

Training handbook for postgraduate researchers

This handbook is designed to provide ideas, opportunities, and a record of your skills development throughout your doctorate. The content of this handbook is based on the **Researcher Development Framework (RDF)** and is intended as a guide to help you to identify your training needs. In this handbook you will find four sections devoted to each of the four RDF domains:

- A: Knowledge and intellectual abilities**
- B: Personal effectiveness**
- C: Research governance and organisation**
- D: Engagement, influence and impact**

There is also space for you to record your progress, and to plan the skills you want to develop during your time as a researcher.

Contents

- Developing as a researcher2**
- Recording and reflecting on your skills development3**
- Researcher Development Framework (RDF)4**
 - Domain A: Knowledge and intellectual abilities..... 5
 - Domain B: Personal effectiveness..... 7
 - Domain C: Research governance and organisation..... 9
 - Domain D: Engagement, influence and impact..... 11
- Training and development record14**
- Notes30**

Developing as a researcher

Successful researchers think carefully about their professional development. It is important that you periodically review your skills and personal development needs by undertaking a **Training Needs Analysis (TNA)**. This is something that you should discuss with your supervisor on a regular basis.

A **Training Needs Analysis** is an examination of the skills you need in order to complete a particular task against your current abilities. Together with your supervisor, you should discuss your progress to date and plan your development activities for the next few months or year. A commitment to **Personal Development Planning (PDP)** is an essential aspect of being a professional. The role of a researcher is concerned with exploring the unknown and addressing gaps in knowledge. Personal development extends this process to your own life, skills, beliefs and career aspirations.

Give the discussion a priority

Make some time and space for this discussion. Don't make it the last item on a list of things to talk to your supervisor about.

Assessing your skills

What do I know I can do? What skills and abilities do I have already? What do I need to work on to achieve my goals for the coming year and beyond? Use the **Researcher Development Framework** to identify your own strengths and weaknesses.

Listen to others

Ask your **supervisor** and **other researchers** to help you identify the skills needed to undertake your project and associated tasks. What can you learn directly from your supervisor(s) and colleagues by observation of them in their work?

Agree what needs to be learnt and the best method for learning it.

There are many ways of learning that are not always obvious. Establish what you need to learn first, then discuss with your supervisor (and others) the best way to learn this: from a training course, from others around you, from a conference, or from your own self-directed learning.

AGREE – PLAN – DO – REGULARLY REVIEW

Commit your conversations to paper, e-mail or your blog. What are the top 3-5 learning and development areas for you this year? Make time to make them happen through your chosen method. Check in regularly with your progress and re-plan if necessary. **It is your responsibility to take ownership for your development.** It is your supervisor's responsibility to support you and help you develop as a researcher.

Recording and reflecting on your skills development

As a doctoral student, it is expected that you spend at least 10 days a year (5 for part time students) on skills development activities. This includes training courses as well as many other activities such as presenting at or attending conferences, public engagement, away-days, job shadowing or teaching. It is important that you record these activities to provide evidence for your monitoring reports. If you have attended any PGSkills workshops, you can print a record of attendance from SAMIS and attach it to the back of this handbook.

There are **four sections**: one for each of the **RDF 'domains'**. In each of these sections there is a table for you to complete for each year of your research:

Where I am now?

Think about how well you and your supervisor(s) think you are doing with respect to the skills, behaviours and attitudes listed in the RDF. Write a few statements here to reflect your assessment.

Where do I want to be?

Discuss what success might look like in terms of developing the skills in the RDF. What might you expect to be doing differently in, say, a year's time? Write your thoughts down here – this will help you to assess your progress later on.

Plans

After your training discussion with your supervisor, write down a few actions that you will undertake in the next year that will help you develop the skills you will need. Use the RDF table to help you plan.

Actions

Write a list of everything that you have done to develop your skills e.g. attending seminars, workshops, conferences or learning a new research technique. This will help you to keep track so that you are up to date for completing job or funding applications. It is also a useful record to show your supervisor so that they can see how you are progressing.

