



EMERGING TECHNOLOGY DESIGN

AN INTRODUCTION

GENERAL INFORMATION

- 3 Years Bachelor IDE
- 2 Years Master IDE
- 350 bachelor / 200 master students

UNIVERSITY
OF TWENTE.

MASTER IDE

BACHELOR

- Skills and knowledge
- Scientific
- Broad spectrum
- Clearly defined

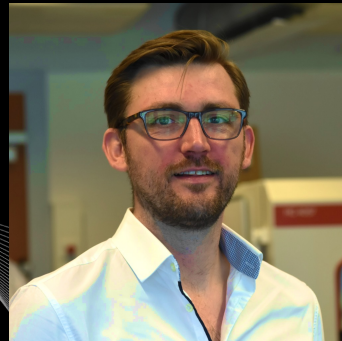
MASTER

- Knowledge and research
- Scientific depth
- Specialized field
- Many options

HOW TO CHOOSE YOUR INDIVIDUAL STUDY PROGRAMME?



MOPD
DR. IR. D. LUTTERS
(ERIC)



ETD
Dr. D.T.A. MATTHEWS (DAVE)



HTR
DR. A. KARAHANOGLU
(ARMAGAN)

Tracks

Management of Product Development

(MOPD)

Emerging Technology Design

(ETD)

Human Technology Relations

(HTR)

UNIVERSITY
OF TWENTE.

MASTER IDE

DESIGN

HUMAN FACTORS

ENGINEERING

ONE DIPLOMA FOR ALL TRACKS



EMERGING
TECHNOLOGY
DESIGN
MERGING
TECHNOLOGY &
DESIGN



EMERGING TECHNOLOGY DESIGN

MASTERTRACK INDUSTRIAL DESIGN ENGINEERING

“DESIGN ENGINEERING SOLUTIONS FROM EMERGING TECHNOLOGY”

