



Stichting NIOC

Stichting NIOC en de NIOC kennisbank

Stichting NIOC (www.nioc.nl) stelt zich conform zijn statuten tot doel: het realiseren van congressen over informatica onderwijs en voorts al hetgeen met een en ander rechtstreeks of zijdelings verband houdt of daartoe bevorderlijk kan zijn, alles in de ruimste zin des woords.

De stichting NIOC neemt de archivering van de resultaten van de congressen voor zijn rekening. De website www.nioc.nl ontsluit onder "Eerdere congressen" de gearchiveerde websites van eerdere congressen. De vele afzonderlijke congresbijdragen zijn opgenomen in een kennisbank die via dezelfde website onder "NIOC kennisbank" ontsloten wordt.

Op dit moment bevat de NIOC kennisbank alle bijdragen, incl. die van het laatste congres (NIOC2025, gehouden op donderdag 27 maart 2025 jl. en georganiseerd door Hogeschool Windesheim). Bij elkaar zo'n 1500 bijdragen!

We roepen je op, na het lezen van het document dat door jou is gedownload, de auteur(s) feedback te geven. Dit kan door je te registreren als gebruiker van de NIOC kennisbank. Na registratie krijg je bericht hoe in te loggen op de NIOC kennisbank.

Het eerstvolgende NIOC vindt plaats in 2027 en wordt dan georganiseerd door HAN University of Applied Sciences. Zodra daarover meer informatie beschikbaar is, is deze hier te vinden.

Wil je op de hoogte blijven van de ontwikkeling rond Stichting NIOC en de NIOC kennisbank, schrijf je dan in op de nieuwsbrief via

www.nioc.nl/nioc-kennisbank/aanmelden-nieuwsbrief

Reacties over de NIOC kennisbank en de inhoud daarvan kun je richten aan de beheerder:

R. Smedinga kennisbank@nioc.nl.

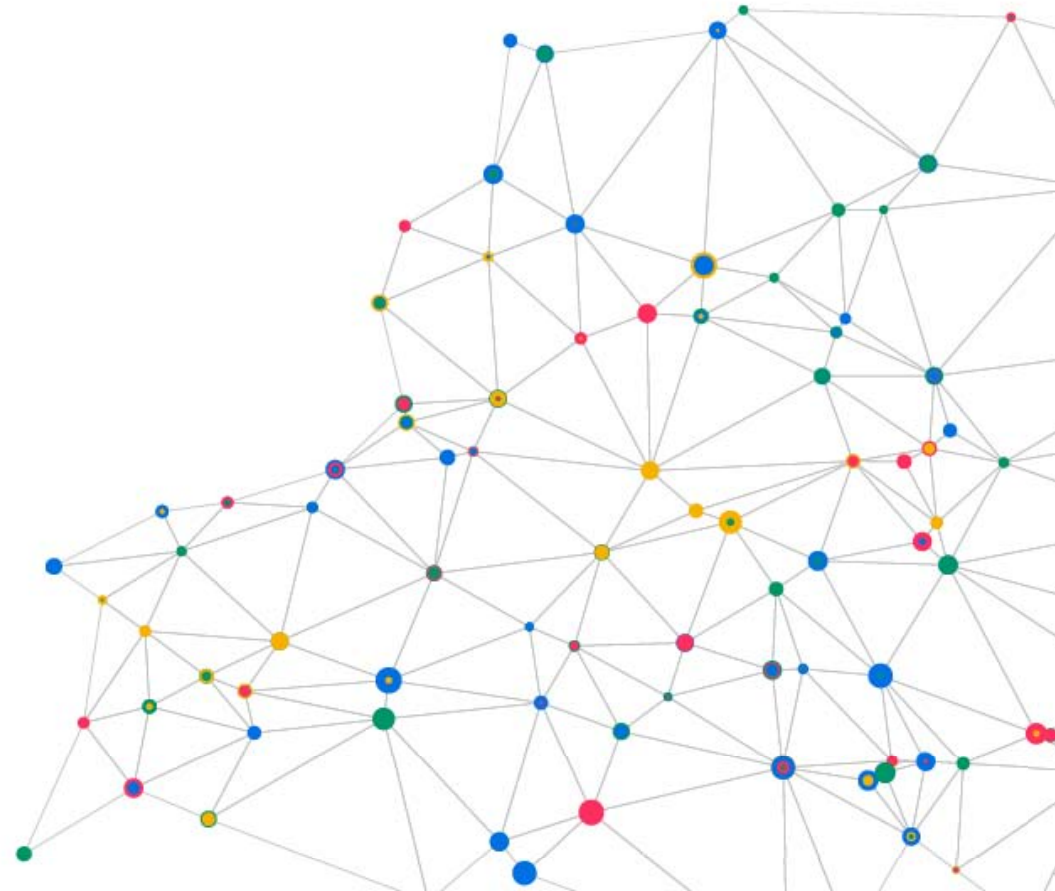
Vermeld bij reacties jouw naam en telefoonnummer voor nader contact.

