Org_Fit	Do you understand how your role fits in your organisation?	Nominal	Yes (1) No (2)
Work_Org_fit_no	If not, please explain what aspects are unclear.	String	Free text
Work_Autonomy	Do you enjoy an appropriate amount of work autonomy to choose your methods of working and pace of work?	Nominal	Yes, completely (1) Yes, somewhat (2) No (3) Other, please specify (4)
Work_Auto_other	Do you enjoy an appropriate amount of work autonomy to choose your methods of working and pace of work? Response to other	String	Free text
Work_feed	Do you receive regular feedback from your supervisor or line manager?	Nominal	Yes, completely (1) Yes, somewhat (2) No (3) Other, please specify (4)
Work_Feed_Other	Do you receive regular feedback from your supervisor or line manager? Response to other	String	Free text

variable name	question text	type	response values
Work_Decision	Do you have suitable opportunities to contribute to organisational decision-making at an appropriate level?	Nominal	Yes, completely (1) Yes, somewhat (2) No (3) Other, please specify (4)
Work_Decision_Other	Do you have suitable opportunities to contribute to organisational decision-making at an appropriate level? Response to other	String	Free text
Work_Use	Do you feel that you have the opportunity to do what you consider to be 'useful work'?	Nominal	Yes, completely (1) Yes, somewhat (2) No (3)
Work_Sec_Reln	Please rate your security of employment on the following characteristics. 1 is 'not at all secure/available' and 7 is 'completely secure/available. NA is not applicable A good relationship with my line manager	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7) NA(8)
Work_Sec_SP	Availability of social protection	Ordinal	1(1) 2(2) 3(3)

variable name	question text	type	response values
			4(4)
			5(5)
			6(6)
			7(7)
			NA(8)
Work_Sec_T&D	Availability of training and development	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			6(6)
			7(7)
			NA(8)
Work_Sec_Dur	Duration of contract	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			6(6)
			7(7)
			NA(8)
Work_Sec_Grow	Opportunity for Professional Growth	Ordinal	1(1)
			2(2)
			3(3)
			4(4)
			5(5)
			6(6)
			7(7)
			NA(8)
Work_Sec_Prom	Opportunity for Promotion	Ordinal	1(1)
			2(2)
			3(3)
			4(4)

variable name	question text	type	response values
			5(5)
			6(6)
			7(7)
			NA(8)

The International Labour Organisation (ILO) have identified six important dimensions for job security. Participants were asked to rate their current employment in each of these areas and a compositive 'job security' scale was derived from summing the responses.

Table 13: Calculated grouping and / or composite values from respondents' Quality of Work Indicators (section 7) responses.

variable name	Format	type	response values
Job_Sec_Total	total job security score calculated by adding the individual scores on the six items Job_Sec_Total = Work_Sec_Reln + Work_Sec_SP + Work_Sec_T&D + Work_Sec_Dur + Work_Sec_Grow + Work_Sec_Prom	continuous	6-35

Section 8: Networks, Mobility, Equality, Diversity, and Inclusion

Understanding the networking, mobility and inclusion characteristics of research management is a vital ambition of the CARDEA project. Therefore, a range of networking and EDI questions are included in the Survey; these include assessing the use of planned networking activities, international professional mobility and the factors that have influenced mobility. We have also evaluated differences between citizenship and country of employment, number of previous employers and job roles and whether Research Managers have changed job type in the past. Finally, of direct importance to the Commission is an assessment of whether Research Managers have availed of any EU mobility schemes.

Beyond mobility, CARDEA has also examined EDI dimensions to Research Management. Participants were asked whether their organisation has a Gender Equality Plan (GEP) or any EDI recognition schemes. Participants were asked to rate their satisfaction with various gendered dimensions of the workplace. Finally, respondents were given free text to elaborate on their thinking about the EDI dimensions of Research Management.

Table 14: Questions in section 8 of Cardea Survey, Networks, Mobility, Equality, diversity, and Inclusion

variable name	question text	type	response values
Net_activ	Do you participate in any of the following deliberate networking activities? Multiple selections possible	Nominal	Within your organisation (1) Beyond your organisation (2) Using social/family contacts for professional purposes (3) With other RMs (4) With researchers (5) Other, please specify (6)
Net_Activ_Oth	Do you participate in any of the following deliberate networking activities? Response to other option	String	Free text
Net_Inst_ChatOut	I converse with acquaintances outside of the organisation about	Ordinal	1(1) 2(2) 3(3) 4(4)

variable name	question text	type	response values
	job-related activities Please complete the following from 1 – never to 7 – all the time		5(5) 6(6) 7(7)
Net_Inst_ContOut	I develop informal contacts with professionals outside the organisation, in order to have professional links beyond the organisation	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)
Net_Inst_TipsOut	I exchange professional tips and hints with acquaintances from other organisations	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)
Net_Inst_MeetOut	I meet with acquaintances from other organisations outside of regular working hours	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)
Net_Inst_Event	I use events outside of the organisation (trade shows, conferences) to talk to	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)

variable name	question text	type	response values
	relevant acquaintances		6(6) 7(7)
Net_Inst_eventCont	I use external events to build new contacts with persons from other organisations	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)
Net_Inst_AdvicNewse	I use my contacts outside my organisation to seek professional advice	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)
Net_Inst_	If I meet acquaintances from other organisations, I approach them to catch up on news and changes in the profession (	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)
Net_Inst_Common	When I meet a person from another organisation who could be an important contact for me, I compare notes with them about our common work areas	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6(6) 7(7)

variable name	question text	type	response values
Mobility_Work_Aborad	How many countries have you worked in?	Ordinal	1(10 2(2) 3(3) 4 or more (4)
Mob_Factors	Which of the following factors have influenced your decision to be geographically mobile? Please select as many as apply.	Nominal	Social security system (1) Barriers to immigration (2) Language challenge (3) Quality and cost of accommodation (4) Social integration at the new location (5) Funding availability (6) Maintenance or enhancement of professional and personal networks (7) Culturally related factors (8) Other - details (9)
Mob_Factors_other	Which of the following factors have influenced your decision to be geographically mobile? Response to other	String	Free text
Mob_Citiz	Is your citizenship different to your country of employment?	Nominal	Yes (1) No (2)
Mob_#Empl	How many employers have you had as a professional (exclude student jobs)?	Ordinal	1(1) 2(2) 3(3) 4 or more (4)

variable name	question text	type	response values
Mob_#Jobs	How many job roles have you had as a professional (exclude student jobs)?	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5) 6 or more (6)
Mob_Changer	If you have ever changed job type (e.g., from researcher to RM or public to private), which of the following has influenced your decision to change? Please tick as many as apply.	Nominal	I have not changed job type (1) Contract ended (2) Job satisfaction (3) Good work-life balance (4) Life satisfaction (5) Career progression goals (6) Prospect to work with learning organisation (7) Salary and other financial reasons (8) Promotion opportunities (9) Job security (10) To gain professional experience (11) Higher recognition as a professional (12) Interdisciplinary opportunities (13) Other, please elaborate
Mob_Changer_other	If you have ever changed job type (e.g. from researcher to RM or public to private), which of the following has influenced your decision to change? Response to 'other'	String	free test

variable name	question text	type	response values
Mob_EU_Scheme	Have you availed of any of the following EU mobility schemes or instruments? Please tick as many as apply	Nominal	No, I have not availed of any EU mobility schemes (1) Refugee researchers (science4refugees) (2) Cost Action Networks (3) Study abroad Erasmus+ (individual actions) (4) Staff visits/exchanges Erasmus+ (5) Erasmus Mundus Actions (6) ERC individual fellowships (7) MCSA – Post-doctoral fellows (8) MCSA - Doctoral networks (9) MCSA – cofund (10) ERC – visiting research fellowships (11) ERC – international arrangement funding (12) ERC – International mentoring initiative (13) Other, please specify (14
Mob_EU_other	Have you availed of any of the following	String	Free text

variable name	question text	type	response values
	EU mobility schemes or instruments? Response to other		
Gender_Plan	Does your organisation have a Gender Equality Plan (GEP)?	Nominal	Yes (1) No (2) Unsure (3)
Gender_Sat_WLB	Please rate your satisfaction with the following thematic areas in your organisation 1 – completely unsatisfied, 5 - completely satisfied Work-life balance and organisational culture	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_Sat_Lead	Please rate your satisfaction with the following thematic areas in your organisation: Gender balance in leadership and decision-making	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_Sat_Career	Please rate your satisfaction with the following thematic areas in your organisation: Gender equality in recruitment and career progression	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)

variable name	question text	type	response values
Gender_Sat_Integration	Please rate your satisfaction with the following thematic areas in your organisation: Integration of the gender dimension into research and teaching content	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_Sat_Harass	Please rate your satisfaction with the following thematic areas in your organisation: Measures against gender-based violence, including sexual harassment	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_Sat_ResCar	Please rate your satisfaction with the following thematic areas in your organisation: Gender equality in research careers	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_Sat_Decision	Please rate your satisfaction with the following thematic areas in your organisation: Gender balance in decision making	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)

variable name	question text	type	response values
Gender_Sat_R&I	Please rate your satisfaction with the following thematic areas in your organisation: Integration of the gender dimension into the content of research and innovation	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_Sat_FLEX	Please rate your satisfaction with the following thematic areas in your organisation: Offering flexible employment practices for RMs, e.g., career breaks, family-friendly work practices	Ordinal	1(1) 2(2) 3(3) 4(4) 5(5)
Gender_recogntiiont	Does your organisation have any Equality, Diversity, and Inclusion (EDI) Recognition schemes or affiliations, e.g., charters or awards? Please provide details.	String	Free text
Gender_RMEDI	Do you feel there are any Research Management-specific dimensions to EDI? Please provide details.	String	Free text

variable name	question text	type	response values
Gender_Support	Do you think your organisation could do more to support EDI? Please provide details.	String	Free text

Research Performing Organisations in Europe are expected to have a Gender equality plan. The EC GEP has mandatory core process requirements and five recommended elements (below). In addition. The European Research Area)ERA) have prioritised gender equality in considering changes required in the R&I ecosystem. They have identified 3 objectives (also below). One question per theme and purpose was included in the CARDEA survey and taken together a composite score can be calculated to assess the Research Manager's experience of gender progress in their organisation.

