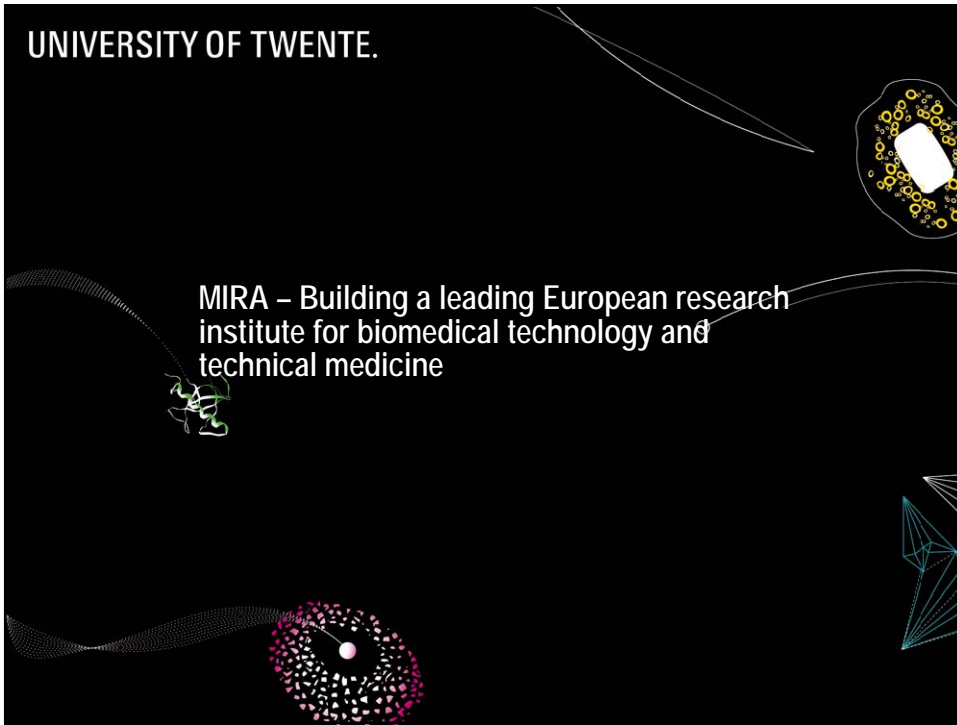
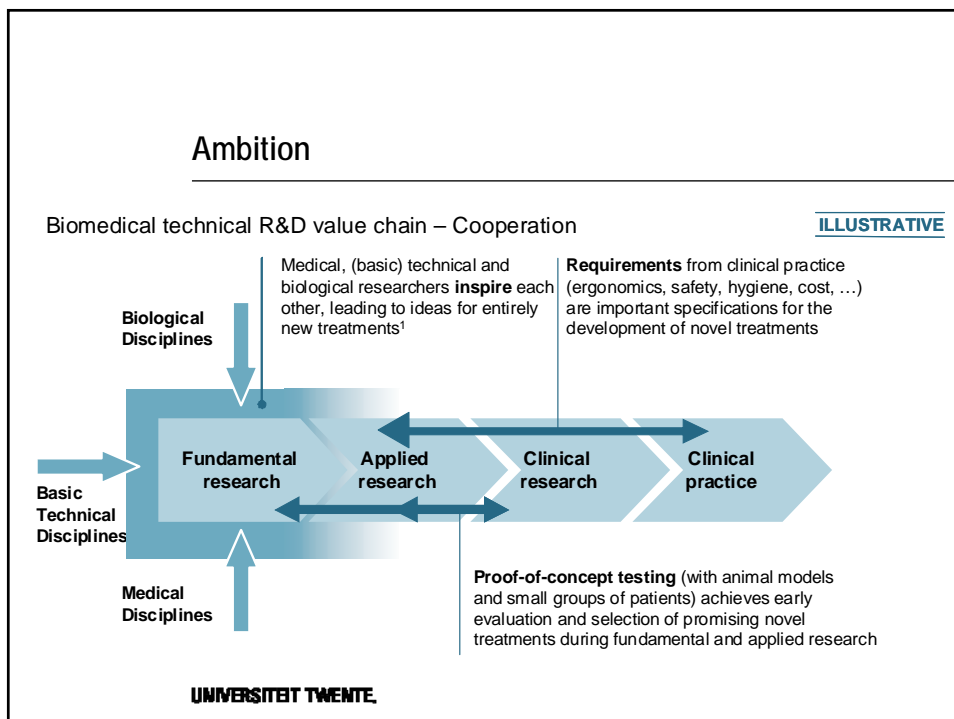
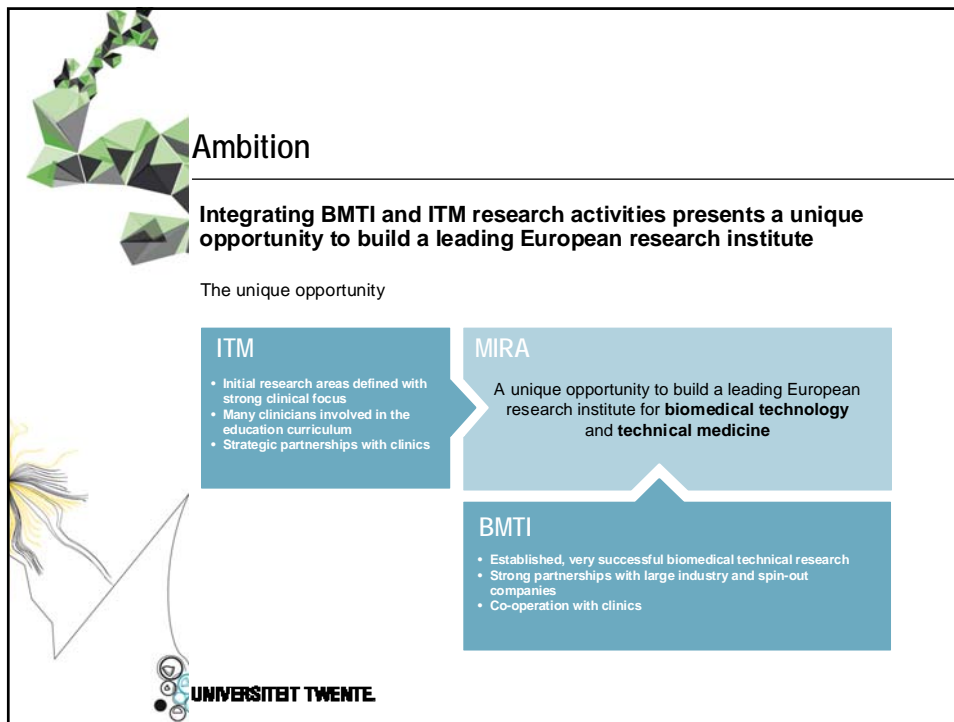


