



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

An educational design framework for transdisciplinary competency development in short term doctoral educational programmes

Jake Rowan Byrne, Trinity College Dublin & CHARM-EU

Silvia Gallagher, Trinity College Dublin & CHARM-EU

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Purpose and Need

Problem

Doctoral graduates are increasing globally, but the academic labour market cannot absorb them all, 1-30% max (Xu et al., 2018). PhD programmes therefore need to prepare candidates for research, practice, policy, industry and civic impact.

Implication

The question is no longer whether doctoral candidates need broader competencies, but how we design doctoral learning so these competencies are meaningfully developed.

Need for framework to help design

Beyond

academic career pathways

Policy

and practice relevance

Impact

through integration

Short term doctoral training

- Short term doctoral training activities are increasingly important for preparing graduates for future employment
- Need for non-technical transferable skills
- Traditional PhD leaves graduates too narrowly focused, and lacking key professional skills needed for managing post-PhD careers.
- Opportunity for stakeholder engagement
- Importance of short term mobility in PhD

5.5

mean non-mandatory training days
attended in one year

61%

wanted more courses incorporated into
the degree

33%

agreed all training needs were covered
by their degree

80%

favoured credit-bearing technical
training

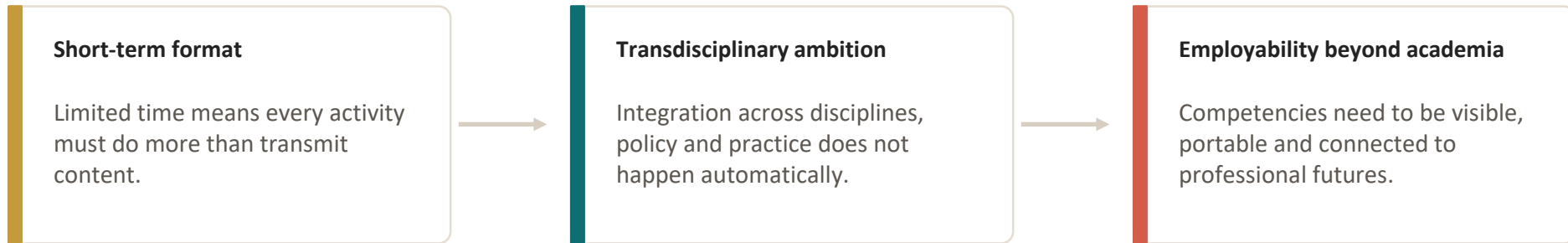
(Jones, 2017)

Need for transdisciplinary doctoral training

- Global Challenges issues require interdisciplinary researchers to work with societal actors, training is needed for this (Diana et al.,2024)
- Transdisciplinarity requires the acquisition of a wide range of skills (Heemstra, 2022)
- Need for transversal skills in doctoral education to enhance wider employability (Ashonibare, 2023).

Designing integrative / ITD programmes

Short-term doctoral activities are promising, but only if competencies are deliberately designed in.



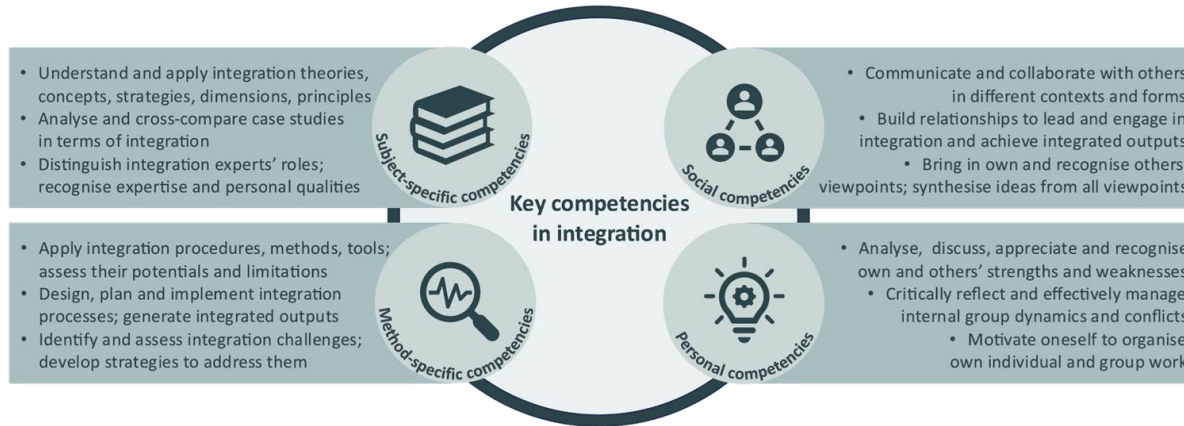
Design claim: short-term doctoral programmes can function as high-intensity experiences and test-beds for transdisciplinary competence development.