Table 15: Themes and objectives that move beyond process requirements for integrating gender criteria into the Research Management Ecosystem.

EC Gender Equality Themes	ERA Objectives	
work-life balance and organisational culture item	gender equality in scientific careers item	
gender balance in leadership and decision-making item	gender balance in decision-making item	
gender equality in recruitment and career progression item	integration of the gender dimension into the content of research and innovation item	
integration of the gender dimension into research and teaching content time		
measures against gender-based violence including sexual harassment item		

Wolff and Spurks (2019) Short Networking Scale was used to assess Research Mangers Networking behaviours. This is an 18-item scale that assess total networking behaviours as well as three subscales (using your network, building your network, and maintaining the network). In the current sample, 9 items from the original scale 9, one per dimensions)were assessed. Scores on the total and subscale responses are calculated for the current sample to allow comparison with professionals in other sectors.

Table 16: Calculated grouping and / or composite values from respondents' Networks, mobility, Equality, Diversity, and Inclusion (section 8) responses.

variable name	Format	type	response values
EDI_mobility_Gp	Grouping of responses to whether respondents have availed of an EU mobility scheme	Nominal	Yes (1) No (2)
EDI_Gen_Comp	Composite score assessing EC and ERA R&I gender factors. EDI_Gen_Comp= Gender_Sat_WLB + Gender_Sat_Lead +Gender_Sat_Career +Gender_Sat_Integration +Gender_Sat_Harass +Gender_Sat_ResCar +Gender_Sat_Decision +Gender_Sat_R&I	Continuous	Values range from 9-45
NET_Total_Comp	Composite score assessing total networking behaviour according to Wolff's model Net_Total_Comp = Net_Inst_ChatOut + Net_Inst_ContOut + Net_Inst_TipsOut + Net_Inst_MeetOut + Net_Inst_Event + Net_Inst_eventCont + Net_Inst_AdvicNewse + Net_Inst + Net_Inst_Common	Continuous	Values range from 9 to 63, then doubled to allow comparison with 18 item standard scale.

variable name	Format		type	response values
Net_Using_Comp	Net_Using_Comp Net_Inst_ChatOut Net_Inst_TipsOut Net_Inst_AdvicNewse	= + +	Continuous	Values range from 9 to 27, then doubled to allow comparison with 18 item standard scale.
Net_Build_Comp	Net_Build_Comp Net_Inst_ContOut Net_Inst_eventCont Net_Inst_Common	= + +	Continuous	Values range from 9 to 27, then doubled to allow comparison with 18 item standard scale.
Net_Maintain_Comp	Net_Maintain_Comp Net_Inst_MeetOut Net_Inst_Event Net_Inst	= + +	Continuous	Values range from 9 to 27, then doubled to allow comparison with 18 item standard scale.

Section 9: Professional Identities

A novel aspect of the CARDEA research is that we aim to move the discourse beyond an analysis of demographics and working conditions and develop an understanding of the characteristics of professional identity and lived experience of becoming and being a Research Manager. In section 9, Professional Identities, we asked about the experience RM have working across traditional research boundaries (disciplinary and role). We also examined workplace engagement and work well-being factors using standard psychometric instruments. Finally, the experience of stress by Research Managers is considered.

Table 17: Questions in section 9 of Cardea Survey, Professional Identities

variable name	question text	type	response values
PI_Bound_Portfol	A common feature of Research Manager roles is the necessity to work across boundaries. Such boundaries may exist between roles (e.g., academic v professional), disciplines, organisational type (e.g., Higher education versus industry) etc. Have a fixed portfolio of activities within your prescribed role (i.e., do not work across boundaries)?	Ordinal	Yes (1) Sometimes (2) No (3)
PI_Bound_Change	Work in a change management role?	Ordinal	Yes (1) Sometimes (2) No (3)
PI_Bound_Share	Share and collaborate across disciplines in your current role.	Ordinal	Yes (1) Sometimes (2) No (3)

PI_Bound_Phys	Work across physical boundaries (e.g. multiple locations, excluding working from home)?	Ordinal	Yes (1) Sometimes (2) No (3)
PI_Bound_Blend	Consider your role to consist of a range of professional, academic and research activities – so-called blended professional roles?	Ordinal	Yes (1) Sometimes (2) No (3)
PI_Bound_Belong	Believe you have a well-defined sense of belonging to a professional group of RMs (either formally or informally)?	Ordinal	Yes (1) Sometimes (2) No (3)
PI_Bound_Know	Think you have the appropriate knowledge to deliver your RM role effectively?	Ordinal	Yes (1) Sometimes (2) No (3)
PI_Bound_Expert	Believe you have the appropriate expertise to deliver your RM role effectively?	Ordinal	Yes (1) Sometimes (2) No (3)
Prof_Space_Dom	Thinking about the professional space that you work in: Do you feel like the 'academic' research space is the dominant	Ordinal	Never (1) Seldom (2) Sometimes (3) Often (4) Very Often (5)

	position in your organisation?		
Prof_Space_Val	Do you feel that academic colleagues understand and value what you do?	Ordinal	Never (1) Seldom (2) Sometimes (3) Often (4) Very Often (5)
Prof_Space_Outside	Do you ever feel like an outsider in your organisation because of the role you occupy?	Ordinal	Never (1) Seldom (2) Sometimes (3) Often (4) Very Often (5)
Prof_Space_Consult	Are you consulted about important decisions?	Ordinal	Never (1) Seldom (2) Sometimes (3) Often (4) Very Often (5)
Prof_Space_Invis	Do you ever feel invisible?	Ordinal	Never (1) Seldom (2) Sometimes (3) Often (4) Very Often (5)
Prof_Space_Contra	Do you ever find contradictions in your work	Ordinal	Never (1) Seldom (2) Sometimes (3) Often (4) Very Often (5)
PI_Engage_Ener	Please answer the following questions about workplace engagement. At my work, I feel bursting with energy	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)

PI_Engage_Vigour	At my job, I feel strong and vigorous	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
PI_Engage_Enthus	I am enthusiastic about my job	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
PI_Engage_Inspire	My job inspires me	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
PI_Engage_Morning	When I get up in the morning, I feel like going to work (	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
PI_Engage_Intense	I feel happy when I am working intensely	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6)

			Always (7)
PI_Engage_Pride	I am proud of the work that I do	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
PI_Engage_Immerse	I am immersed in my job	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
PI_Engage_Carried	I get carried away when I am working	Ordinal	Never (1) Sporadically (2) Occasionally (3) Regularly (4) Often (5) Very often (6) Always (7)
IP_Wellbeing_+RelB	Please answer the following questions about work and well-being. I have a positive relationship with my boss or supervisor	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_+RelCo	I have a positive relationship with my co-workers	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4)

			Strongly agree (5) NA (6)
IP_Wellbeing_+RelEmp	I am motivated to do my very best for my employer	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Satis	Overall, I am satisfied with my job	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Value	My organisation makes me feel valued	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Pheal	Overall, I am in good physical health	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_PsychH	Overall, I am in good psychological health	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3)

			Agree (4)
			Strongly agree (5)
			NA (6)
IP_Wellbeing_WLB	The demands of my job interfere with my ability to fulfil family or home responsibilities	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_LWB	My home and family responsibilities interfere with my ability to perform my job well	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Tense	During my work day, I typically feel tense or stressed out	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Phys	In the past month, physical problems such as chronic illness, allergies, headaches, back pain, or other physical conditions kept me from achieving my goals at work	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)

IP_Wellbeing_MH	In the past month, mental health problems such as depression, anxiety or other mental health issues kept me from achieving my goals at work	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_VolMove	I intend to voluntarily seek employment outside my company or organisation in the next year	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Forced	I will be forced (through funding restrictions) to seek employment outside of my company or organisation in the next year	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Recomm	I would recommend my workplace to others as a good place to work	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Wellbeing_Trust	I trust my employer	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4)

			Strongly agree (5) NA (6)
IP_Wellbeing_Fair	The organisation I work for treats me fairly	Ordinal	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5) NA (6)
IP_Stress_Sym	Which of the following, if any, have you experienced in the last month because of work-related stress. Please choose as many as apply.	Nominal	N/A, I have not felt work-related stress (1) Difficulty focusing (2) Negative thoughts (3) Desire to quit (4) Lack of interest, motivation, or energy (5) Irritability or anger with co-workers and other stakeholders (6) Lower productivity (7) Lack of effort at work (8) None, I have not experienced negative impacts because of work-related stress (9) Other, please specify
IP_Stress_Sym_other	Which of the following, if any, have you experienced in the last month because of work-related stress? Response to other	String	Free text

Whitchurch (2012) Identified several aspects associated with the tensions experienced by Research Managers working across borders. One question was asked for each dimension she described to create

an *ad hoc* measure of total 'third space' experiences. These can be summed to indicate the full extent of RM cross-boundary work. Kolsaker (2014) Identified four important dimensions for administrators working across borders in academia. These are (1) knowledge base, (2) expertise, (3) autonomy and (4)belonging to a discrete group. A proxy score for moment-in-time identity construction for professionals working across borders is calculated by summing PI_Bound_Expert, PI_Bound_Auton, PI_Bound_Belong and Work_Autonomy (from section 7).