Evidence

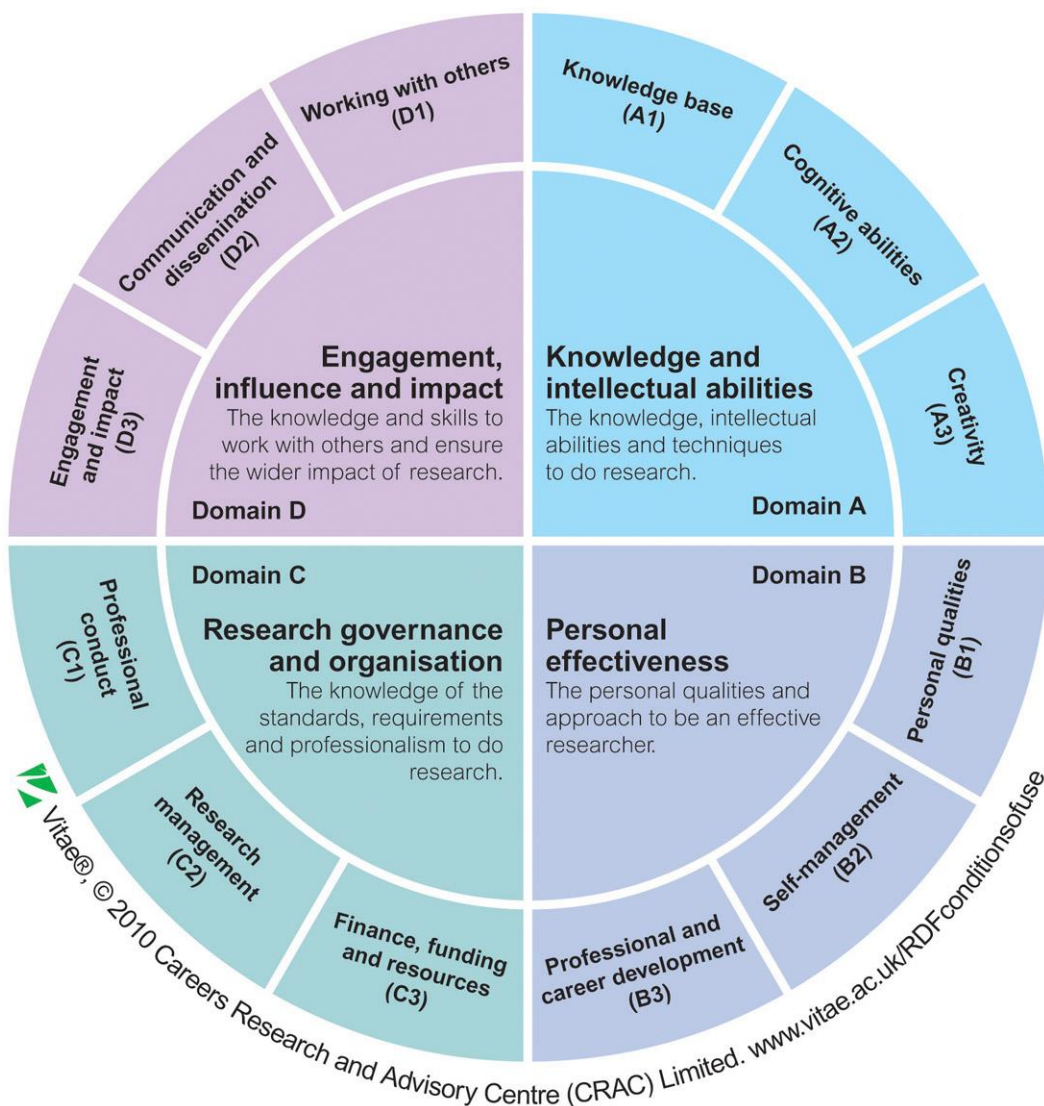
Write statements to demonstrate what skills you have developed over the year. Make sure the statements give examples of what you have done, why you did it, and what you achieved. These statements will be invaluable for preparing for interviews and job applications. Use the RDF table to help you define the skills you have.

Researcher Development Framework (RDF)

The RDF was developed by Vitae (a UK-wide organisation that supports the professional and career development of researchers). To find out more about Vitae visit their website www.vitae.ac.uk. The RDF is made up of four domains encompassing the knowledge, intellectual abilities, techniques and professional standards to do research, as well as the personal qualities, knowledge and skills to work with others and ensure the wider impact of research.

The following table takes the sub-domains from the RDF and makes suggestions for activities that will develop that skill. Many of these suggested activities are things that you will naturally do in the course of your research project, while others may require you to actively take part in training or new activities.