UNIVERSITY OF TWENTE.

MIRA – Building a leading European research
institute for biomedical technology and
technical medicine



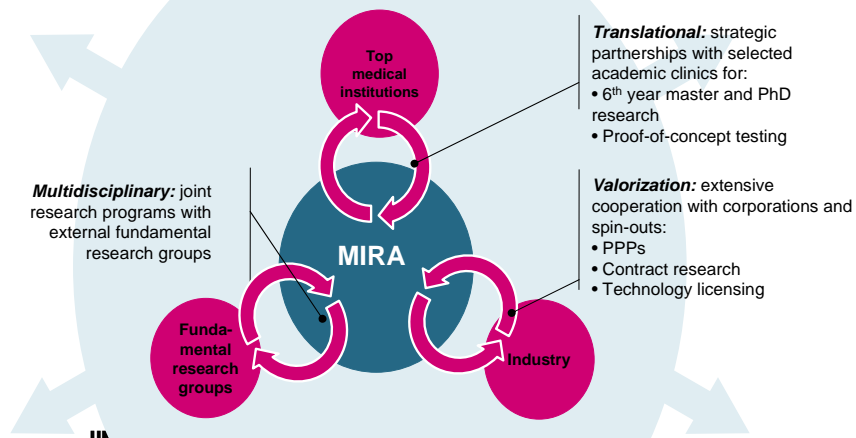
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1 AMBITION

MIRA will achieve its ambitions through intensive strategic partnerships with the most excellent external parties

MIRA's network of partnerships [TOMORROW]