The Utrecht Work Engagement Scale-9 (Schaufeli, Bakker & Salanova, 2006) measures work engagement—a positive work-related state of fulfilment that is characterised by vigour, dedication, and absorption. A composite value was calculated using this sale and the nine induvial items to facilitate comparisons.

The Well-being questions for the Cardea Survey are derived from the American Psychological Association's annual work and well-being survey (the Harris Poll). The Work and Well-being survey is commissioned annually by APA to look at workplace experiences, measure work-related stress, and capture what employees are looking for from their employers regarding their mental health.

Table 18: Calculated grouping and/or composite values from respondents' Professional Identities (section 9) responses.

variable name	Format	type	response values
PI_Bound_Whit	Ad hoc scale for dimensions of working in third space PI_Bound_Whit = (4-PI_Bound_Portfol) + PI_Bound_Change + PI_Bound_Share + PI_Bound_Phys + PI_Bound_Blend	Continuous	from 4 to 15
PI_Bound_Kol	Score for cross-boundary professionalism according to the construct of Kolsaker (2014) PI_Bound_Kol = PI_Bound_Expert +	Continuous	from 4 to 12

variable name	Format	type	response values
	PI_Bound_Know + PI_Bound_Belong + Work_Autonomy		
PI_Engage_Composite	Utrecht Work Engagement Scale - PI_Engage_Composite = PI_Engage_Ener + PI_Engage_Vigour + PI_Engage_Enthus + PI_Engage_Inspire + PI_Engage_Morning + PI_Engage_Intense + PI_Engage_Pride + PI_Engage_Immerse + PI_Engage_Carried	Continuous	from – 9 - 63 (Notes subtract for comparisons with original scale)
PI_Engage_Vigour_Comp	Utrecht Work Engagement Scale - Vigour = PI_Engage_Ener + PI_Engage_Vigour + PI_Engage_Morning (1+2+5)	Continuous	from – 3 - 21 (Notes subtract for comparisons with original scale)
PI_Engage_Dedication	Utrecht Work Engagement Scale - Dedication = PI_Engage_Enthus + PI_Engage_Inspire + PI_Engage_Pride (3+4+7)	Continuous	from – 3 - 21
PI_Engage_Absorption	Utrecht Work Engagement Scale - Absoption =	Continuous	(Notes subtract for comparisons with original scale)

variable name	Format	type	response values
	PI_Engage_Intense + PI_Engage_Immerse + PI_Engage_Carried		
PI_Wellbeing_Composite	IPI_Welleing_Composite = IP_Wellbeing_+RelB + IP_Wellbeing_+RelCo + IP_Wellbeing_+RelEmp+ IP_Wellbeing_Satis + IP_Wellbeing_Value + IP_Wellbeing_Pheal + IP_Wellbeing_PsychH + IP_Wellbeing_WLB + IP_Wellbeing_LWB + IP_Wellbeing_Tense + IP_Wellbeing_Phys + IP_Wellbeing_MH+ IP_Wellbeing_VolMove + IP_Wellbeing_Forced + IP_Wellbeing_Recomm + IP_Wellbeing_Trust + IP_Wellbeing_Fair	Continuous	17 - 85
PI_Stress_Totl	total number of stress symptoms	Ordinal	1-
PI_Stress_Binary	group stress based on whether participant has experienced any stress symptoms	Nominal	Yes (1) None (2)

Section 10: Skills

A final key deliverable for CARDEA is a set of training responses to training needs. Section 10 captures the self-reported importance of RM relevant skills reported in the literature. In addition, participants were asked whether they had ever been offered training in those skills.

For each of the named skills, participants were asked

(A) How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.

(B) Have you ever been offered training in this skill? Yes, No

Table 19: Questions in section 10 of Cardea Survey, Skills

variable name	question text	type	response values
Skills_Comp	Do you think you have the necessary skills to be an effective Research Manager		Definitely Not (1) Somewhat not (2) Might/might not (3) Somewhat yes (4) Definitely Yes (5)
Tech Skills			
Skills_Tech_Data	Data collection and collation, and analysis	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Tech_Disc	Discipline-specific skills	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Tech_IT	IT skills	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Tech_Rsys	Knowledge of the research systems	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Tech_Lang	Language skills	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Tech_Legal	Legal skills	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Tech_Evid	Understanding and using research evidence	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Specialised knowledge			
Skills_Spec_Fund	Finding funding	A – Ordinal	A – 1, 2, 3, 4, 5,

		B – Nominal	B – Yes (1), No (2)
Skills_Spec_Lobby	Lobbying	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_EDI	Managing equality, diversity, and inclusion (including gender, disability, and racism)	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_OpenAc	Open access scholarship	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_OrgBeh	Organisational behaviour	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_Policy	EU Policy Drivers	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_Bids	Preparation of bids (interinstitutional)	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_Applic	Preparing funding applications	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_TT	Technology transfer/patents	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_Ecosys	Understanding the funding ecosystem	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_Bias	Understanding unconscious bias	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Spec_GenCome	Gender competency	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Project Management			
Skills_PM_Del	Achieving project deliverables	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_Eval	Designing monitoring and evaluation frameworks and indicators	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_Plan	Establishing project plans or policies	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_Gen	General Project Management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)

Skills_PM_DB	Knowledge of databases	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_MS	Knowledge of Microsoft projects (or other PM software)	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_Meeting	Meeting management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_Rel	Relationship management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_PM_TM	Time management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Outreach and Community			
Skills_Out_Rel	Academic and community relationship support	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Out_Bus	Business and commercial liaison	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Out_Pub	Community and/or public outreach	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Out_Train	Provision of training	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Out_Stake	Responsibility for engaging with key stakeholders	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Financing/ contracting/ compliance			
Skills_Fin_Audit	Audit trails, reporting on finance to funders or management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_DueDil	Conducting due diligence on partners/collaborators	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_Contract	Contract negotiation	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_Bud	Developing budgets	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_Complian	Ensuring adherence to funders' terms and conditions	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_FinMan	Financial Management	A – Ordinal	A – 1, 2, 3, 4, 5,

		B – Nominal	B – Yes (1), No (2)
Skills_Fin_Track	Monitoring budget, tracking expenditure or cashflow forecasting	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_Adher	Adhering to funding responsibilities	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_Process	Processing financial claims and payments	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Fin_Procure	Procurement	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Supervisory skills			
Skills_Super_Coach	Coaching skills for managers	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Super_FormMen	Delivering formal coaching/mentoring	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Super_InformMen	Informal mentoring	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Super_Team	People management and managing team performance	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Super_Recruit	Recruitment and selection	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Super_Reporting	Reporting or evaluation taking account of differing needs of target audiences	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Super_PerfRev	Staff review, performance, and development	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Communication			
Skills_Comm_Rel	Building and maintaining relationships with funders, partners or other stakeholders	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Coor	Coordination of communication	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Plan	Designing and implementing communication plans	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)

Skills_Comm_Media	Media Liaison	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Rep	Preparing and writing reports (including evaluation reports and funder reports)	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Brief	Preparing briefings	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Pres	Presentation skills	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Pub	Public speaking/ presentation	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_SM	Social Media	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Comm_Web	Website planning and design	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Relationship Management			
Skills_Rel_Trust	Building trust within partnerships	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Coll	Collaborating for success	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Fair	Contributing to fair working environments, e.g. anti-bullying initiatives	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_dipl	Diplomacy and negotiation, and mediation	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Facil	Facilitation skills	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Diffic	Handling difficult conversations	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_CompetDem	Managing competing demands	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Net	Networking	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)

Skills_Rel_MutLearn	Promoting or supporting mutual learning	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Team	Teamwork	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Rel_Conflict	Conflict management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Transversal Skills			
Skills_Trans_Att	Attention to detail	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Auto	Autonomy	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Create	Creativity	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_CT	Critical thinking	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Cult	Cultural sensitivity	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Decis	Decision making	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Diverse	Diversified knowledge set	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Effic	Efficiency	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Flex	Flexibility	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Lead	Leadership	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Motiv	Motivation	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Open	Openness	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Proactive	Proactivity	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Prob	Problem-solving	A – Ordinal	A – 1, 2, 3, 4, 5,

		B – Nominal	B – Yes (1), No (2)
Skills_Trans_Reliab	Reliability	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_RI	Research integrity/ethical behaviour	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Strategy	Strategic thinking	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Stress	Stress management	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Trans_Values	Values appreciation	A – Ordinal B – Nominal	A – 1, 2, 3, 4, 5, B – Yes (1), No (2)
Skills_Work_Use	Does your work encourage you to use your knowledge and skills in your current job?	Ordinal	Definitely Not (1) Somewhat Not (2) Neutral (3) Somewhat Yes (4) Definitely Yes (5)

Table 20: Calculated grouping and / or composite values from respondents' Skills characteristics (section 10) responses.

variable name	Format	type	response values
Skills_Tech_av	average of all the technical skills	scalar	average score
Skills_Spec_Average	average of all the specialist skills	scalar	average score
Skills_PM_Average	average of all the Project Management skills	scalar	average score
Skills_Out_Aveage	average of all the Outreach skills	scalar	average score
Skills_Fin_Average	average of all the financial management skills	scalar	average score
Skills_Super_Average	average of all the supervision and team skills	scalar	average score

Skills_Comm_Average	average of all the communication skills	scalar	average score
Skills_Rel_Average	average of all the relationship management skills	scalar	average score
Skills_Trans_Average	average of all the transversal skills	scalar	average score

Section 11: Final Comments

In the final section of the Survey, participants were offered the opportunity to offer additional comments and clarifications. The prompt questions are given below. Thematic analysis will be used to analyse the results.