Designing integrative / ITD programmes

Need for training in (Horn et al., 2023):

- Preparation and evaluation stages of projects
- Attention needs to be paid to the societal value of transdisciplinary collaboration
- Explicitly train interdisciplinary integration

Integratron Competence acquisition



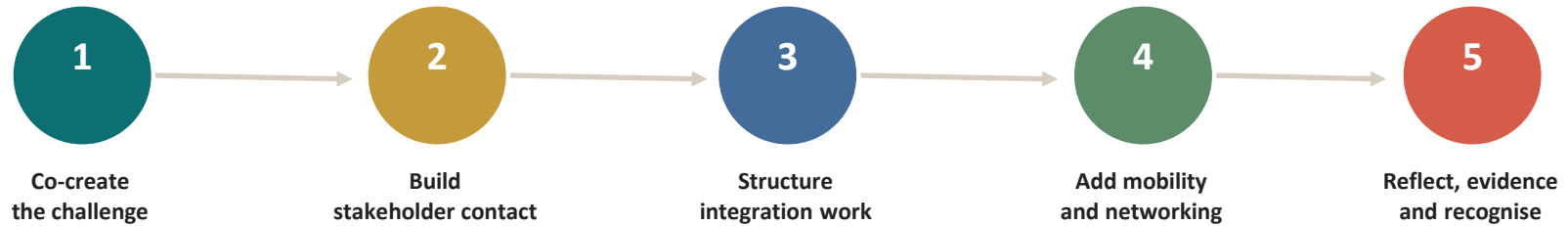
Such activities should scaffold subject, social, method, and personal competency development

(Hoffmann & Vienni-Baptista, 2026 – based on La Cara B (2022) ETH competence framework)

(e.g. systems thinking, stakeholder engagement, interdisciplinary communication, reflexivity, collaboration, and framing complex real-world challenges).

Proposed educational design framework

Subtitle — Calibri Regular 20pt



Design moves become a sequence: from challenge formation to evidence of competency development.

The framework works best when activity design, assessment/reflection and stakeholder engagement are planned together rather than added later.

Framework applied to case studies

Cases were developed through inter-institutional inter and transdisciplinary academic collaboration and stakeholder input.

Doctoral candidates engaged directly or hypothetically with societal actors through active, challenge-based, real-world problem-solving activities.

These activities foster aligned transdisciplinary competencies and professional skills acquisition such as networking, intercultural communication, and stakeholder collaboration.

The framework is therefore not a single model of delivery, it is both a set of design principles that can be utilised across formats and can be used to analyse/evaluate existing programmes.

Case Study 1: PhD Summer School in UM 2025

Structure:

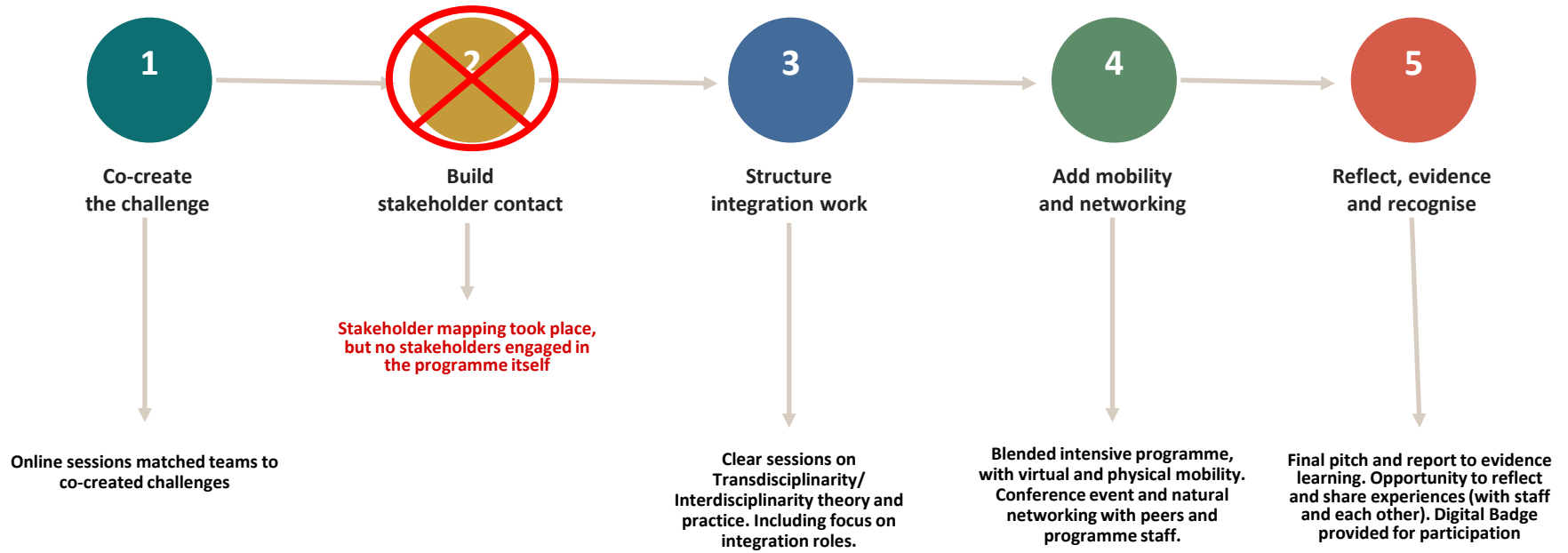
- 3 x 2 hr online sessions
- 5 day intensive on-site mobility
- 20-30 doctoral researchers from across CHARM-EU

