

Research for Innovation, Translation and Enterprise (RITE)

DTP Concept Scoping, March 2025

Aim: To develop a Doctoral Training Program (DTP) that delivers cross-sector training, spanning academic research and innovation, centred around infectious diseases and One Health. By co-creating PhD projects with stakeholders (in industry, funding bodies, policy offices, innovation engines, advocacy organisations, third sector organisations, scholarly communications, outreach groups) to meet their priorities, and across academic disciplines, the DTP fosters careers that transcend the barriers between research and translation.

Justification: To meet society's greatest challenges, the modern world requires academic researchers that can develop and implement solutions underpinned by world class research. Creating this generation of research leaders involves training that spans academic disciplines and provides transversal skills embedded within meaningful integration of academic training and relevant stakeholder priorities. Re-imagining the DTP training landscape to support PhD researchers to develop projects in partnership with cross-sector stakeholders will enable a new cadre of researchers to operate at the interface of research and innovation. To go beyond "tasters" of other sectors to enable meaningful integration of academic training and innovative impact, PhD candidates need sufficient time and investment to undertake high quality and robust research with translation into processes and product by design. Existing DTPs led by the University of Edinburgh across all academic disciplines and its productive relationships with diverse stakeholders provide proof of principle for how elements of the proposed DTP will deliver novel skills training, access to technologies for translation, and support the bidirectional flow of knowledge and expertise.

Remit: The UoE's strengths coupled with the interests of diverse stakeholders and, offers a rich landscape for a transformative model of academic career development centred on Future Health and Care, particularly Infectious Diseases and One Health, that target UN Sustainable Development Goals (Figure 1).

Model: A modern training landscape should provide the time and resources to allow PhD candidates to learn from experts and practitioners across academic, industry and other sectors and to develop their research and transversal skills, especially leadership. Thus, to match existing training periods, the proposed DTP will allow students to graduate with their PhD after 4 years, and will offer an additional 2 years for innovation impacts to be realised by being embedded within stakeholder organisations (72 months total) (Figure 2, Table 1, Table 2). Such a commitment in each PhD candidate requires multiple exit points and regularly meeting benchmarks of academic excellence and stakeholder needs, as well as carefully conducted processes for selection and progress monitoring.

The nature of stakeholder's priorities, discipline, and approaches will determine whether the candidate's PhD project has a single large objective or several smaller complimentary objectives that could each involve different stakeholders, and they may undertake the transition phase secondment with a variety of stakeholders. This flexibility is necessary to cater for different levels of stakeholder commitment, investment, and timelines for impact while ensuring access to high equality mentoring and the support from University processes.

This step change in the evolution of doctoral training requires careful consideration of how PhDs are assessed. To demonstrate innovation, a transdisciplinary PhD thesis may include novel items for assessment alongside the main components of research chapters and publications. These alternative items will depend on stakeholder interests and form "impact cases" and "outputs" that evidence knowledge, experience and understanding of how other sectors innovate and operate to deliver impact.

Figure 1: UoE priorities and enablers for 'Future Health and Care' that have potential for innovation, cross-disciplinary collaboration with stake holder priorities in, for example: Clinical trials methodology, Data-driven innovation, Data linkage and storage, Diagnostics, Discovery research, Drug discovery, Experimental medicine, Health care Implementation, Health and social care policy and Health surveillance.