How would you describe your career journey (to date and future aspirations) in your own words? (4-5 sentences)

Define management, you feel it applies to Research Management in 2022. Our purpose here is to understand what you feel is distinctive about research management, as part of a holistic research ecosystem

What changes would you like to see to the RM profession in the next ten years?

If there is anything else you feel is relevant, please use the space below to let us know

Section 12: Debrief

Thank you for your participation in this project. Your participation will help us understanding and characterise the role of researcher managers in the research ecosystem.
The data collected from this questionnaire will be checked to protect anonymity and archived on the Digital Repository of Ireland. You have the right to right to withdraw future participation retrospectively, without necessity to give a reason by contacting the research team and requesting your data be removed.

If you found any question or aspect of the study distressing, please feel free to contact the research team, arrange to see a career counsellor or member of the human resources team with responsibility for employee well-being within your organisation or contact your closest EURAXESS career development centre.

If you wish to be kept informed about the finding in of this research, please email cardea@ucc.ie.

Thank you for your participation in this research, on behalf of the Cardea team The UCC Cardea team Dr Joanne Uí Chrualaoich, j.uichrualaoich@ucc.ie, +353(0)863840587 Mary Kate O'Regan, marykate.oregan@ucc.ie.

Target populations and Sampling methods

Non-probability sampling was used to recruit research managers for the Survey using the established network from CARDEA partners, REA at the European Commission, EARMA and social media (primarily LinkedIn). A target of 500 complete responses was established. In addition, recruitment was conducted using a gatekeeper approach where an organisation's HR manager (or equivalent) circulated a link to the Survey via local email lists.

Participation in the CARDEA survey was voluntary, and participant anonymity was protected. This is particularly important for email recruitment within professional organisations as individuals share significant personal material online. A snowballing technique was used to capture responses from various organisations, with participants invited to share the research with other research managers.

The investigators were transparent about the research's aims, risks, and benefits.

Inclusion criteria included a willingness to complete a 30-minute survey and holding a research management role/job. Exclusion criteria were age less than 18. No monetary incentive was provided, although participants will be offered the opportunity to sign up to receive updates from the project. Over 30 respondents opted in to this follow-up.

Informed consent was obtained as a precondition to accessing the survey questions, and responses will be collected anonymously using Qualtrics with data stored on encrypted drives. Participants were made aware that confidentiality of information provided cannot always be guaranteed by researchers and can only be protected within the limitations of the law, i.e., it is possible for data to be subject to subpoena, freedom of information claim, or mandated reporting by some professions. This information will be included in the Plain Language Statement and Informed Consent Form**.**

Ethical Issues

Participants were informed of the content of the surveys before participation and asked if they were comfortable with the material. Participants were also provided with a debriefing document on the completion of the surveys and were offered contact details of the researchers should they wish to follow up.

As the research measured attitudes in a non-vulnerable adult population, the level of risk is low. However, a risk analysis was conducted to identify physical, psychological, invasion of privacy, and

breach of confidentially as well we membership of at-risk groups in the study cohort. On the basis of this analysis: no physical risks were identified; psychological risks are minimal. Briefing materials were designed to reduce these further. In addition, robust data collection and storage procedures were used to reduce the risks of invasion of privacy. This supplements the anonymity described above. As the target group is the general adult population, no special protections for "at-risk" groups were considered necessary.

Participant well-being is the most important element of any research. The UCC research conduct policies have informed the preparation of this risk analysis and management proposal. These include considering the language used in the briefing and debriefing materials to ensure it is understandable to an international audience. Similarly, the instruments used have been chosen as they are relatively short to minimise the time commitment requested from participants. Where standard or published instruments are available, these have been used. For example, the CSO census questions have been used to inform the data collection for demographic data, and Gallop Q12 is used to assess career engagement.

Ethical approval for the research was provided by the University College Cork Social Research Ethics Committee (SREC), approval number **2022-149**

Known limitations

Any research has limitations, and the CARDEA survey is no different in this regard. One of the key limitations is the length of the Survey. The researchers have received feedback that the Survey (average time to complete is 30 minutes) is too long. This is reflected in the relatively low completion rate, with almost 50% of respondents who started the Survey not completing it.

Cardea

Survey Flow

Block: Introduction and consent (4 Questions)
Standard: Section2, Demographics (9 Questions)
Standard: Section 3, Education (8 Questions)
Standard: Section 4, Employment (13 Questions)
Standard: Section 5, Job profile (17 Questions)
Standard: Section 6, Professional Development (5 Questions)
Standard: Section 7, Quality of Work Indicators (15 Questions)
Standard: Section 8, Networks, Mobility, Equality, Diversity and Inclusion (15 Questions)
Standard: Section 9, Professional Identities (6 Questions)
Standard: Section 10, Skills (12 Questions)
Standard: Section 11, Final comments (5 Questions)
Standard: Debrief (1 Question)
Block: (0 Questions)

Page Break

Q128 Thank you for your Interest in CARDEA. The survey is now closed and results will be available soon. To be kept informed of progress, please contact cardea@ucc.ie

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Page Break

Q1.1 **Section 1 of 11, Introduction and Consent**

Q1.2 **Understanding Research Managers roles, careers and professional contexts Information** statement

Thank you for your interest in this project. It is being undertaken as part of a Horizon Europe Project 'Cardea' Cardea is a Horizon Europe funded project aimed at understanding, characterising, training and enhancing the role of Research Managers (RMs). Cardea stands for Career Acknowledgement for Research (Managers) Delivering for the European Area. The project is a joint initiative between Research institutions from Ireland (University College Cork), Belgium (Universite de Liege), Croatia (Sveuciliste Jurja Dobrile U Puli) , Greece (Centre for Research and Technology - CERTH), Italy (Universita Degli Studi Di Macerata), Poland (Henryk Niewodniczanski Institute of Nuclear Physics, Polish Academy of Sciences), Romania (Universitatea Politehnica Din Bucuresti), and Spain (Fundacio Institucio Dels Centres De Recerca De Catalunya).

The CARDEA project aims to: Improve knowledge for policy-making about the training and networking patterns of research support staff and research management;   Increase awareness amongst research management staff about existing training, networking and mobility opportunities at EU, national, and regional levels;   Grow the capacity and compatibility of cooperation and funding systems throughout the European Research Area for research management, and support to scientists;   Improve awareness of the EU policy drivers and the EU research peculiarity in the Higher Education Institutions and Research organisations;   Establish central hubs to provide the EU research system with the most appropriate "fit for purpose" skills in EU research management, with active involvement of entities located in widening countries;   Provide recommendations aiming at facilitating a clear career path for research managers at national and EU levels, enhancing their role towards the achievement of the new European Research Area objectives. **Purpose and type of research** As part of this project, **we are interested in understanding your role**

as a research manager. In particular, we would like to use a questionnaire to ask about your career journey to date, your skills and work context as well as your career aspirations. To understand these characteristics, we invite you to complete this questionnaire. Also, demographic information will be collected to see if characteristics such as gender and age influence research manager role profiles. No personally   indefinable   information   will   be   collected.

Benefits   and   risks

The anticipated benefit of participation in the research is an opportunity to contribute to a better understanding of the roles of research managers in a modern research ecosystem. At an individual level, participation will give you the opportunity to reflect on and quantify your career journey including the opportunity to capture a systematic characterisation of your skills and career experiences to date. No significant risks have been identified with this research but if you wish to discuss   any   aspect   before,   during   or   after   participation,   please   contact   us.

Participation

You are being invited to participate in this research as a member of the research ecosystem.

Participation in this research will involve the completion of an 30-minute questionnaire. We recognize that this is a significant investment of time, and thank you for contributing to the body of knowledge in this area. We recommend you complete the survey on a laptop or similar device as several of the questions have multiple parts which may take longer on a mobile device. The topics included in the survey include demographic characteristics, career to date (including career choices), current skills and   skills   gaps,   networking   and   mobility   patterns.
Participation in the Cardea research is entirely voluntary, and you have the right to refuse participation, refuse any question and withdraw at anytime without any consequence whatsoever. You   can   withdraw   from   the   research   at   any   time   by   simply   closing   your   browser.
If you wish to be informed about the outcomes of the research, you will have the opportunity to opt in   for   updates   at   the   end   of   the   questionnaire.

Confidentiality   and   data   procedures

No personally identifiable information will be collected from this questionnaire. Non-identifiable records will be stored indefinitely and archived on an open access repository in accordance with open science requirements. This data may be reused by the Cardea team (or other researchers) in the future (for example to assess improvements in research manager careers longitudinally). Note that the confidentially of information provided cannot always be guaranteed by researchers and can only be

protected within the limitations of the law - i.e., it is possible for data to be subject to subpoena, freedom of information claim, or mandated reporting by some professions. If you have any questions about the use of your data in this study, you should contact the project team in the first instance. If participants have concerns about the study and wish to contact an independent person, please contact UCC's Data Protection Officer Catriona O'Sullivan (gdpr@ucc.ie, +353(0)21 4903949).