The RDF diagram



Domain A: Knowledge and intellectual abilities

This domain relates to the knowledge and intellectual abilities needed to be able to carry out excellent research.

Sub-domain	Sub-domain summary	Development activities
<p>1. Knowledge base</p> <ul style="list-style-type: none"> • Subject knowledge • Research methods: theoretical knowledge • Research methods: practical application • Information seeking • Information literacy and management • Languages • Academic literacy and numeracy 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • The area of research, the advances within it and its relationships with other research areas • The methods and experimental techniques appropriate for research design • Sources of information, bibliographic software and other information technologies • Literacy and numeracy skills and language abilities appropriate for research <p>Behaviour:</p> <ul style="list-style-type: none"> • Makes original contributions to knowledge • Identifies, applies and develops methods and experimental techniques appropriate for research projects • Conducts effective and comprehensive information searches • Records, manages and handles information/data using appropriate bibliographic software and other information technologies 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Relevant equipment/techniques • Software packages for data handling and analysis • Research methodologies for data collection • Literature search methods and bibliographic databases • Academic writing, writing for publication and thesis writing <p>Other activities:</p> <ul style="list-style-type: none"> • Attend seminars and read papers on relevant research topics • Attend poster sessions and conferences to defend your research • Discussions with supervisors and peers • Collecting and managing data for your own research • Literature searches as an on-going part of your research project • Seek feedback on written work such as progress reports from supervisors and peers

Sub-domain	Sub-domain summary	Development activities
<p>2. Cognitive abilities</p> <ul style="list-style-type: none"> • Analysing • Synthesising • Critical thinking • Evaluating • Problem solving 	<p>Behaviour:</p> <ul style="list-style-type: none"> • Analyses and evaluates findings using appropriate methods • Thinks originally, independently and critically; develops theoretical concepts • Critically synthesises information from diverse sources • Evaluates progress, impact and outcomes of research • Recognises and validates problems; formulates and applies solutions to a range of research problems <p>Attitude:</p> <ul style="list-style-type: none"> • Willing to give and receive constructive criticism 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Creative thinking and problem solving • Critical reading/writing <p>Other activities:</p> <ul style="list-style-type: none"> • Regular meetings with supervisor to discuss research • Critically assess published materials with your supervisor and colleagues • Actively take part in journal club discussions • Open discussions with peers • Share ideas and concepts with peers and supervisors • Regular discussions with supervisors and peers • Attending poster sessions and presentations by peers • Completed progress reports and annual reviews
<p>3. Creativity</p> <ul style="list-style-type: none"> • Inquiring mind • Intellectual insight • Innovation • Argument construction • Intellectual risk 	<p>Behaviour:</p> <ul style="list-style-type: none"> • Develops new ways of working; has novel ideas and realises their potential • Identifies new trends; creates new opportunities • Develops convincing and persuasive arguments to defend research • Takes intellectual risks; challenges the status quo <p>Attitude:</p> <ul style="list-style-type: none"> • Takes a creative, imaginative and inquiring approach to research • Is open to new sources of ideas 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Creative thinking • Presentation skills and question answering • Viva preparation <p>Other activities:</p> <ul style="list-style-type: none"> • Attend conferences and seminars in other disciplines • Participate in seminars and conferences • Defending your research in the transfer viva • Discuss new approaches to your research with colleagues • Engage in your departmental seminar programme • Seek feedback on your working practices and respond positively to constructive criticism and alternative approaches and conclusions • Arrange a mock-viva with peers or supervisors

Domain B: Personal effectiveness

This domain contains the personal qualities, career and self-management skills required to take ownership for and engage in professional development.