CLUSTER TECHNOLOGY & DIGITALISATION

THE PROFESSIONAL DOCTORATE (PD)

A PROFESSIONAL DEGREE PROGRAMME
FOCUSING ON PRACTICE BASED
RESEARCH

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AGENDA

- Context of applied sciences universities
- Motivation for the PD (why)
- Characteristics of the PD trajectory (what)
- Differences with PhD
- The PD pilot of the cluster Technology & Digitalisation (when)



CONTEXT OF APPLIED SCIENCES UNIVERSITIES (UAS)

- In the Netherlands, Universities of Applied Sciences (UAS) employ Professors of Applied Science since 2001
- This was the main move towards applied (or ‘practice-oriented’) *research* in applied universities
- Underlying drivers:
 - Insert **innovation/research impulse** in Higher Professional Education
 - In order to **better prepare students for rapidly changing, innovative jobs and organizations**, and create a ‘**Inquisitive, Life Long Learning**’ attitude
 - And in order to **bridge the gap** in research between
 - classic universities (theoretical, publication-driven, looking 5-15 years ahead)
 - actual practice (real life, implementation, looking 0-5 years ahead)



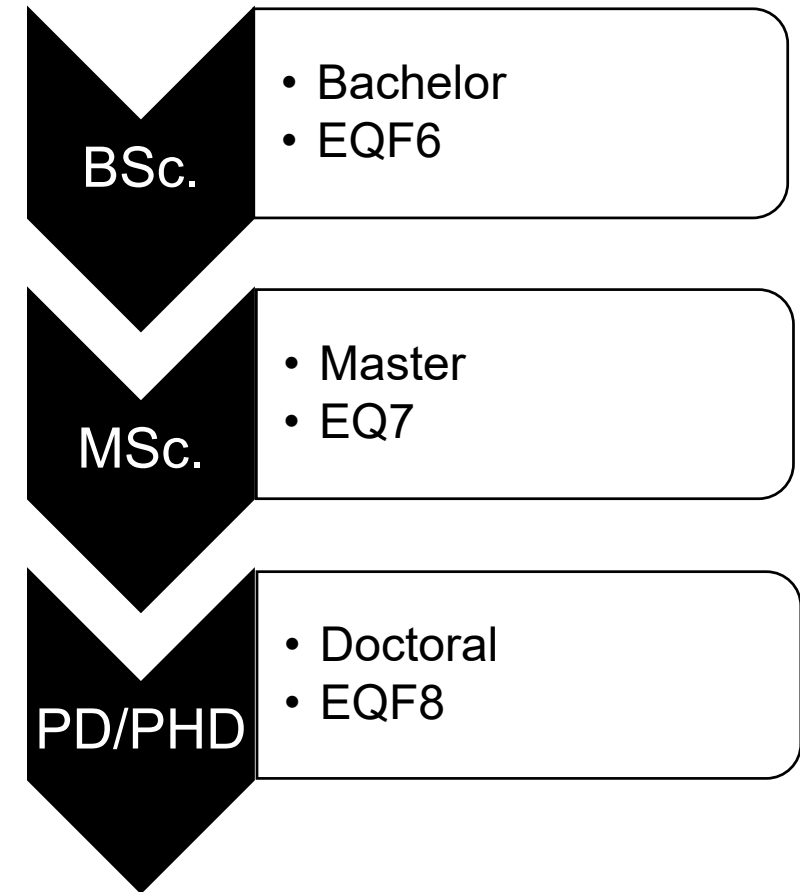
UAS



MOTIVATION FOR THE PD

A professional doctorate in higher professional education is important for, among other things:

- knowledge development in collaboration with professional practice and for society;
- the positioning of applied sciences in the international knowledge infrastructure;
- a continuous learning line in professional context;



FOCUS ON RESEARCH OR ON PRACTICE: TWO SIDES OF THE SAME COIN

SCIENTIFIC RESEARCH

Generic Knowledge:
Focused on a class of situations



PRACTICE- ORIENTED RESEARCH

Context-specific Knowledge:
Focused on specific (complex) situation

Goal:
Developing Re-usable Knowledge
(Research: both fundamental and applied!);
Publishing **primary**

Goal:
Solving 'Real-life' Problems in Specific, Complex Contexts
(Using and/or validating Research, both fundamental and applied)
Publishing **secondary**

General Pattern / Class ←————→ Case / Instance / Example
the two 'levels of abstraction' always co-exist!

**“Doctor of Philosophy”:
Scientific Doctorate**

**“Doctor of Practice”:
Professional Doctorate**

CHARACTERISTICS OF THE PD TRAJECTORY (1)

- Educates, at the highest level¹, inquisitive professionals that are innovative ‘change agents’ for intervening in complex practical situations, based on practice questions from society or an organization.
- The complexity of the situations is characterised by uncertainty, change, ambiguity, and many interdependent aspects (*‘wicked problems’*).
- Typical (phased) activities:
recognise – articulate – investigate – design – test – implement – evaluate

¹ Highest level (8) of the EQF: European Qualifications Framework for lifelong learning

CHARACTERISTICS OF THE PD TRAJECTORY (2)

- A Professional Doctorate will take a candidate **3-5 years** to finish,
- typically part-time
- Candidates should be allowed to spend at least **3 days a week** on the PD
- PD candidate has work experience and the PD trajectory is carried out in a **work context**.
- A national **Graduate Committee** will closely monitor each PD candidate
- 2 UAS professors will act as **supervisors** to a candidate

CHARACTERISTICS OF THE PD (3)

- Instead of a thesis, the results of the PD will be reflected in a **portfolio of professional products**, including at least **one professional publication** and **one (applied) scientific publication**
- The PD will be granted after the **defense in the form of a ‘mini conference’** in which the candidate is confronted with questions by **representatives from science, profession, practice domain, and society**.

DIFFERENCES WITH PHD (1)

	UAS-PD	PhD
Characterisation	Professional degree programme training students to be inquisitive professionals that learn to make interventions in complex business practices	Academic programme training students to become academic researchers that learn to do scientific research independently
Proceeds	Creating generic new practical knowledge, processes and products for realising and validating interventions in complex issues	Creating generic new conceptual knowledge contributing to a scientific knowledge basis and extending the boundaries of the area of science
Main way of learning	Learning on-the-job as a result of the candidate working on a real-life issue, and learning to develop, assess and if possible, implement interventions	Learning as a result of the candidate carrying out a major scientific research
Role of modular courses	Supports learning on-the-job. Total of modular courses: 30-60 credits	Supports acquiring academic skills. Number of credits varies
Admission requirements	Relevant master's programme plus relevant experience in the complex professional practice in the same field	Academic master's programme

DIFFERENCES WITH PHD (2)

Technology readiness levels (trl)	TRL	Definition	
	9	Actual System Proven Through Successful Mission Operations	(Market / Gov)
	8	Actual System Completed and Qualified Through Test and Demonstration	
	7	System Prototype Demonstration in Relevant Environment	PD
	6	System/Subsystem Model or Prototype Demonstration in Relevant Environment	
	5	Component and/or Breadboard Validation in Relevant Environment	
	4	Component and/or Breadboard Validation in Laboratory Environment	PhD
	3	Analytical and Experimental Critical Function and/or Characteristic Proof-of-Concept	
	2	Technology Concept and/or Application Formulated	
	1	Basic Principals Observed and Reported	

THE PD PILOT IN THE NETHERLANDS

- Initiated in 2019 on national level
- 7 Clusters: Sustainable Energy; Health; Leisure, Hospitality and Tourism; Maritime Industry; Arts & Creative Industry; Education; **Technology & Digitization**
- Pilot was presented and confirmed by the Dutch Minister of Education, Culture, and Science on June 13, 2022
- PD Graduate Network starting in 2023
- Cluster Technology & Digitalisation starts with 5 UAS's



THANK YOU KINDLY
FOR YOUR ATTENTION!