The UCC Human Resources research team include Dr Joanne Uí Chrualaoich, j.uichrualaoich@ucc.ie, +353(0)21 490 1424 Mary Kate O'Regan, marykate.oregan@ucc.ie, +353(0)21 490 2099

Consent Statement   If you have read and understood the information above, and are happy to continue to the questionnaire, please complete the following confirmations.

☐ I have read the Information Statement above (or had it read to me). (1)

☐ I understand the information provided. (2)

☐ I am 18 or older. (3)

Q1.3 I have read and understood the information provided. I consent to take part in this research project.

○ Yes (1)

End of Block: Introduction and consent

Start of Block: Section2, Demographics

Q2.1 **Section 2 of 11, Demographics**

Q2.2 (Gender) How do you describe yourself?

▼ Male (1) ... Prefer to self-describe (4)

Q2.3 What age are you (in years)?

▼ 18 (1) ... 70 or older (53)

Q2.4

Do you have any of the following long-lasting conditions? Please select as many as apply.

☐ Blindness, deafness or a severe vision or hearing impairment (1)

☐ A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting or carrying (2)

☐ A learning or intellectual disability (3)

☐ A psychological or emotional condition (4)

☐ Other, including any chronic illness (5)

☐ None of these (6)

X→

Q2.5　　　　　What　　　　is　　　　your　　　　nationality?

▼ Afghanistan (1) ... Zimbabwe (1357)

X→

Q2.6　　　What　　is　　your　　country　　of　　residence?

▼ Afghanistan (1) ... Zimbabwe (1357)

Q2.7　　(Language)　What　is　your　mother　tongue/principle　language?

▼ Bulgarian (1) ... Other (79)

Q2.8　You　selected　'other'　as　your　mother　tongue.　please　provide　details　below.

_____

Q2.9　　　　　Enter　　　　other　　　　languages　　　　and　　　　fluency

	Language	Fluency		
	Enter your additional languages (1)	Basic user (1)	Independent user (2)	Proficient User (3)
Second Language (1)		○	○	○
Third Language (2)		○	○	○
Fourth Language (3)		○	○	○

Q3.1 **Section 3 of 11, Educational Profile**

Q3.2 What is your **highest** level of education?

○ EFQ level 3: upper secondary education (1)

○ EFQ level 4: post-secondary, non-tertiary education (FET, VET) (2)

○ EFQ level 5: Short cycle tertiary education (e.g. Bac-2, associate degree) (3)

○ EFQ level 6 Bachelor's or equivalent level (4)

○ EFQ level 7, Master's or equivalent level (5)

○ EFQ level 8, Doctoral or equivalent (6)

○ Other, please provide details (7)
_____

Q3.3 What is the **discipline** of your highest level of education?

○ Applied science (1)

○ Education (2)

○ Formal science (maths, computer science) (3)

○ Humanities (4)

○ Law (5)

○ Natural science (6)

○ Public administration (7)

○ Social science (8)

○ Other, please specify (9) _____

Q3.4 Do you have any formal Research Management qualifications or certifications? (list adapted from INORMS Research Administration as a Profession (RAAAP) Taskforce) Please select as many as apply.

☐ None, I do not have any of these certifications (15)

☐ Bachelor's degree in Research Administration (academic programme) (1)

☐ Masters in Research Administration (academic programme) (2)

☐ Certificate in Research Administration (CRA) (3)

☐ Certificate in Research Management (CRM) (4)

☐ Certificate in the Leadership of Research Management (CLRM) (5)

☐ Foundation Level (ARM(F)) (6)

☐ Advanced Level (ARM (A)) (7)

☐ Canada - Certificate in Research Administration (CRA) (8)

☐ Canada - Certificate in Research Management (CRM) (9)

☐ US - Certified Research Administrator (CRA) (10)

☐ US - Certified Pre-Award Research Administrator (CPRA) (11)

☐ US - Certified Financial Research Administrator (CFRA) (12)

☐ US - Certified Professional IACUC Administrator (CPIA) (13)

☐ US - Certified IRB Professional (CIP) (14)

☐ Other, please specify (16)

_____

Q3.5 Are you a member of any Research Manager associations or networks? Please select as many as apply.

☐   I am not a member of any Research Manager Associations (1)

☐   EARMA (2)

☐   INORMS (3)

☐   BESTPRAC (4)

☐   ARMA (UK) (5)

☐   ARMA (NL) (6)

☐   ARMS (AUS) (7)

☐   BRMA (Brazil) (8)

☐   CARA/ACAAR (Canada) (9)

☐   CASSSP (China) (10)

☐   DARMA (DK) (11)

☐   FINN_ARMA (12)

☐   FORTRRAMA (13)

☐   My-RAMA (14)

☐   NCURA (US) (15)

☐   NORDP (US) (16)

☐   NARMA (NO) (17)

☐   PraxisAuril (UK) (18)

☐ RMAN-J (Japan) (19)

☐ SARIMA (SA) (20)

☐ SRA international (21)

☐ WARIMA (West Africa) (22)

☐ The association of commonwealth universitites (23)

☐ Other, please specify (24)

_____

Q3.6

Are   you   a   member   of   any   other   professional   organisations?
If so, give details (organisation name, level of membership, admittance criteria (e.g. experience, exam,
invitation)

_____

_____

_____

_____

_____

Q3.7 Do you have other relevant qualifications that specifically support or assist you in your Research
Management role?

_____

_____

_____

_____

_____

Q3.8 Do you have any other currently active professional certification or a state or industry license, e.g. LEAN Black belt? If so, please provide details.

_____

_____

_____

_____

_____

Q4.1 **Section 4 of 11, Employment**

Q4.2

(Working hours) What is your current employment status? Please select as many as apply

☐ Working full time >35 hours per week (1)

☐ Working part-time   (2)

☐ Retired (3)

☐ Career break or extended leave (e.g. parental leave) (4)

☐ Currently seeking employment (5)

☐ Student (6)

☐ Other, please specify (7)
_____

Q4.3 (Contract type) What is your current employment status?

○ Permanent or equivalent (1)

○ Fixed-term or temporary contract (2)

○ Ad hoc or hourly paid contract (3)

○ Consultant (4)

○ Other, please specify (5) _____

Q4.4   (Working   Hours)   How   many   hours   a   week   do   you   typically   work?

	total hours worked	hours worked on site	hours worked from home
	hours (1)	hours (1)	hours (1)
Weekly working hours (1)			

Q4.5

Does   your   organisation   offer   hybrid   arrangements?
Hybrid allows you to work from home on some days and from the office, laboratory etc on others.

◯ Yes, please describe the nature of the hybrid arrangement (1)
_____

◯ No (2)

◯ Other, please specify (3) _____

Q4.6

Does   your   organisation   offer   flextime   arrangements?

flextime allows you to choose your own start and finish times, often with small number of core working hours?

○ Yes, please describe the nature of flexibility (1)
_____

○ No (2)

○ Other, please specify (3) _____

Q4.7 How often do colleagues/collaborators contact you out of working hours with an expectation of a reply?

○ Never (1)

○ Rarely (2)

○ More than once per week (3)

○ Daily (4)

○ Multiple time daily (5)

○ Other, please specify (6) _____

Q4.8   How   long   have   you   been   employed   as   a   Research   Manager?

▼ Less than one year (1) ... More than 10 years (7)

Q4.9   Which   of   the   following   best   describes   your   level   of   responsibility?

○ I manage an individual project (1)

○ I provide specialised professional services to a range of projects (2)

○ I lead a team that provides professional services to a range of research projects (3)

○ I manage several research projects directly e.g. a department head (4)

○ I am both a researcher and research manager (5)

○ I lead research management across an entire institution (6)

○ I lead research management across multiple instutitions (7)

○ Other, please explain (8) _____

Q4.10

Please   tell   us   about   the   size   of   your   organisation.
You can leave the box blank for any values you do not know.

	Total number of staff in organisation (1)	number of research and research management staff (2)	Number of research managers (3)
Approximate number of employees (1)			

Q4.11   How   long   have   you   been   working   with   your   current   organisation?

▼ Less than one year (1) ... More than 10 years (7)

Q4.12 Which of the following best describes your gross income before taxes last year?

▼ Less than €20,000 (1) ... Greater than €80,000 (8)

Q4.13

How did you become a Research Manager

For each statement indicate: 1 - not at all true for me to 5 - completely true for me.

	1- not at all true for me (1)	2 (2)	3 (3)	4 (4)	5 -completely true for me (5)
I have the correct skills profile (1)	○	○	○	○	○
I was interested in supporting research but not conducting research (2)	○	○	○	○	○
It was recommended to me (3)	○	○	○	○	○
I worked in a different area of management/administration and transferred to a research focus (4)	○	○	○	○	○
I needed a job, and Research Management opportunities were available (5)	○	○	○	○	○
I saw the opportunity for a rewarding career in Research Management (6)	○	○	○	○	○
I tried for research opportunities, but they didn't materialise (7)	○	○	○	○	○
Other, please specify (8)	○	○	○	○	○

End of Block: Section 4, Employment

Q5.1 **Section 5 of 11, Role profile**

Q5.2 What is your job title, according to your contract of employment?

_____

Q5.3 Does this agree with your role as you deliver it?

○ Yes (1)

○ No, please suggest a more appropriate job title that matches your actual role (2)
_____

Q5.4 My role is well defined with clear objectives.