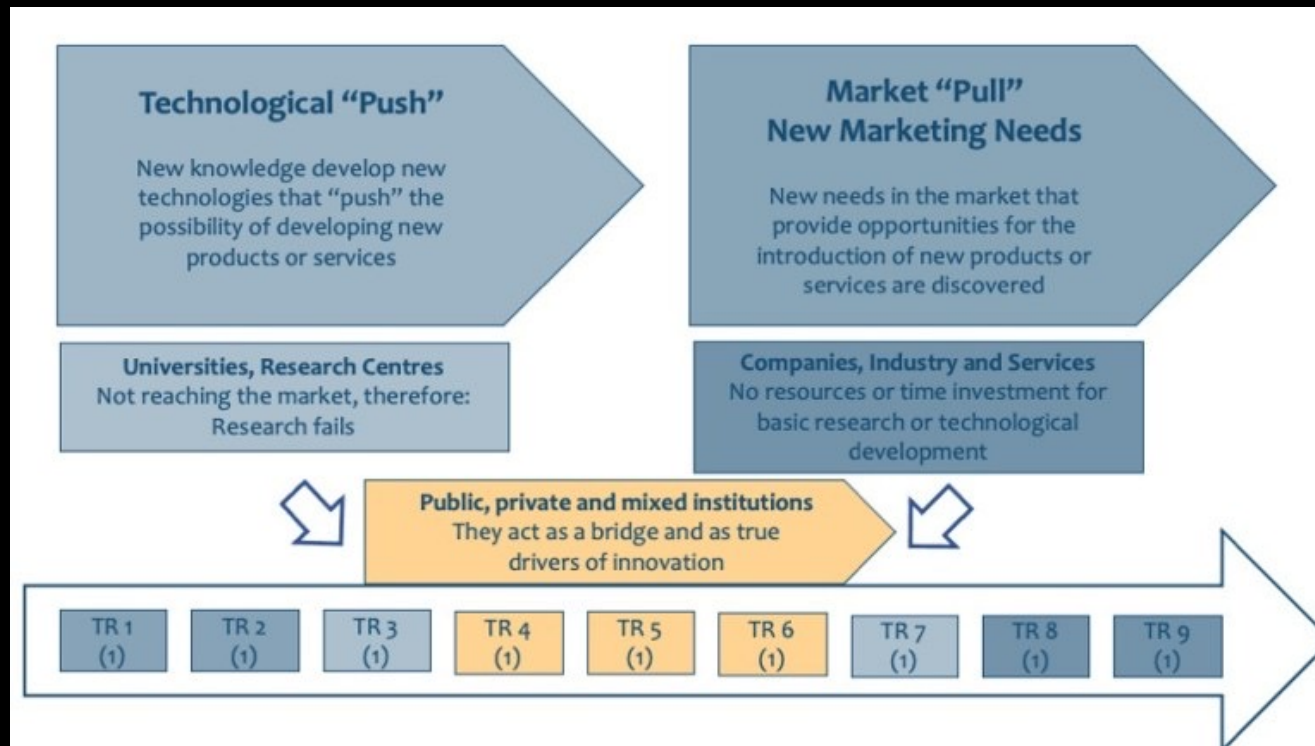
Making technology available for users

Keywords: design, research, engineering technology

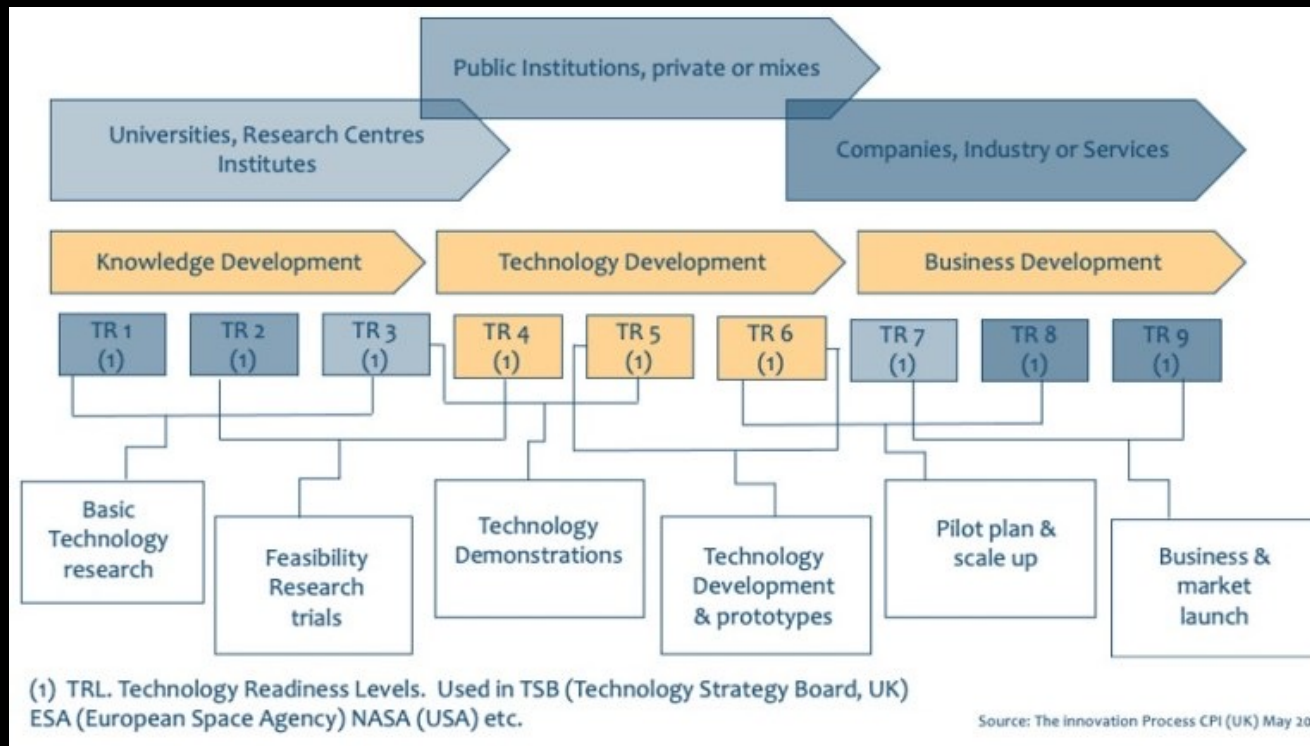
WHY?

- Product development and Innovation Models...
 - Lots of terms...
 - TRL (Technology Readiness Level)
 - Technology Push
 - Market Pull
 - Gartner Hype Cycle
 - Innovation valley of death