Focus:

- Challenge-based approach
- Develop research proposal pitch



Case Study 1: PhD Summer School in UM Framework application



Case Study 2: ITD module for PhDs in TCD

Structure:

- 2 day intensive in-person Hackathon
- 5 x 2 hr online sessions
- 16 doctoral researchers

Focus:

- Team-based doctoral programme
- Challenge-based approach
- Develop research proposal pitch



Interdisciplinary challenge:
Fostering togetherness in end-of-life care
Patients, caregivers, and healthcare professionals



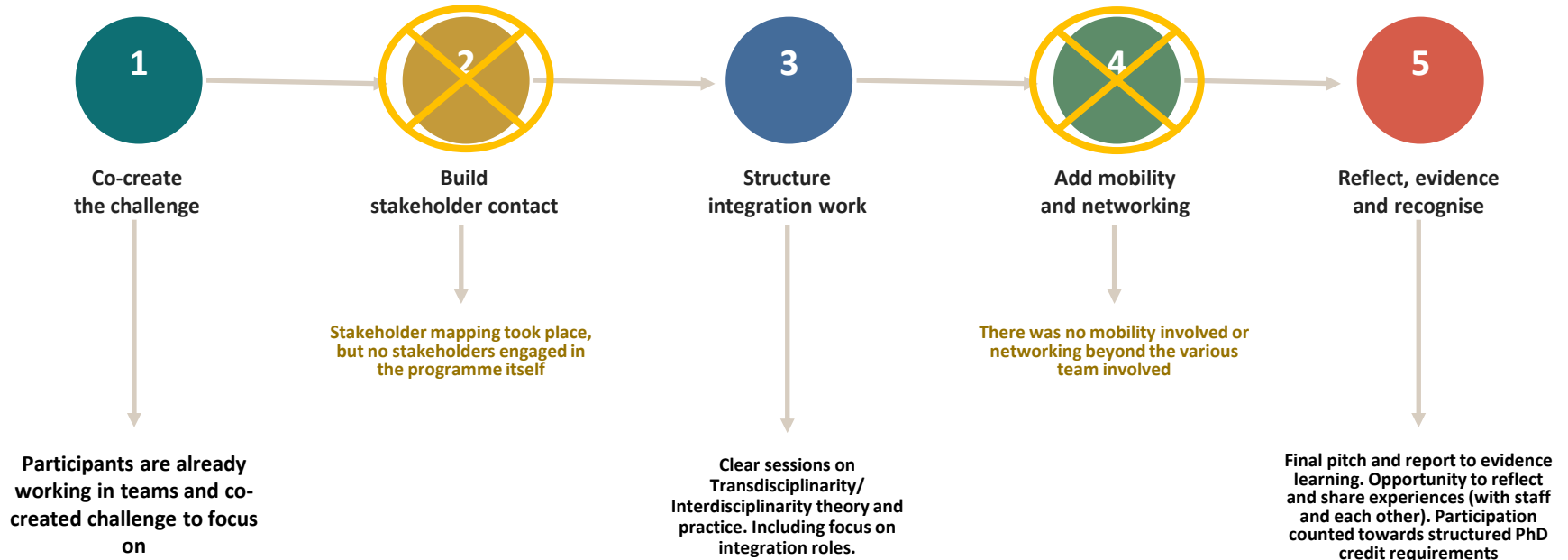
**Manuscript Accessibility:
a Librarian's Challenge**