Sub-domain	Sub-domain summary	Development activities
<p>1. Personal qualities</p> <ul style="list-style-type: none"> • Enthusiasm • Perseverance • Integrity • Self-confidence • Self-reflection • Responsibility 	<p>Attitude:</p> <ul style="list-style-type: none"> • Approaches research with enthusiasm, passion and confidence • Is resilient and perseveres in the face of obstacles • Is self-reflective; seeks ways to improve performance and strives for research excellence • Is pro-active, independent, self-reliant and takes responsibility for self and others • Shows integrity 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Project management <p>Other activities:</p> <ul style="list-style-type: none"> • Discussions with supervisors, colleagues and wider support network • Read standards for relevant funding bodies • Setting realistic and achievable short-term and long-term goals • Managing the development of your project
<p>2. Self-management</p> <ul style="list-style-type: none"> • Preparation and prioritisation • Commitment to research • Time management • Responsiveness to change • Work-life balance 	<p>Behaviour:</p> <ul style="list-style-type: none"> • Anticipates and responds to directions and trends in research • Plans, prioritises and conducts research in proactive way • Delivers research projects and results on time and effectively • Develops awareness of, and helps to achieve, work-life balance for self and colleagues <p>Attitude:</p> <ul style="list-style-type: none"> • Has a strategic approach to research • Has focus, commitment and ambition • Is flexible and responsive to change 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Time management • Research project management <p>Other activities:</p> <ul style="list-style-type: none"> • Regular reporting and monitoring • Write contingency plans for your research project • Produce a project plan and grant chart for your research project

Sub-domain	Sub-domain summary	Development activities
<p>3. Professional & career development</p> <ul style="list-style-type: none"> • Career management • Continuing professional development • Responsiveness to opportunities • Networking • Reputation and esteem 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Career and employment opportunities inside and outside academia <p>Behaviour:</p> <ul style="list-style-type: none"> • Takes ownership of and manages professional development • Shows commitment to continuing professional development and enhancing employability • Maintains and develops relevant skills set and experience in preparation for a wide range of opportunities within and outside academia • Actively networks for professional and career purposes and seeks to enhance research reputation and esteem 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Career management • Career choice • Academic careers • Applying for jobs, CVs and interviews <p>Other activities:</p> <ul style="list-style-type: none"> • Regular development discussions with your supervisor • Regularly using the RDF development tool with respect to selecting development and training activities • Attend courses where you will meet students outside your department • Attend conferences and seminars within your field • Participate in teaching and research meetings within your department and others • Take part in, or attend, the annual postgraduate conference 'Meeting of Minds' • Visit careers advisors for one to one guidance, CV advice and mock interviews • Attend the careers fair or employer events organised by the Careers Advisory Service • Active investigation of job opportunities, using the Careers Advisory Service graduate contact list and destinations data

Domain C: Research governance and organisation

This domain relates to the knowledge of the standards, requirements and professional conduct that are needed for the effective management of research.

Sub-domain	Sub-domain summary	Development activities
<p>1. Professional conduct</p> <ul style="list-style-type: none"> • Health and safety • Ethics, principles and sustainability • Legal requirements • IPR and copyright • Respect and confidentiality • Attribution and co-authorship • Appropriate practice 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Health and safety issues, confidentiality and ethical requirements of his/her research field • The legal requirements and regulations relating to the area of research and the research environment • The principles of intellectual property rights (IPR) and copyright issues, as they relate to research, its commercialisation and dissemination • Organisational and professional requirements and environmental impact of research • The concept of corporate social responsibility <p>Behaviour:</p> <ul style="list-style-type: none"> • Respects, acknowledges and attributes the contribution of others • Seeks to protect, where appropriate, the intellectual assets arising from research and to maximise the wider value of research findings • Acts with professional integrity in all aspects of research governance • Uses institutional/organisational resources responsibly and appropriately • Seeks ways of working in a sustainable manner <p>Attitude:</p> <ul style="list-style-type: none"> • Respects, upholds and meets professional standards and requirements 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Health and safety /COSHH • Intellectual Property • Copyright/plagiarism • Ethics <p>Other activities:</p> <ul style="list-style-type: none"> • Discussion with supervisors regarding ethical or legal issues in your field • Familiarise yourself with the University's Institutional Code of Ethics

Sub-domain	Sub-domain summary	Development activities
<p>2. Research management</p> <ul style="list-style-type: none"> • Research strategy • Project planning and delivery • Risk management 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • The contribution of research to the health of disciplines and institutional missions • Project management tools and techniques <p>Behaviour:</p> <ul style="list-style-type: none"> • Applies appropriate project management tools and techniques • Sets goals and plans and manages resources to deliver results • Effectively assesses and manages risks • Evaluates the effectiveness of research projects 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Time & project management <p>Other activities:</p> <ul style="list-style-type: none"> • Take ownership for your own project planning and discuss plans with supervisors • Write a risk management strategy and contingency plans for your project.
<p>3. Finance, funding and resources</p> <ul style="list-style-type: none"> • Income and funding generation • Financial management • Infrastructure and resources 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • The requirement for research income generation and financial management • Mechanisms for funding, the range of funding sources and the processes for making applications • Local administrative systems, reporting procedures and infrastructure processes <p>Behaviour:</p> <ul style="list-style-type: none"> • Responsibly manages finances, resources and infrastructures related to research 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Enterprise and business planning • Grant writing <p>Other activities:</p> <ul style="list-style-type: none"> • Apply for a travel grant to attend a conference or visit another institution • Get involved with drafting an application • Discuss grant applications with others in your research group • Read up on relevant national and international policies and funding issues • Manage your own research project budget