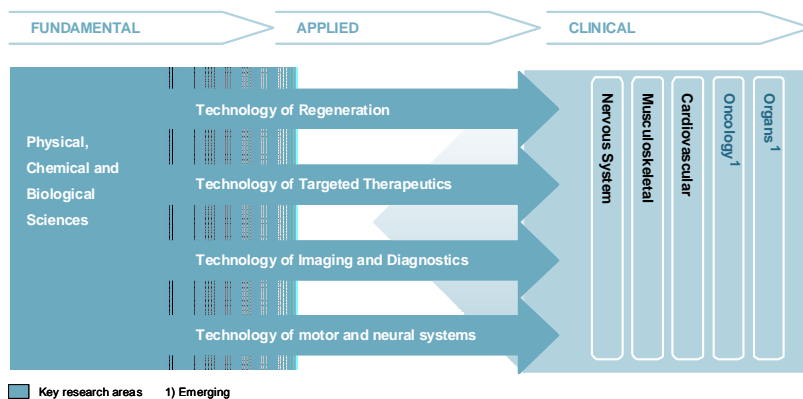
Source: University of Twente

5

4 strategic research orientations

MIRA Strategic Research Orientations

ILLUSTRATIVE

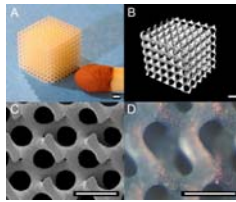


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Some examples...

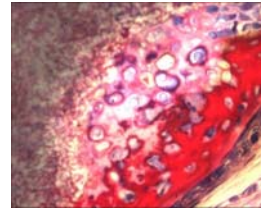
Tissue Regeneration

- Biodegradable stereolithography of tissue engineering scaffolds



Tissue Regeneration

- Bone generation from embryonic stem cells



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Some examples...

Diagnostics and imaging

- Prix Galien USA for spin-off Veridex
- Detection of circulating cancer cells
- Faster evaluation of the effect of cancer treatment



Motor and neural systems

- 'Intelligent shoe'
- Detection of walking patterns



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Value creation

> 40 fte

MMS
IsoTis
Xsens



> 10 fte

Ssens
ANT
Baat Medical
Progentix
CellCoTEc
Zebra Bioscience



< 10 fte

Ambroise
Medisse
PoroGen
Mobihealth
Ostendum
Senzair
...



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Talent scouting

145 vacancies

- 13 chairs
 - 5 full
 - 4 clinical
 - 4 entrepreneurial
- 13 tenure tracks
- 39 vacancies from internal funding
- 80 vacancies from external funding

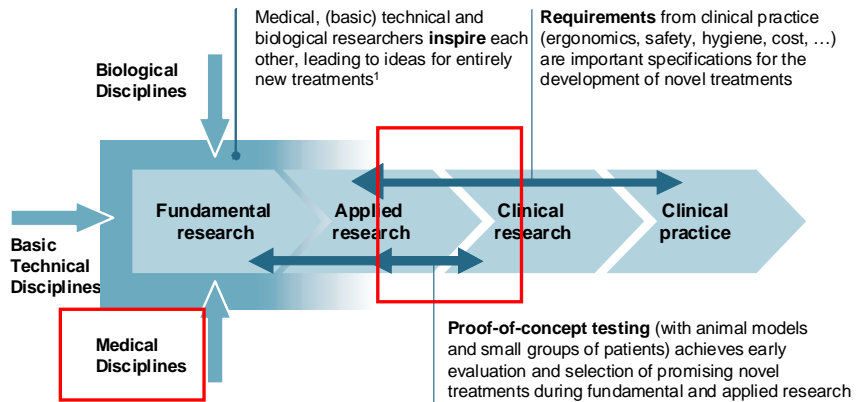
Growth of 250 (in 2009) people to 400 (in 2014)

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Technology and Medicine: communication areas