THIS IS WHERE PRODUCT DEVELOPMENT OFTEN FAILS



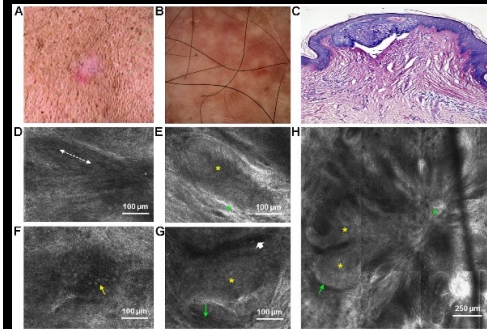
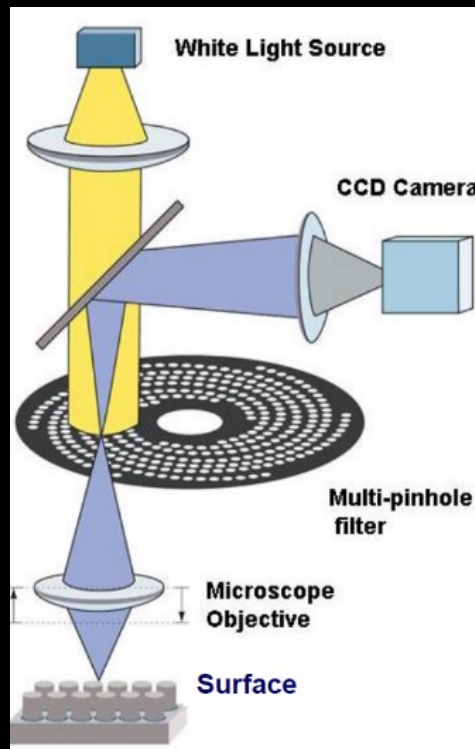
ETD AIMS TO BRIDGE THAT GAP





EMERGING TECHNOLOGY DESIGN

CONTEXT



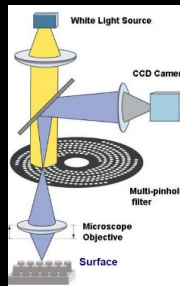
doi.org/10.3892/ol.2016.4354

•[10.2217/mmt-2018-0001](https://doi.org/10.2217/mmt-2018-0001)



EMERGING TECHNOLOGY DESIGN

CONTEXT



dermnetnz.org

You like to:

- understand new technologies → make them available for society
- convert recently published theories/technologies to new products or implement in existing products
- integrate technology and design
- In short: **be the bridge between research environments and market/industry**

MASTER IDE

Course 1 5EC
Course 2 5EC
Course 3 5EC

Course 4 5EC
Course 5 5EC
Course 6 5EC

Course 7 5EC
Course 8 5EC
Course 9 5EC

Course 10 5EC
Course 11 5EC
Course 12 5EC

Course 13 5EC
Course 14 5EC
Course 15 5EC

MSc. Assignment 45 EC
(INTERNAL OR EXTERNAL)



ETD THEME SPECIALISATIONS

SUSTAINABLE TECHNOLOGIES FOR PRODUCT DEVELOPMENT

BIOMEDICAL PRODUCT DEVELOPMENT

ADVANCED MATERIALS ENGINEERING

PRODUCTS & SURFACES

SMART ENVIRONMENTS & VIRTUAL REALITY

STRUCTURAL DYNAMICS, ACOUSTICS & CONTROL

ONE TRACK – SIX PROGRAMMES

CONTACT PERSONS



Dr. Bor
AME



Dr. Leemans
BPD



Dr. Matthews
ProSurf



Prof Bonnema
SE&VR



Prof. Rosic
'SDA&C'



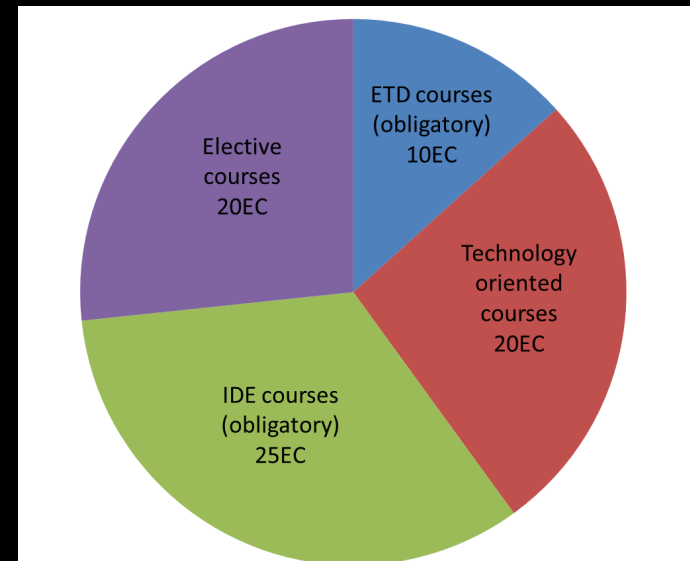
Ir. Toxopeus
STfPD

INDIVIDUAL STUDY PROGRAMME ETD

Courses (75 EC, equals 5 quarters)

- ETD courses (mandatory) (10 EC)
- Technology oriented courses (20 EC)
- IDE courses (25 EC)
- Elective courses (20 EC)