Domain D: Engagement, influence and impact

This domain relates to the knowledge, understanding and skills needed to engage with, influence and impact on the academic, social, cultural, economic and broader context.

Sub-domain	Sub-domain summary	Development activities
<p>1. Working with others</p> <ul style="list-style-type: none"> • Collegiality • Team working • People management • Supervision • Mentoring • Influence and leadership • Collaboration • Equality and diversity 	<p>Behaviour:</p> <ul style="list-style-type: none"> • Actively works in an inclusive, respectful and constructive way with colleagues, stakeholders and research users • Recognises and acknowledges the contribution of others and own part in team success • Builds relationships in academic and commercial contexts; approachable and interacts constructively with others; manages expectations and resolves conflict • Supervises, mentors and develops the potential of less experienced researchers and colleagues through support and advice • Leads, motivates and influences where appropriate; persuades through listening and convincing discussion • Builds and sustains collaborative relationships and works pro-actively to create and develop knowledge with a range of stakeholders, including researchers, funders and users of research <p>Attitude:</p> <ul style="list-style-type: none"> • Respects the inclusive and collegial manner in which researchers conduct relationships within and beyond academia • Recognises the potential for working in sustained partnerships with a range of stakeholders to generate new ideas, insights and maximise the potential for wider societal and economic impact • Respects individual difference and diversity 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Teaching skills • Interpersonal communication skills <p>Other activities:</p> <ul style="list-style-type: none"> • Get involved with undergraduate teaching/supervising/demonstrating • Mentor a more junior doctoral student • Work on a collaborative paper with other researchers • Organise a conference or researcher event with other researchers • Attend Vitae training courses that involve team working or leadership • Look for opportunities to take a team approach to problem solving and planning • Seek feedback from peers and supervisors and respond positively when asked to give feedback

Sub-domain	Sub-domain summary	Development activities
<p>2. Communication and dissemination</p> <ul style="list-style-type: none"> • Communication methods • Communication media • Publication 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Appropriate communication and dissemination mechanisms for different audiences • The importance of engaging in the processes of publication and dissemination of research results and impacts <p>Behaviour:</p> <ul style="list-style-type: none"> • Communicates effectively in both written and oral modes with a range of audiences formally and informally through a variety of different techniques and media • Actively engages in publication and dissemination of research results and impacts 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Presentation skills • Attending conferences and question answering • Getting published • Academic writing workshops <p>Other activities:</p> <ul style="list-style-type: none"> • Seek opportunities to give oral and poster presentations, particularly to non-specialist audiences • Seek feedback on presentations given at all levels • Ask questions in conferences, engage in discussion with other presenters • Publish a paper

Sub-domain	Sub-domain summary	Development activities
<p>3. Engagement and impact</p> <ul style="list-style-type: none"> • Teaching • Public engagement • Enterprise • Policy • Society and culture • Global citizenship 	<p>Knowledge of:</p> <ul style="list-style-type: none"> • Global, organisational, cultural, economic, and environmental contexts, and the wider impact of research • The social and ethical implications of research, and public attitudes to these issues • The range of mechanisms to support knowledge transfer and maximise the impact of research in academic, economic and societal contexts <p>Behaviour:</p> <ul style="list-style-type: none"> • Engages with and shares research through research-informed and student-focused teaching • Contributes to increasing public awareness, engagement and understanding of research and associated impacts • Identifies innovative trends, ideas and applications; is enterprising and entrepreneurial within and beyond academia • Works collaboratively with all stakeholders to create, develop and exchange research knowledge to influence and benefit policy development, society and the economy; seeks new outlets and promotes the application of research in innovative ways • Appreciates and works with diversity and difference in research and education <p>Attitude:</p> <ul style="list-style-type: none"> • Values the contribution of research to teaching and teaching to research • Recognises the importance of accountability of research with regard to social and economic impacts, internationalisation and global citizenship 	<p>Attend workshops/training on:</p> <ul style="list-style-type: none"> • Teaching skills • Enterprise • Intellectual property • Copyright/plagiarism • Media training <p>Other activities:</p> <ul style="list-style-type: none"> • Read up on relevant national and international policies and funding issues • Seek opportunities to engage with or learn about government policy making • Get involved in school outreach activities e.g. 'STEM ambassadors' or 'Bath Taps into Science' • Give a talk at a science café or other local society e.g. BRLSI 'Speaking of Research' seminar series • Contribute to the 'Images of Research' exhibition