Biomedical technical R&D value chain – Cooperation

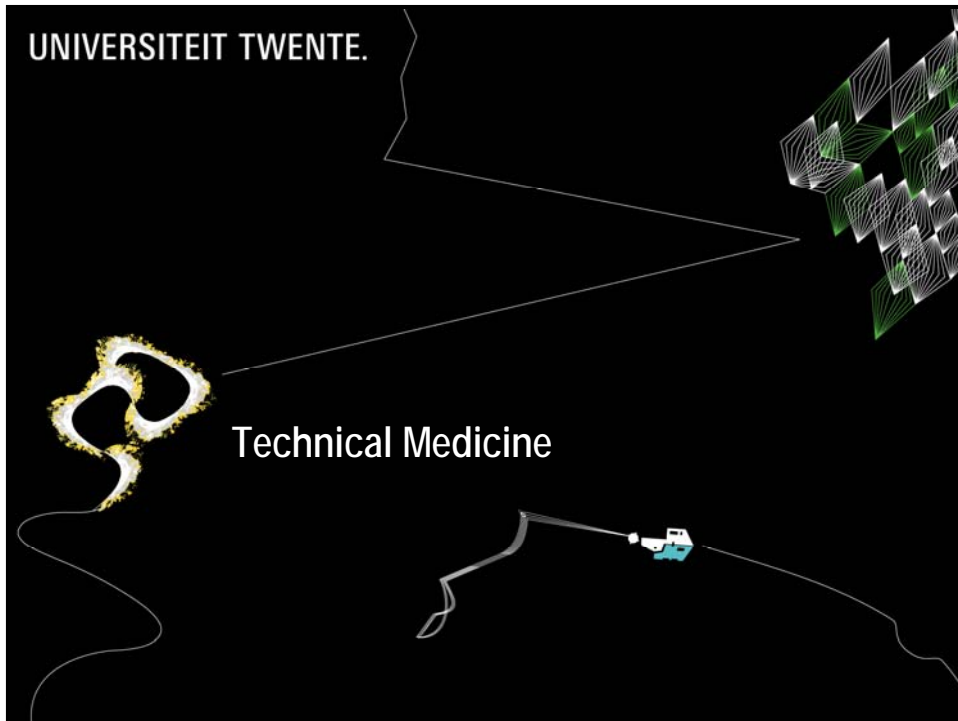
ILLUSTRATIVE




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Technical Medicine






The Start

- Start: September 2003
- Maximal 100 students per year
- 3 year bachelor
- 3 year master
- First graduated MSc in 2009

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Professional Profile

Based on a thorough insight and understanding in the functioning of the human body and relevant technology, a Technical Physician will:

- Perform and optimize complex technical medical interventions
- Design and develop new diagnostic and therapeutic possibilities by use of technology

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Theoretical education

- The human body is considered as a system that consists of several interacting subsystems. From each subsystem, students learn about the:
 - Anatomy
 - Physiology
 - Pathophysiological core concepts
 - Essence of the technology that is used in diagnosis and therapy
- Longitudinal education as foundation and support:
 - Mathematics, Statistics, Epidemiology, MTA
 - Communication & Professional Behaviour, Medical Law, Medical Ethics

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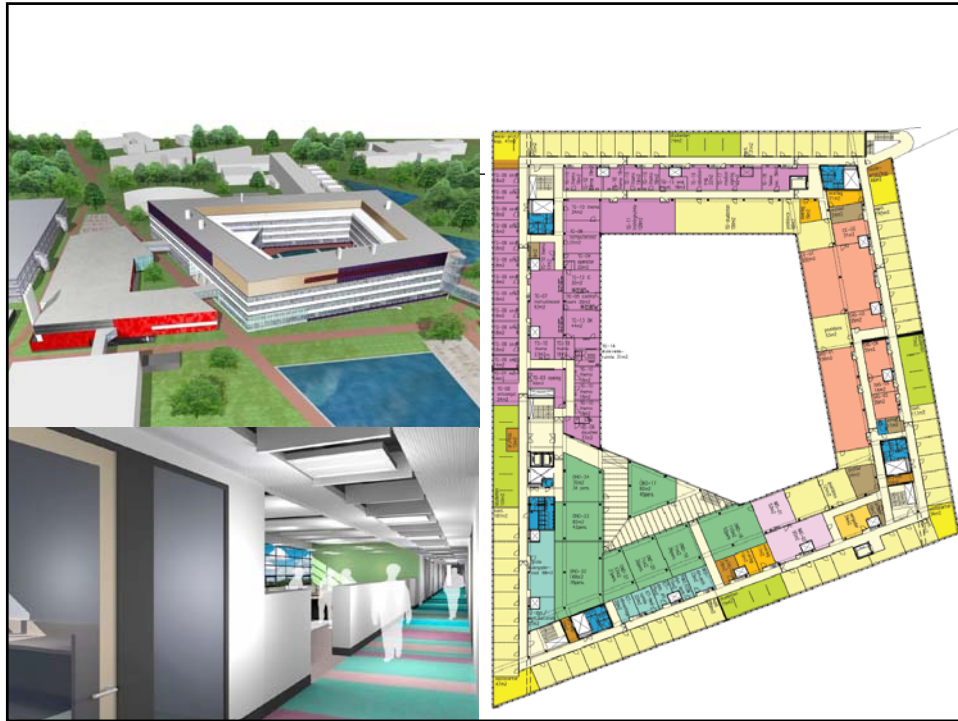
Practical Education

