UNIVERSITY OF TWENTE.

New Engineering

teaching and learning at the interface of technology and social science

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engineering university

engineering: designing solutions to problems in the technical sciences, but also the social sciences.

University College Twente

University College on the interface between the natural and social sciences.

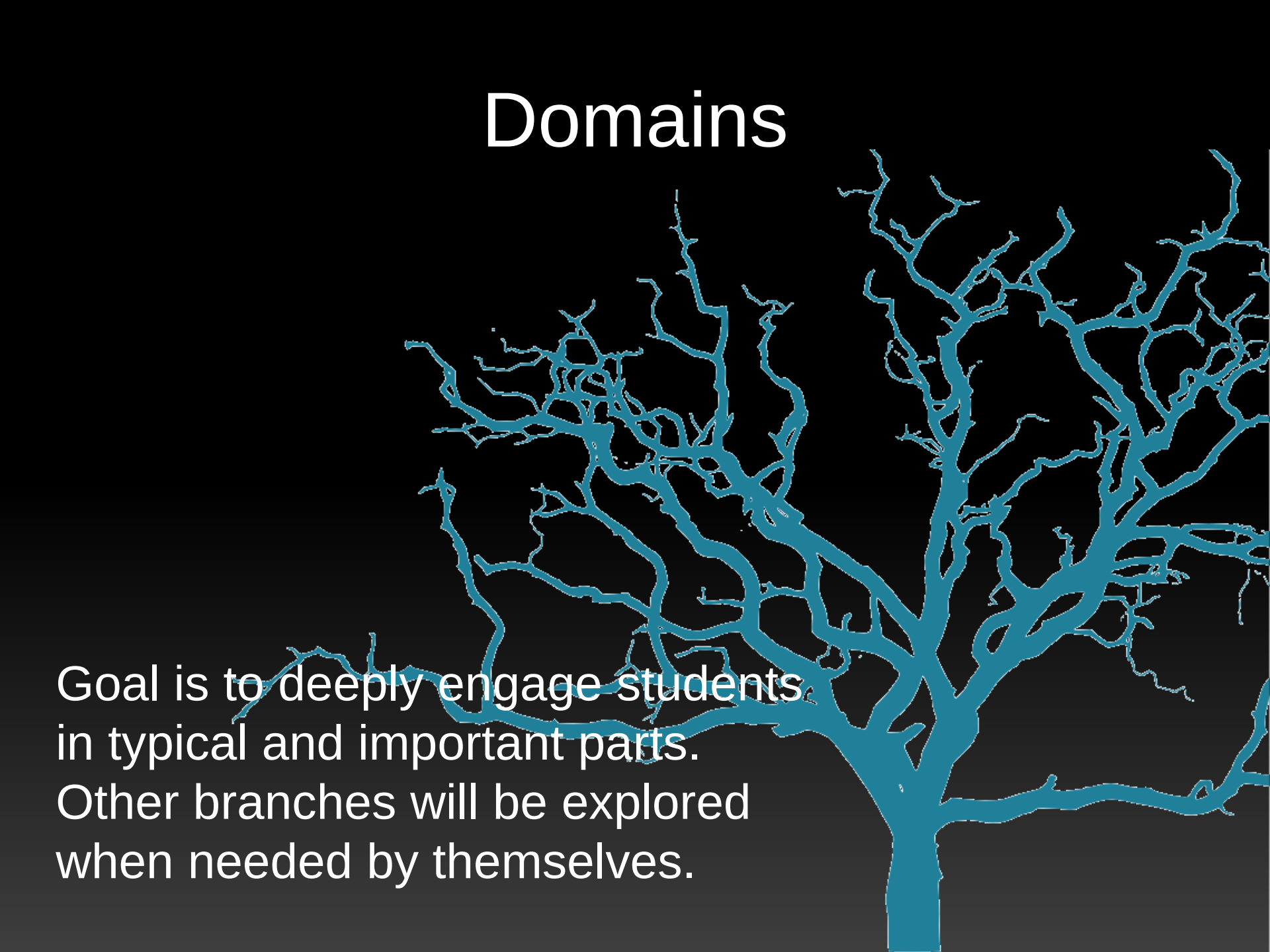
Domains

Social sciences

Maths

Natural sciences

Domains



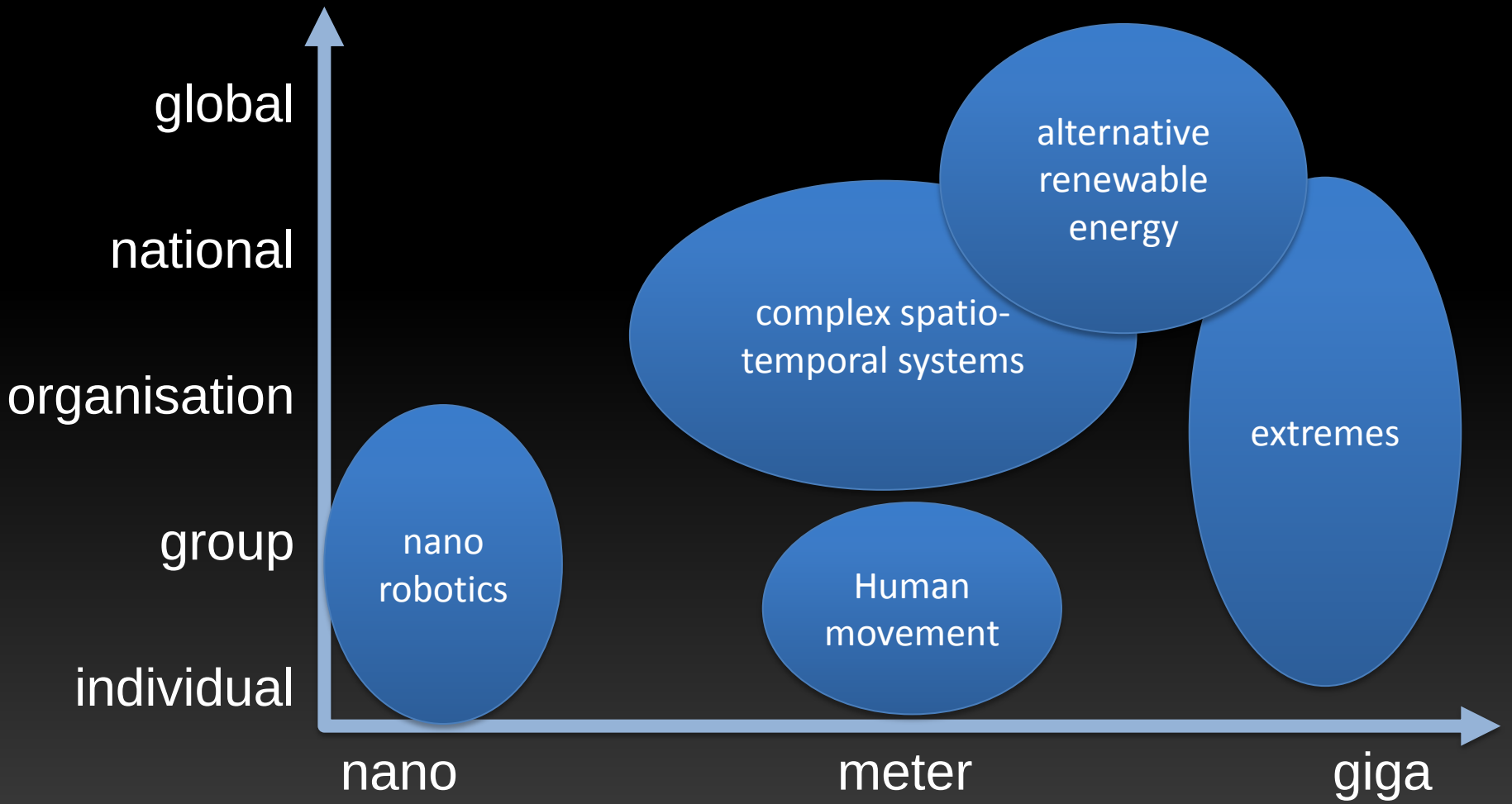
Goal is to deeply engage students in typical and important parts. Other branches will be explored when needed by themselves.