Training and development record

Domain A: Knowledge and intellectual abilities

Key areas highlighted in this domain are:

- Subject knowledge
- Research methods
- Information seeking and management
- Academic literacy and numeracy
- Analysis and evaluation
- Critical thinking and problem solving
- Creative thinking and innovation
- Constructive defence of research

Plan and record your own personal development here:

1 st year (full time) or 1 st -2 nd year (part time)	
Where I am now	
Where I want to be	

Plans	What will you do?	When will you do it?
Actions	What did you do?	When did you do it?
Evidence		
2nd year (full time) or 3rd-4th year (part time)		
Where I am now		

Where I want to be		
Plans	What will you do?	When will you do it?
Actions	What did you do?	When did you do it?
Evidence		

3rd year (full time) or 5th-6th year (part time)**Where I
am now****Where I
want to
be****Plans**

What will you do?

When will you do it?

Actions

What did you do?

When did you do it?

Evidence

Domain B: Personal effectiveness

Key areas highlighted in this domain are:

- Enthusiasm, commitment and perseverance
- Integrity and responsibility
- Self confidence
- Time management and work-life balance
- Proactive planning of research
- Career management and professional development
- Networking and reputation

Plan and record your research development here:

1 st year (full time) or 1 st -2 nd year (part time)		
Where I am now		
Where I want to be		
Plans	What will you do?	When will you do it?

Actions	What did you do?	When did you do it?
Evidence		
2nd year (full time) or 3rd-4th year (part time)		
Where I am now		
Where I want to be		
Plans	What will you do?	When will you do it?

Actions	What did you do?	When did you do it?
Evidence		
3rd year (full time) or 5th-6th year (part time)		
Where I am now		
Where I want to be		
Plans	What will you do?	When will you do it?

Actions	What did you do?	When did you do it?
Evidence		

Domain C: Research governance and organisation

Key areas highlighted in this domain are:

- Health and safety
- Ethics and intellectual property
- Research strategy
- Project planning and delivery
- Risk management
- Income/funding generation and financial management

Plan and record your research development here:

1 st year (full time) or 1 st -2 nd year (part time)		
Where I am now		
Where I want to be		
Plans	What will you do?	When will you do it?

Actions	What did you do?	When did you do it?
Evidence		
2nd year (full time) or 3rd-4th year (part time)		
Where I am now		
Where I want to be		

Plans	What will you do?	When will you do it?
Actions	What did you do?	When did you do it?
Evidence		
3rd year (full time) or 5th-6th year (part time)		
Where I am now		

Where I want to be		
Plans	What will you do?	When will you do it?
Actions	What did you do?	When did you do it?
Evidence		

Domain D: Engagement, influence and impact

Key areas highlighted in this domain are:

- Team work and collaboration
- Supervision, mentoring and teaching
- People management, influence and leadership
- Communication and dissemination methods
- Publication
- Public engagement and policy
- Enterprise

Plan and record your research development here:

1 st year (full time) or 1 st -2 nd year (part time)		
Where I am now		
Where I want to be		
Plans	What will you do?	When will you do it?

Actions	What did you do?	When did you do it?
Evidence		
2nd year (full time) or 3rd-4th year (part time)		
Where I am now		
Where I want to be		

Plans	What will you do?	When will you do it?
Actions	What did you do?	When did you do it?
Evidence		
3rd year (full time) or 5th-6th year (part time)		
Where I am now		

Where I want to be		
Plans	What will you do?	When will you do it?
Actions	What did you do?	When did you do it?
Evidence		

Notes