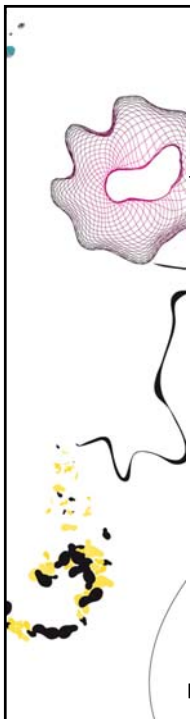
Experimental Centre for
Technical Medicine
(ECTM)

An environment that
stimulates the student
to integrate knowledge,
skills and attitudes.



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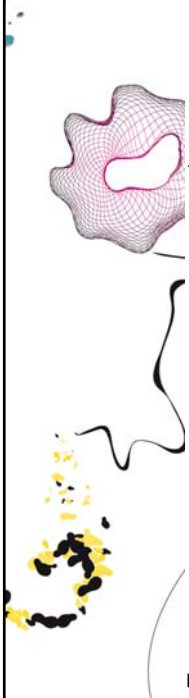




Mastertracks

1. Robotics & Imaging
2. Medical Signaling
3. Reconstructive Medicine

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My involvement in TM education

Bachelor course *Cardiovascular System*

- Physics of ultrasound imaging and Doppler
- Ultrasound imaging
- Doppler ultrasound
- Laser Doppler flowmetry

Bachelor course *Digestive System*

- Geometrical and physical optics
- Technology of endoscopy
- Confocal microscopy

Bachelor course *The Senses*

- Laser-tissue interactions
- Interference/interferometry/optical coherence tomography
- Optics of the eye

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Cooperating Centres – educational program

University Medical Centre Nijmegen University Medical Centre Utrecht Leiden University Medical Centre University Medical Centre Groningen University Medical Centre Maastricht Nijmegen Centre for Neural Sciences Medisch Spectrum Twente Canisius Wilhelmina Ziekenhuis Nijmegen Sint Maartens Kliniek Nijmegen FC Donders Centre for Cognitive Neuroimaging Antonie van Leeuwenhoek Ziekenhuis / NKI Amsterdams Medisch Centrum AMC	Medisch Centrum Leeuwarden Ziekenhuisgroep Twente - Almelo en Hengelo Revalidatiecentrum het Roessingh – Enschede Deventer Ziekenhuizen Isala Klinieken - Zwolle Streekziekenhuis Coevorden / Hardenberg Streekziekenhuis Koningin Beatrix - Winterswijk Slingelandziekenhuis - Doetinchem Getrekekenhuizen te Apeldoorn en Zutphen Meander ziekenhuis te Amersfoort Alysia Zorggroep: Rijnsstate ziekenhuis - Arnhem Reinier de Graaf Groep - Delft
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Ambition

Mission – 2014

**A leading European research institute for
biomedical technology and technical medicine**

MIRA

HIGH SOCIAL & MEDICAL IMPACT

Worldwide top contributor of clinical proof-of-concepts and implementation in biomedical technology to reduce time from "Bench to Bed"

BREAKTHROUGH SCIENTIFIC ACHIEVEMENTS

European front-runner in the annual number of fundamental and applied biomedical technology publications in leading journals and peer references
(300 publications per year with an average impact score of 3.0)

LEADING ECONOMIC VALUE CREATION

- At least 15 patents granted annually
- At least 3 successful spin-out businesses (> 15 FTE within 5 years)

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