Wandering Books Team



MAC2: Team Presentation of Collaborative Challenge & Solution
OSPI 11001-2023(2): Integrating Inter and Trans-Disciplinary Practices in Research

Case Study 2: ITD module for PHDs in TCD Framework application



Case Study 3: PhD Summer School in AAU in 2026

Structure:

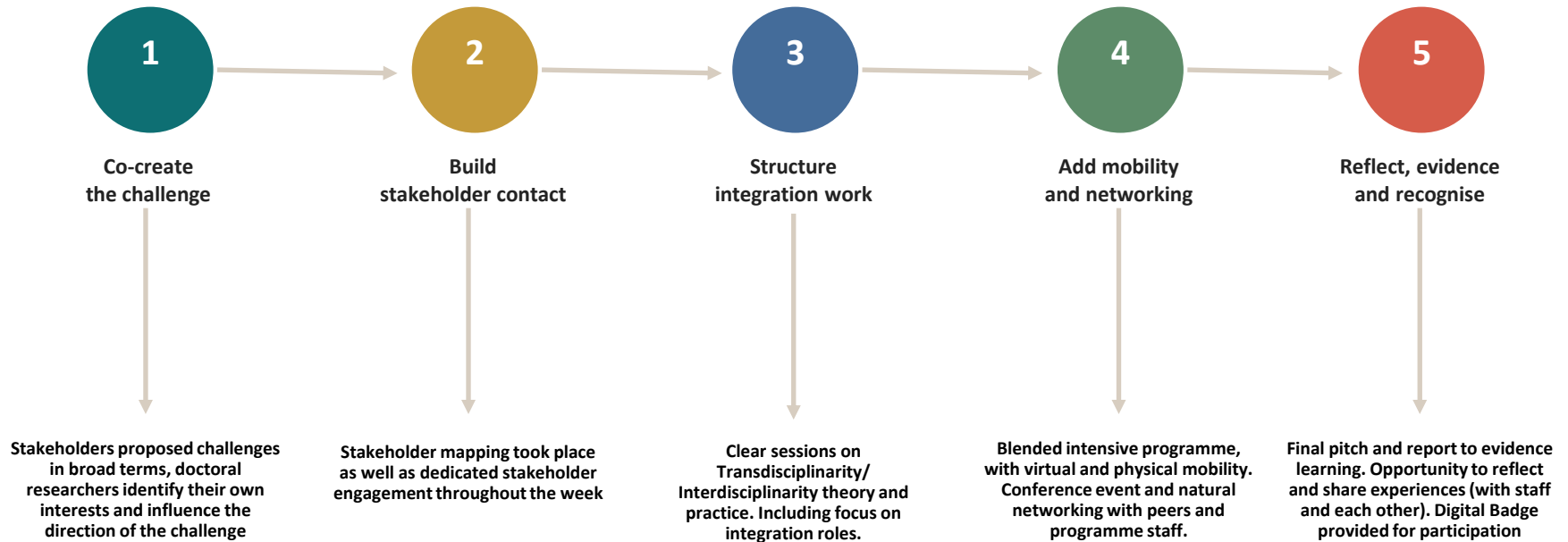
- 3 x 2 hr online sessions
- 5 day intensive on-site mobility
- 20-30 doctoral researchers from across CHARM-EU

Focus:

- Challenge-based approach
- Develop research proposal pitch



Case Study 3: PhD Summer School in AAU Framework application



Implementation Considerations

Coordination

Plan across faculties/institutions early: calendar, roles, assessment, facilitation and communications.

Stakeholder quality

Avoid tokenistic engagement. Support stakeholders to frame challenges in educationally useful ways.

Recognition

Use evidence, reflection and, where possible, credit or badges to make competency development portable.

Evaluation

Track whether candidates can articulate, apply and transfer integration competencies.

Sustainability

Build recurring formats and shared resources rather than one-off delivery.

Practical take aways

Short-term doctoral programmes can be small enough to pilot, but significant enough to change doctoral education.

From “skills add-on” to “designed integration experience”

The opportunity is to use short formats to make transdisciplinary competence visible, practised and transferable.

For candidates

practised integration and career-facing competencies

For doctoral schools

repeatable formats for innovation and evaluation

For society

stronger routes from doctoral knowledge to impact



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Thank You



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