Learning Lines

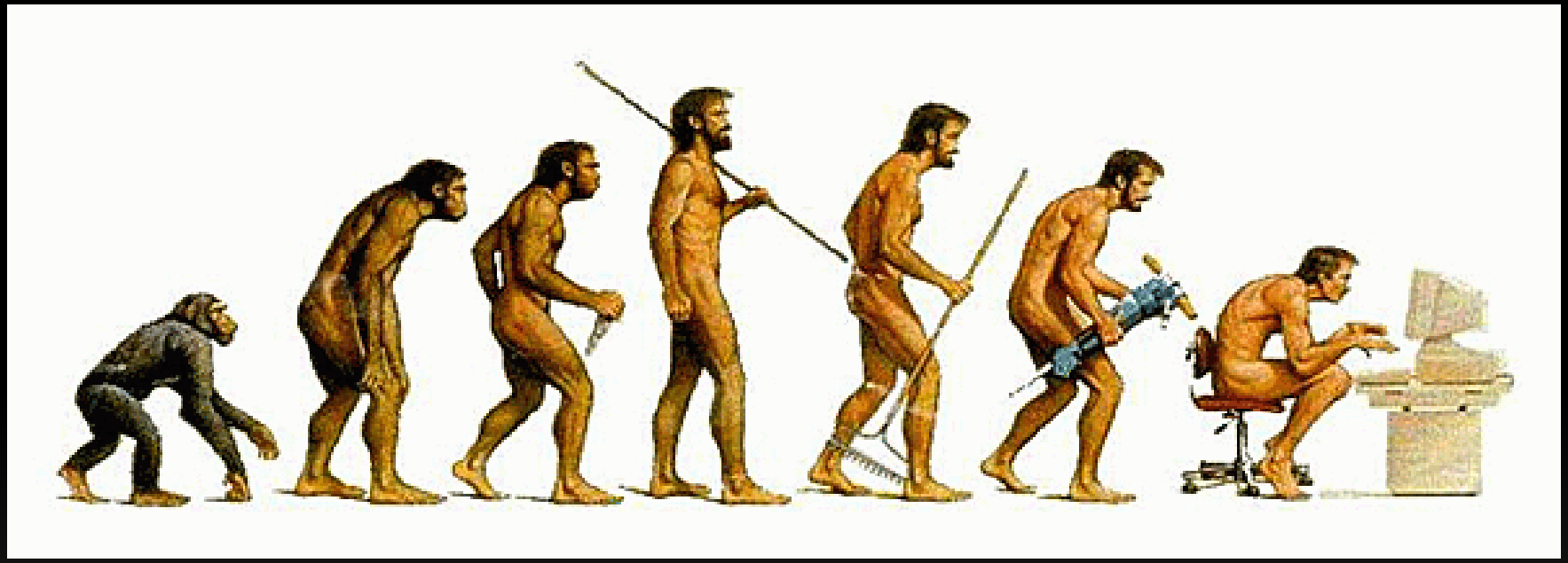
Design	**Research**	**Organization**
Communication	**Interdisciplinarity**	**Learning capacity**

Not as separate entities but integrated.
e.g. in the science domains: assignment where students design or research something and communicate about that to us.

Project


global
national
organisation
group
individual
nano
meter
giga
alternative renewable energy
complex spatio-temporal systems
extremes
nano robotics
Human movement

Example: first semester



Design a tangible product that can be used to get all vocational level high school kids to move more.

Important aspects

- Real world problem
- Real world target group
- Real world product

- Relates to domains and learning lines

Domains

Math:
- Modeling
- Differential equations
- Optimization
- …

Social:
- Psychology
- Group behavior
- Motivation
- …

Physics:
- Movement
- Force
- Energy
- …

Learning Lines

Design

Design a system
Integrate technical and social aspects
…

Research

Literature search
Data collection
Data analysis
Data validation
…

Organization

Planning
Teamwork
Team conflicts
Group dynamics
…

Communication

Write manual
Write project report
Give presentations
…

Interdisciplinarity

Measurements in technical and social sciences
Integrate technical and social aspects

Learning capacity

Individual learning styles
Control of own learning
…

Route

- Literature research
- Interviews with the target group
- Functions and requirements
- Concepts
- Building of prototype
- Technical & social testing prototype

Products

Floor Fest

The Wall


975

Achieved inclusion of goals

- Social science good
- Maths bad
- Physics barely

- Research moderate
- Design good
- Organisation good
- Communication good
- Interdsiciplinarity moderate
- Learning Capacity good

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