▼ Strongly agree (1) ... Strongly disagree (5)

Q5.5 Is RM, as a profession, a defined job title and role in your **country**, i.e. is it recognised by legislation or funded explicitly by research funders?

○ Yes (1)

○ Somewhat (2)

○ No (3)

○ I don't know (4)

○ Other, please specify (5) _____

Q5.6 Is RM a defined job title and role in your **organisation**?

○ Yes (1)

○ Somewhat (2)

○ No (3)

○ I don't know (4)

○ Other, please specify (5) _____

Q5.7 Please rate how closely you identify with the following Research Management roles. Please provide an answer for each role/option where 1 - 'I do not identify with this role at all' and 5 - This explains my role completely'

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)
Academic practice, e.g. technology-enhanced learning management (1)	◯	◯	◯	◯	◯
Administrator (2)	◯	◯	◯	◯	◯
Commercialisation manager (3)	◯	◯	◯	◯	◯
Funding agency professional (4)	◯	◯	◯	◯	◯
Industry based Research Manager (5)	◯	◯	◯	◯	◯
Institutional planning and strategy professional (6)	◯	◯	◯	◯	◯
Manager/ Coordinator and the principal investigator (budget holder) (7)	◯	◯	◯	◯	◯
Manager/Coordinator (but not Principal Investigator) (8)	◯	◯	◯	◯	◯
Managing public-private-community partnerships, e.g. incubation activities (9)	◯	◯	◯	◯	◯
Managing researcher transitions, e.g. careers advisor (10)	◯	◯	◯	◯	◯

Principal investigator with dedicated management support (11)	◯	◯	◯	◯	◯
Research support professional (12)	◯	◯	◯	◯	◯
Specialist in data management (13)	◯	◯	◯	◯	◯
Specialist in knowledge transfer and/or citizen science (14)	◯	◯	◯	◯	◯
Specialist in outreach and engagement (15)	◯	◯	◯	◯	◯
Specialist in research project management (16)	◯	◯	◯	◯	◯
Training and development specialist (17)	◯	◯	◯	◯	◯
Wellbeing and pastoral support (18)	◯	◯	◯	◯	◯
Widening participation expert (19)	◯	◯	◯	◯	◯
Other (20)	◯	◯	◯	◯	◯

Q5.8 To date, there has been no comprehensive study of the range of professional roles that can be considered under the umbrella profession of Research Management. Please tell us about any additional roles in your organisation and professional network that do not appear in the list above

_____

_____

_____

_____

_____

Q5.9 Do you consider yourself a generalist or a specialist? Note, by a 'generalist'; we are interested in how varied your interest, skills and knowledge are for your role (e.g. general manager) compared to specialising in a specific professional practice (e.g. scientificoutreach manager)

○ 100% Generalist (1)

○ 75 % Generalist, 25% Specialist (2)

○ 50 % Generalist, 50% specialist (3)

○ 25 % Generalist, 75% Specialist (4)

○ 100 % Specialist (5)

○ Other (6) _____

Q5.10 Which of the following best describes how your position is funded?

○ Linked to core institutional staff budget (1)

○ Linked to department, facility or local core budget (2)

○ Linked to a particular project (ongoing for more than 5 years) (3)

○ Linked to a specific project (fixed-term) (4)

○ I don't know how my position is funded (5)

○ Other, please specify (6) _____

Q5.11 Is there a defined salary scale for your position?

○ Yes (1)

○ No (2)

○ Other, Please specify (3) _____

Q5.12 Are there defined opportunities for progression for your role?

○ Yes (1)

○ No (2)

○ Other, Please specify (3) _____

Q5.13 Have you been promoted since you first became a Research Manager?

▼ Yes, formally (1) ... No (3)

Q5.14 What size is your professional team?
Your formal team refers to people who report to you in an organisational hierarchy, informal refers to people who report to you but you are not their titular line manager/supervisor.

	Formally	Informally
How many people are on your research team? (1)	▼ 0 (1 ... 6+ (7)	▼ 0 (1 ... 6+ (7)
How many people report to you? (2)	▼ 0 (1 ... 6+ (7)	▼ 0 (1 ... 6+ (7)

Q5.15 Do you see your long-term career in Research Management?

▼ Yes (1) ... No (3)

Q5.16 Why did you choose this answer about your long-term career?

_____

_____

_____

Q5.17 Please answer the following questions using a scale from 1 – extremely dissatisfied to 5 – extremely satisfied

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	NA (6)
At work, I have the opportunity to do what I do best every day (1)	○	○	○	○	○	○
At work, my opinions seem to count (2)	○	○	○	○	○	○
I have a best friend at work (3)	○	○	○	○	○	○
I have the materials and equipment I need to do my work right (4)	○	○	○	○	○	○
I know what is expected of me at work (5)	○	○	○	○	○	○
In the last seven days, I have received recognition or praise for doing good work (6)	○	○	○	○	○	○

In the last six months, someone at work has talked to me about my progress (7)	○	○	○	○	○	○
My associates and fellow employees are committed to doing quality work (8)	○	○	○	○	○	○
My supervisor, or someone at work, seems to care about me as a person (9)	○	○	○	○	○	○
The mission or purpose of my work makes me feel my job is important (10)	○	○	○	○	○	○
There is someone at work who encourages my development (11)	○	○	○	○	○	○

| This last year, I have had opportunities at work to learn and grow (12) | ○ | ○ | ○ | ○ | ○ | ○ |

Q6.1 **Section 6 of 11, Professional Development**

Q6.2   Do   you   have   a   professional   development   plan?
Please select as many as apply to you.

☐   Yes, personal (1)

☐   Yes, institutional (2)

☐   Yes, from funding agency (3)

☐   Yes, national initiative (4)

☐   No (5)

☐   Other, please specify (6)
_____

Q6.3 Have you completed any continuing professional development in the last year?

▼ Yes, during work hours (1) ... No (3)

Q6.4 If you have completed continuing professional development (CPD), how much CPD do you typically complete per annum?

▼ None (1) ... more than 81 hours (5)

Q6.5 Are there other supports, not identified here, that would be beneficial to you in completing your Research Management responsibilities?

_____

_____

_____

_____

_____

End of Block: Section 6, Professional Development

Start of Block: Section 7, Quality of Work Indicators

Q7.1 **Section 7 of 11, Quality of Work Indicators**

Q7.2 Do you feel your organisation values and recognises your contribution to research management appropriately?

▼ Yes (1) ... No (2)

Q7.3 Please explain why you believe (or not) that our organisation values and recognises your contribution to research management appropriately?

_____

_____

_____

_____

_____

Q7.4

Does your organisation provide any of the following benefits? Please select as many as apply.

☐   Bonus payments (1)

☐   Flexibile time (2)

☐   Hybrid office/home working (3)

☐   Education opportunities (4)

☐   Other, please specify (5)

_____

Q7.5   Do   you   ever   complete   involuntary   overtime   hours?

▼ Yes (1) ... No (2)

Q7.6 If so, approximately how many overtime hours do you work per month?

▼ less than 5 hours extra per month (1) ... 30+ (7)

Q7.7 Are you paid an additional salary or offered time off in lieu when you work overtime?

▼ Yes both (1) ... Other, please specify (5)

Q7.8

In your current role, do you regularly (i.e. more than once per month) work according to the following

patterns?

Please tick as many as apply.

☐   Nighttime (1)

☐   Evening (after regular work houes) (2)

☐   Flexible schedules (of your choice) (3)

☐   Flexible schedules (of your employers choice) (4)

☐   Other irregular working patterns, please specify (5)
_____

Q7.9 Do you understand how your role fits in your organisation?

▼ Yes (1) ... No (2)

Q7.10   If   not,   please   explain   what   aspects   are   unclear.

_____

_____

_____

_____

_____

Q7.11 Do you enjoy an appropriate amount of work autonomy to choose your methods of working and pace of work?

☐　　　Yes, completely (1)

☐　　　Yes, somewhat (2)

☐　　　No (3)

☐　　　Other, please specify (4)

_____

Q7.12 Do you receive regular feedback from your supervisor or line manager?

☐　　　Yes, completely (1)

☐　　　Yes, somewhat (2)

☐　　　No (3)

☐　　　Other, please specify (4)

_____

Q7.13 Do you have suitable opportunities to contribute to organisational decision-making at an appropriate level?

☐ Yes, completely (1)

☐ Yes, somewhat (2)

☐ No (3)

☐ Other, please specify (4)
_____

Q7.14 Do you feel that you have the opportunity to do what you consider to be 'useful work'?

▼ Yes, completely (1) ... No (3)

Q7.15 Please rate your security of employment on the following characteristics. 1 is 'not at all secure/available' and 7 is 'completely secure/available. NA is not applicable.