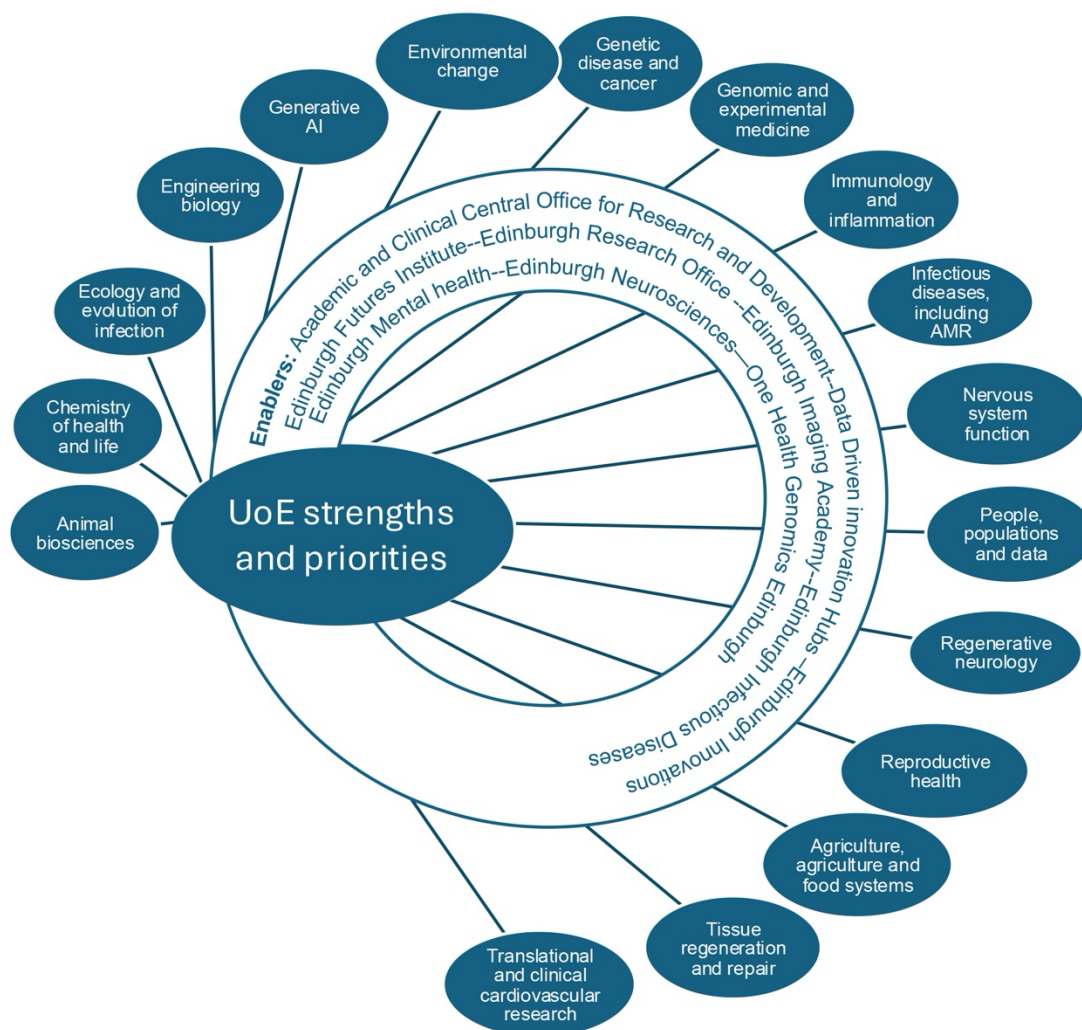


Figure 2: Timeline of student activities and outputs

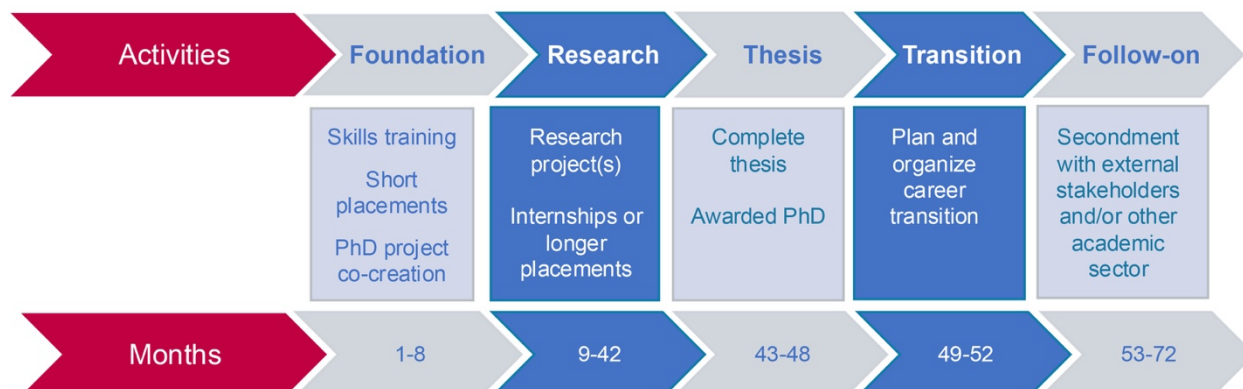


Table 1: Illustrative case studies. Acronyms: MRI, Moredun Research Institute; CSE, College of Science and Engineering; CMVM, College of Medicine and Veterinary Medicine; CAHSS, College of Arts, Humanities, and Social Sciences.

Partner's priority	Diagnostic for surveillance of an emerging zoonosis needed for human and animal populations	A pharma company requires an AI pipeline to translate discovery science into clinical practice through drug repurposing	Promising vector control tool for insect vector of disease needs commercialisation and deployment strategy
Activity	Student evaluates diagnostic approaches for vet researchers at MRI on animal science aspects, with chemists for diagnostic development and NHS clinicians for product testing.	Student works with drug discovery partners and generative AI researchers in CSE to develop pipeline for specific drug repurposing.	Student works with observatories monitoring vector spread (CMVM, CSE), economists and social scientists (CAHSS) to integrate market needs and understand societal behaviours around tool implementation.
Transition	Monitor and refine implementation of diagnostic, and assess impact.	Drugs taken through pipeline to biological trials, or further development of pipeline model.	Evaluation of implementation and strategy refinement.
Impact	Effective and tractable new diagnostic that is used to best effect.	Cost effective drug discovery or transferable /adaptable framework.	Maximal efficacy of intervention against vector borne infection.

Table 2: DTP milestones and exit points

Time period (months)	Activities	Outcomes	Evaluation	Exit point
Foundation, 1-8	Student joins academic setting	Understand stakeholder priorities and pathways to inform focus of research project	Proposal and training plan evidence integration of research and stake holder priority	Insufficient intellectual merit or potential impact of project
	Short (few weeks) internships in one or two stake holder organisations	Establishes PhD topic and proof of concept for impact	Evaluated by supervisory team and stakeholder members	Student proves unsuitable

	Works with chosen research group(s) to form PhD and skills training plans	Agreement for co-creation of research and training		Conversion to MRes may be appropriate
Academic Research (9-42)	Training in transversal skills and network development	PhD research project completed	Regular supervisory team meetings	Insufficient progress against agreed milestones
	Internship(s) with stake holder for further training or regular check ins	Research on track for impact	Annual reporting to supervisory team for assessment	Conversion to MRes or MPhil may be appropriate
	Development and leadership of independent research activities	Ability to operate at a high level within academia and other sectors		
Thesis (43-48)	Complete thesis and publications	Thesis submission	Viva completed, student graduates	PhD award not achieved
Placement Planning (49-52)	Develop proposal for secondment activities during transitional phase	Coherent and realistic plan to innovate project during secondment with stakeholder(s)	Competitive transition for innovation funding awarded	Secondment not desirable, for student or stakeholder
		May be different stakeholder from PhD		
Transition for (53-72)	20 months to innovate research during secondment with the most appropriate academic and stakeholder settings		Monthly progress meetings with academic and stakeholder mentoring team as appropriate for the project	Transition phase to develop career in non-academic sector or return to academia via fellowships