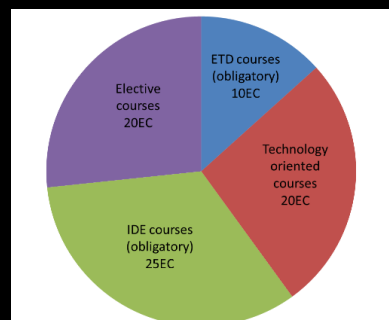
Master Assignment (45 EC, or 3 quarters)



ISP

PRE-DEFINED PROGRAMMES

- Enroll as IDE ETD
- Enroll to canvas site:
IDE Master track Emerging
Technology Design
- Latest version of the ISP
can be found at the canvas site



UNIVERSITY OF TWENTE

EMERGING TECHNOLOGY DESIGN

Individual Study Programme

ETD

Problem(s)

Does not include ETD in the ID

Does not include ETD course in the ID

Does not include selected courses in the ID, except those in column

Does not include ETD course in the ID

First name

Surname

Date

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Enter your user name

Enter your first name (last name)

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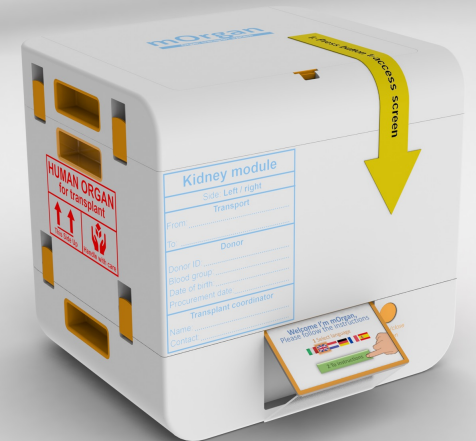
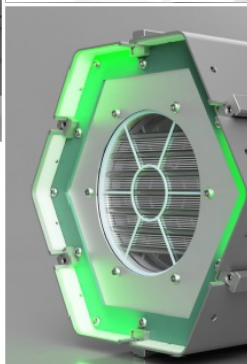
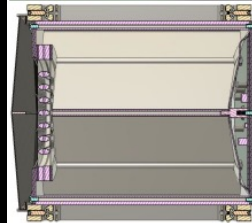
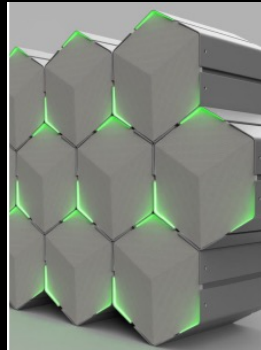
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SOME EXAMPLES OF PRODUCTS DEVELOPED IN MASTER ASSIGNMENTS



ADVANCED MATERIALS ENGINEERING

THE DESIGN AND DEVELOPMENT OF AN INNOVATIVE DISCONTINUOUS AND CONTINUOUS REINFORCED HYBRID COMPOSITE MATERIAL



How to develop a near-net-shape material leading to a better formable laminate sheet using quick and easy processing methods

Ackelien Hageman

BIOMEDICAL PRODUCT DESIGN

THE MORGAN, NEXT LEVEL ORGAN PERFUSION

transport system for
transplant organs
that enables
perfusion of organs

cooperation with
Dutch transplant
centres

perfusing the organ
during transport
conditions positively
affects the quality
of the organ



Frank Timmerhuis

PRODUCT AND SURFACES

DESIGN AND FABRICATION OF A BIOMIMETIC LIFTING AID

The lifting aid anchors itself on rough surfaces and can resist great transverse forces - just like an octopus.



Tjitte de Wolff / DDW 2017

SMART ENVIRONMENTS & VIRTUAL REALITY

THE DRIVERS INCHARGE – THE ROLE OF CHARGING INFRASTRUCTURE IN THE DIFFUSION OF ELECTRIC VEHICLES IN NORWAY



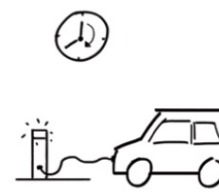
figure 7.2 Situations wherein drivers need information about the charging infrastructure



Planning a trip from A to B. When a journey exceeds the range, the *Norsk Elbilforening* advises to have at least a plan B.



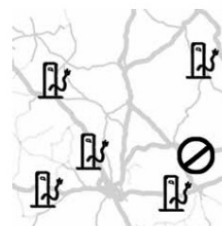
Find the exact location of the charging facility; most chargers are quite anonymous.



Find out what facilities are nearby the charging points, so that waiting time can be enjoyed or spend useful (especially during fast charging).