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	NA (8)
A good relationship with my line manager (1)	○	○	○	○	○	○	○	○
Availability of social protection (2)	○	○	○	○	○	○	○	○
Availability of training and development (3)	○	○	○	○	○	○	○	○
Duration of contract (4)	○	○	○	○	○	○	○	○
Opportunity for Professional Growth (5)	○	○	○	○	○	○	○	○
Opportunity for Promotion (6)	○	○	○	○	○	○	○	○

End of Block: Section 7, Quality of Work Indicators

Start of Block: Section 8, Networks, Mobility, Equality, Diversity and Inclusion

Q8.1 **Section 8 of 11, Networks, Mobility, Equality, Diversity and Inclusion**

Q8.2

Do you participate in any of the following deliberate networking activities? *Please select as many as apply*

☐ Within your organisation (1)

☐ Beyond your organisation (2)

☐ Using social/family contacts for professional purposes (3)

☐ With other RMs (4)

☐ With researchers (5)

☐ Other, please specify (6)
_____

Q8.3 Please complete the following from 1 – never to 7 – all the time

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
I converse with acquaintances outside of the organisation about job-related activities (1)	○	○	○	○	○	○	○
I develop informal contacts with professionals outside the organisation, in order to have professional links beyond the organisation (2)	○	○	○	○	○	○	○
I exchange professional tips and hints with acquaintances from other organisations (3)	○	○	○	○	○	○	○

I meet with acquaintances from other organisations outside of regular working hours (4)	○	○	○	○	○	○	○
I use events outside of the organisation (trade shows, conferences) to talk to relevant acquaintances (5)	○	○	○	○	○	○	○
I use external events to build new contacts with persons from other organisations (6)	○	○	○	○	○	○	○
I use my contacts outside my organisation to seek professional advice (7)	○	○	○	○	○	○	○

If I meet acquaintances from other organisations, I approach them to catch up on news and changes in the profession (8)	○	○	○	○	○	○	○
When I meet a person from another organisation who could be an important contact for me, I compare notes with them about our common work areas (9)	○	○	○	○	○	○	○

Q8.4 How many countries have you worked in?

▼ 1 (1) ... 4 or more (4)

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Q8.5

Which of the following factors have influenced your decision to be geographically mobile? Please select as many as apply.

☐   Social security system (1)

☐   Barriers to immigration (2)

☐   Language challenge (3)

☐   Quality and cost of accommodation (4)

☐   Social integration at the new location (5)

☐   Funding availability (6)

☐   Maintenance or enhancement of professional and personal networks (7)

☐   Culturally related factors (8)

☐   Other - details (9) _____

Q8.6 Is your citizenship different to your country of employment?

▼ Yes (1) ... No (2)

Q8.7 How many employers have you had as a professional (exclude student jobs)?

▼ 1 (1) ... 4 or more (4)

Q8.8 How many job roles have you had as a professional (exclude student jobs)?

▼ 1 (1) ... 6 or more (6)

Q8.9 If you have ever changed job type (e.g. from researcher to RM or public to private), which of the following has influenced your decision to change? Please tick as many as apply.

- ☐ I have not changed job type (1)

- ☐ Contract ended (2)

- ☐ Job satisfaction (3)

- ☐ Good work-life balance (4)

- ☐ Life satisfaction (5)

- ☐ Career progression goals (6)

- ☐ Prospect to work with learning organisation (7)

- ☐ Salary and other financial reasons (8)

- ☐ Promotion opportunities (9)

- ☐ Job security (10)

- ☐ To gain professional experience (11)

- ☐ Higher recognition as a professional   (12)

- ☐ Interdisciplinary opportunities (13)

- ☐ Other, please elaborate   (14)
_____

Q8.10 Have you availed of any of the following EU mobility schemes or instruments? Please tick as many as apply

☐ No, I have not availed of any EU mobility schemes (1)

☐ Refugee researchers (science4refugees) (2)

☐ Cost Action Networks (3)

☐ Study abroad Erasmus+ (individual actions) (4)

☐ Staff visits/exchanges Erasmus+ (5)

☐ Erasmus Mundus Actions (6)

☐ ERC individual fellowships (7)

☐ MCSA – Post-doctoral fellows (8)

☐ MCSA - Doctoral networks (9)

☐ MCSA – cofund (10)

☐ ERC – visiting research fellowships (11)

☐ ERC – international arrangement funding (12)

☐ ERC – International mentoring initiative (13)

☐ Other, please specify (14)
_____

Q8.11 Does your organisation have a Gender Equality Plan (GEP)?

▼ Yes (1) ... Unsure (3)

Q8.12

Please rate your satisfaction with the following thematic areas in your organisation
1 – completely unsatisfied, 5 - completely satisfied

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)
Work-life balance and organisational culture (1)	○	○	○	○	○
Gender balance in leadership and decision-making (2)	○	○	○	○	○
Gender equality in recruitment and career progression (3)	○	○	○	○	○
Integration of the gender dimension into research and teaching content (4)	○	○	○	○	○
Measures against gender-based violence, including sexual harassment (5)	○	○	○	○	○
Gender equality in research careers (6)	○	○	○	○	○
Gender balance in decision making (7)	○	○	○	○	○

Integration of the gender dimension into the content of research and innovation (8)	○	○	○	○	○
Offering flexible employment practices for RMs, e.g. career breaks, family-friendly work practices (9)	○	○	○	○	○

Q8.13

Does your organisation have any Equality, Diversity and Inclusion (EDI) Recognition schemes or affiliations, e.g. charters or awards? Please provide details.

_____

_____

_____

_____

_____

Q8.14

Do you feel there are any Research Management-specific dimensions to EDI ? Please provide details.

_____

_____

_____

_____

_____

Page Break

Q8.15

Do you think your organisation could do more to support EDI? Please provide details.

_____

_____

_____

_____

_____

End of Block: Section 8, Networks, Mobility, Equality, Diversity and Inclusion

Start of Block: Section 9, Professional Identities

Q9.1 **Section 9 of 11, Professional Identities**

Q9.2 A common feature of Research Manager roles is the necessity to work across boundaries. Such boundaries may exist between roles (e.g. academic v professional), disciplines, organisational type (e.g. Higher education versus industry) etc.

Do you...

	Yes (1)	Sometimes (2)	No (3)
Have a fixed portfolio of activities within your prescribed role (i.e. do not work across boundaries)? (1)	○	○	○
Work in a change management role? (2)	○	○	○
Share and collaborate across disciplines in your current role? (3)	○	○	○
Work across physical boundaries (e.g. multiple locations, excluding working from home)? (4)	○	○	○
Consider your role to consist of a range of professional, academic and research activities – so-called blended professional roles? (5)	○	○	○
Believe you have a well-defined sense of belonging to a professional group of RMs (either formally or informally)? (6)	○	○	○
Think you have the appropriate knowledge to deliver your RM role effectively? (7)	○	○	○

Believe you have the appropriate expertise to deliver your RM role effectively? (8)	○	○	○

Q9.3 Thinking about the professional space that you work in

	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very often (5)
Do you feel like the 'academic' research space is the dominant position in your organisation? (1)	○	○	○	○	○
Do you feel that academic colleagues understand and value what you do? (2)	○	○	○	○	○
Do you ever feel like an outsider in your organisation because of the role you occupy? (3)	○	○	○	○	○
Are you consulted about important decisions? (4)	○	○	○	○	○
Do you ever feel invisible? (5)	○	○	○	○	○
Do you ever find contradictions in your work? (6)	○	○	○	○	○

Q9.4 Please answer the following questions about workplace engagement.

	Never (1)	Sporadically (2)	Occasionally (3)	Regularly (4)	Often (5)	Very often (6)	Always (7)
At my work, I feel bursting with energy (1)	○	○	○	○	○	○	○
At my job, I feel strong and vigorous (2)	○	○	○	○	○	○	○
I am enthusiastic about my job (3)	○	○	○	○	○	○	○
My job inspires me (4)	○	○	○	○	○	○	○
When I get up in the morning, I feel like going to work (5)	○	○	○	○	○	○	○
I feel happy when I am working intensely (6)	○	○	○	○	○	○	○
I am proud of the work that I do (7)	○	○	○	○	○	○	○

I am immersed in my job (8)	○	○	○	○	○	○	○
I get carried away when I am working (9)	○	○	○	○	○	○	○

Q9.5 Please answer the following questions about work and wellbeing.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	NA (6)
I have a positive relationship with my boss or supervisor (1)	○	○	○	○	○	○
I have a positive relationship with my co-workers (2)	○	○	○	○	○	○
I am motivated to do my very best for my employer (3)	○	○	○	○	○	○
Overall, I am satisfied with my job (4)	○	○	○	○	○	○
My organisation makes me feel valued (5)	○	○	○	○	○	○
Overall I am in good physical health (6)	○	○	○	○	○	○
Overall I am in good psychological health (7)	○	○	○	○	○	○

The demands of my job interfere with my ability to fulfil family or home responsibilities (8)	○	○	○	○	○	○
My home and family responsibilities interfere with my ability to perform my job well (9)	○	○	○	○	○	○
During my work day, I typically feel tense or stressed out (10)	○	○	○	○	○	○
In the past month, physical problems such as chronic illness, allergies, headaches, back pain or other physical conditions kept me from achieving my goals at work (11)	○	○	○	○	○	○

In the past month, mental health problems such as depression, anxiety or other mental health issues kept me from achieving my goals at work (12)	○	○	○	○	○	○
I intend to voluntarily seek employment outside my company or organisation in the next year (13)	○	○	○	○	○	○
I will be forced (through funding restrictions) to seek employment outside of my company or organisation in the next year (14)	○	○	○	○	○	○

I would recommend my workplace to others as a good place to work (15)	○	○	○	○	○	○
I trust my employer (16)	○	○	○	○	○	○
The organisation I work for treats me fairly (17)	○	○	○	○	○	○

Q9.6 Which of the following, if any, have you experienced in the last month because of work-related stress.

Please choose as many as apply.

☐   N/A, I have not felt work-related stress (1)

☐   Difficulty focusing (2)

☐   Negative thoughts (3)

☐   Desire to quit (4)

☐   Lack of interest, motivation, or energy (5)

☐   Irritability or anger with co-workers and other stakeholders (6)

☐   Lower productivity (7)

☐   Lack of effort at work (8)

☐   None, I have not experienced negative impacts because of work-related stress (9)

☐   Other, please specify (10)

_____

Q10.1

Section   **10**   **of**   **11,**   **Skills**

Understanding the skills profiles and needs of Research Managers is a key element of Cardea. Thank you for your time in completing this detailed section.

Q10.2 Do you feel you have the necessary skills to be an effective Research Manager?

▼ Definitely not (1) … Definitely yes (5)

Q10.3

(Skills, 1 of 9) Technical skills, e.g. subject matter expertise
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill. Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Data collection and collation, and analysis (1)	○	○	○	○	○	○	○
Discipline-specific skills (2)	○	○	○	○	○	○	○
IT skills (3)	○	○	○	○	○	○	○
Knowledge of the research systems (4)	○	○	○	○	○	○	○
Language skills (5)	○	○	○	○	○	○	○
Legal skills (6)	○	○	○	○	○	○	○
Understanding and using research evidence (7)	○	○	○	○	○	○	○

Q10.4

(Skills, 2 of 9) Specialised knowledge for research performing organisational contexts
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill.

Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Finding funding (1)	○	○	○	○	○	○	○
Lobbying (2)	○	○	○	○	○	○	○
Managing equality, diversity and inclusion (including gender, disability and racism) (3)	○	○	○	○	○	○	○
Open access scholarship (4)	○	○	○	○	○	○	○
Organisational behaviour (5)	○	○	○	○	○	○	○
EU Policy Drivers (6)	○	○	○	○	○	○	○
Preparation of bids (interinstitutional) (7)	○	○	○	○	○	○	○
Preparing funding applications (8)	○	○	○	○	○	○	○
Technology transfer/patents (9)	○	○	○	○	○	○	○
Understanding the funding ecosystem (10)	○	○	○	○	○	○	○
Understanding unconscious bias (11)	○	○	○	○	○	○	○
Gender competency (12)	○	○	○	○	○	○	○

Q10.5

(Skills, 3 of 9) Project Management
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill.
 Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Achieving project deliverables (1)	○	○	○	○	○	○	○
Designing monitoring and evaluation frameworks and indicators (2)	○	○	○	○	○	○	○
Establishing project plans or policies (3)	○	○	○	○	○	○	○
General Project Management (4)	○	○	○	○	○	○	○
Knowledge of databases (5)	○	○	○	○	○	○	○
Knowledge of Microsoft projects (or other PM software) (6)	○	○	○	○	○	○	○
Meeting management (7)	○	○	○	○	○	○	○
Relationship management (8)	○	○	○	○	○	○	○

| Time management (9) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Q10.6

(Skills, 4 of 9) Outreach and Community

RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill. Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Academic and community relationship support (1)	○	○	○	○	○	○	○
Business and commercial liaison (2)	○	○	○	○	○	○	○
Community and/or public outreach (3)	○	○	○	○	○	○	○
Provision of training (4)	○	○	○	○	○	○	○
Responsibility for engaging with key stakeholders (5)	○	○	○	○	○	○	○

Q10.7

(Skills, 5 of 9) Financing/contracting/compliance
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill.

Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Audit trails, reporting on finance to funders or management (1)	○	○	○	○	○	○	○
Conducting due diligence on partners/collaborators (2)	○	○	○	○	○	○	○
Contract negotiation (3)	○	○	○	○	○	○	○
Developing budgets (4)	○	○	○	○	○	○	○
Ensuring adherence to funders' terms and conditions (5)	○	○	○	○	○	○	○
Financial Management (6)	○	○	○	○	○	○	○
Monitoring budget, tracking expenditure or cashflow forecasting (7)	○	○	○	○	○	○	○
Adhering to funding responsibilities (8)	○	○	○	○	○	○	○
Processing financial claims and payments (9)	○	○	○	○	○	○	○
Procurement (10)	○	○	○	○	○	○	○

Q10.8

(Skills, 6 of 9) Line management of others (supervisory skills)
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill. Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Coaching skills for managers (1)	◯	◯	◯	◯	◯	◯	◯
Delivering formal coaching/mentoring (2)	◯	◯	◯	◯	◯	◯	◯
Informal mentoring (3)	◯	◯	◯	◯	◯	◯	◯
People management and managing team performance (4)	◯	◯	◯	◯	◯	◯	◯
Recruitment and selection (5)	◯	◯	◯	◯	◯	◯	◯
Reporting or evaluation taking account of differing needs of target audiences (6)	◯	◯	◯	◯	◯	◯	◯
Staff review, performance and development (7)	◯	◯	◯	◯	◯	◯	◯

Q10.9

(Skills, 7 of 9) Communication
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill.

Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Building and maintaining relationships with funders, partners or other stakeholders (1)	○	○	○	○	○	○	○
Coordination of communication (2)	○	○	○	○	○	○	○
Designing and implementing communication plans (3)	○	○	○	○	○	○	○
Media Liaison (4)	○	○	○	○	○	○	○
Preparing and writing reports (including evaluation reports and funder reports) (5)	○	○	○	○	○	○	○
Preparing briefings (6)	○	○	○	○	○	○	○
Presentation skills (7)	○	○	○	○	○	○	○
Public speaking/ presentation (8)	○	○	○	○	○	○	○
Social Media (9)	○	○	○	○	○	○	○

| Website planning and design (10) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Q10.10

(Skills, 8 of 9) Relationship Management

RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill. Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Building trust within partnerships (1)	○	○	○	○	○	○	○
Collaborating for success (2)	○	○	○	○	○	○	○
Contributing to fair working environments, e.g. anti-bullying initiatives (3)	○	○	○	○	○	○	○
Diplomacy and negotiation, and mediation (4)	○	○	○	○	○	○	○
Facilitation skills (5)	○	○	○	○	○	○	○
Handling difficult conversations (6)	○	○	○	○	○	○	○
Managing competing demands (7)	○	○	○	○	○	○	○
Networking (8)	○	○	○	○	○	○	○
Promoting or supporting mutual learning (9)	○	○	○	○	○	○	○

Teamwork (10)	○	○	○	○	○	○	○
Conflict management (11)	○	○	○	○	○	○	○

Q10.11

(Skills, 9 of 9) Transversal Skills
RM Skills can be arranged into groups (or families) of related knowledge, skills and abilities that support your professional effectiveness. In this question we would like you to assess the importance of each skill for research management in general, your own competency at the skills and if you have been offered training in the skill. Note, each row should have 2 ticks, one each for importance, and one for whether you have been offered such training.

	How important do you think this skill is for Research Management? 1 is 'not at all important 'and 5 is 'vital for Research Management'.					Have you ever been offered training in this skill?	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Yes (1)	No (2)

Attention to detail (1)	○	○	○	○	○	○	○
Autonomy (2)	○	○	○	○	○	○	○
Creativity (3)	○	○	○	○	○	○	○
Critical thinking (4)	○	○	○	○	○	○	○
Cultural sensitivity (5)	○	○	○	○	○	○	○
Decision making (6)	○	○	○	○	○	○	○
Diversified knowledge set (7)	○	○	○	○	○	○	○
Efficiency (8)	○	○	○	○	○	○	○
Flexibility (9)	○	○	○	○	○	○	○
Leadership (10)	○	○	○	○	○	○	○
Motivation (11)	○	○	○	○	○	○	○
Openness (12)	○	○	○	○	○	○	○
Proactivity (13)	○	○	○	○	○	○	○
Problem-solving (14)	○	○	○	○	○	○	○
Reliability (15)	○	○	○	○	○	○	○
Research integrity/ethical behaviour (16)	○	○	○	○	○	○	○

Strategic thinking (17)	○	○	○	○	○	○	○
Stress management (18)	○	○	○	○	○	○	○
Values appreciation (19)	○	○	○	○	○	○	○

Q10.12 Does your work encourage you to use your knowledge and skills in your current job?

▼ Definitely not (1) ... Definitely yes (5)

Q11.1 **Section 11 of 11, Final comments**

Q11.2 How would you describe your career journey (to date and future aspirations) in your own words?
 (4-5 sentences)

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Q11.3 Define management, you feel it applies to Research Management in 2022. Our purpose here is to understand what you feel is distinctive about research management, as part of a holistic research ecosystem.

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Q11.4 What changes would you like to see to the RM profession in the next ten years?

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Q11.5 If there is anything else you feel is relevant, please use the space below to let us know.

_____

End of Block: Section 11, Final comments

Start of Block: Debrief

Q12.1 **Understanding Research Managers roles, careers and professional contexts Debrief**

Thank you for your participation in this project. Your participation will help us understanding and characterise the role of researcher managers in the research ecosystem. The data collected from this questionnaire will be checked to protect anonymity and archived on the Digital Repository of Ireland. You have the right to right to withdraw future participation retrospectively, without necessity to give a reason by contacting the research team and requesting your data be removed.

If you found any question or aspect of the study distressing, please feel free to contact the research team, arrange to see a carer counsellor or member of the human resources team with responsibility for employee wellbeing within your organisation or contact your closest EURAXESS career development centre.

If you wish to be kept informed about the finding in of this research, please email cardea@ucc.ie. Your email address will be secured separately, from your responses to the survey.

Thank you for your participation in this research, on behalf of the Cardea team The UCC Cardea team Dr Joanne Uí Chrualaoich, j.uichrualaoich@ucc.ie, +353(0)863840587 Mary Kate O'Regan, marykate.oregan@ucc.ie, +353(0)21 4902099

End of Block: Debrief

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