During a trip: find a charger near to you. Many drivers find it convenient to charge their car, even though they can travel back home without charging.



A charging point is (temporary) out of order. This information could be crucial for drivers to rely on the infrastructure.



You cannot use the planned charging point, because it is in use, out of order et cetera.



A new charging facility is established. This information might be helpful for the driver to extend the electric car usage.



Bonus

Citizens considering to buy a electric vehicle, often explore the travel possibilities on for hand. Is the range of the electric car sufficient for me?

Noortje Naeff

STRUCTURAL DYNAMICS, ACOUSTICS & CONTROL

A SOUND BEAM PRODUCT FOR BANG & OLUFSEN

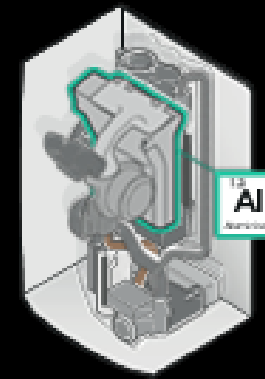
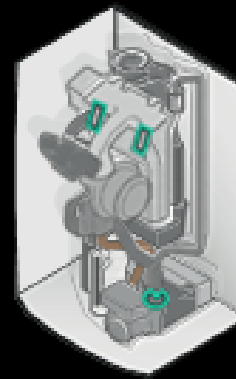
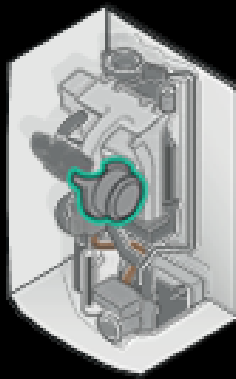
Design and development of a product in which the sound panels are placed in a horizontal overhead position



Marianne Bos

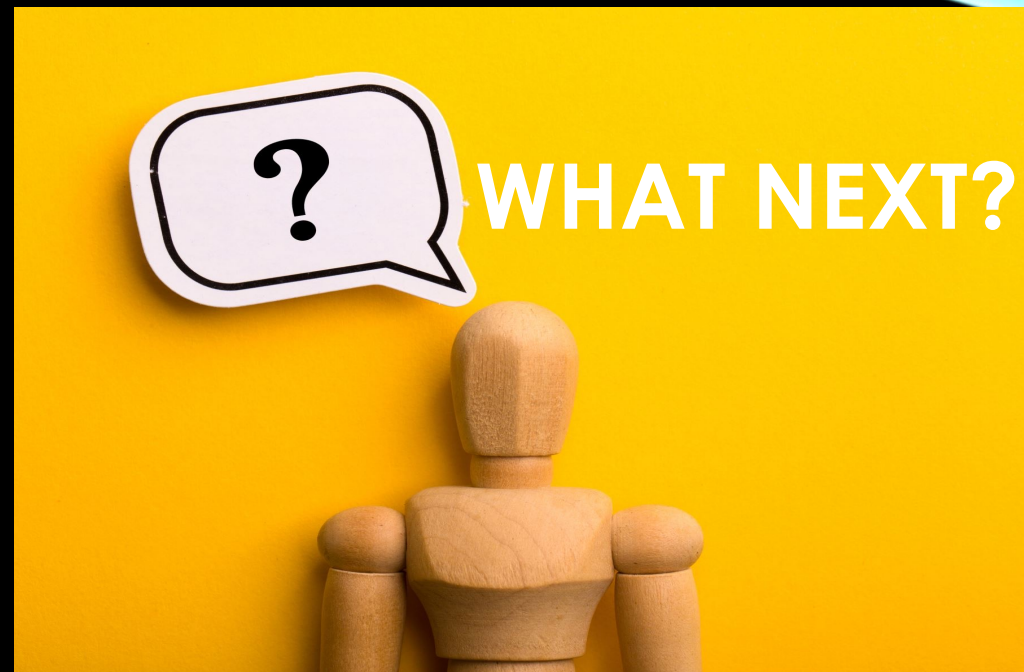
SUSTAINABLE TECHNOLOGY FOR PRODUCT DEVELOPMENT


DEVELOPING A DEDICATED TOOL TO SUPPORT THE DEVELOPMENT OF DOMESTIC BOILERS FOR A CIRCULAR ECONOMY



Niek van den Hout

- INDUSTRIAL DESIGNER
- PRODUCT ENGINEER
- RESEARCH & DEVELOPMENT ENGINEER
- INNOVATION SPECIALIST
- INNOVATION DIRECTOR





EMERGING TECHNOLOGY DESIGN

MAKE TECHNOLOGY WORK FOR SOCIETAL BETTERMENT

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