IGNITION

European Digital Literacy Coalition for Inclusion, Collaboration and Inclusion in Higher Education

Challenge Based Learning Experience at Hanze University of Applied Sciences: Innovation Work Place and Momentum pilot

Learning Teaching and Training Activity

Waterford, March 15, 2023

Hanzehogeschool Groningen University of Applied Sciences

SETU Ollscoil Teicneolaíochta an Oirdheiscirt South East Technological University

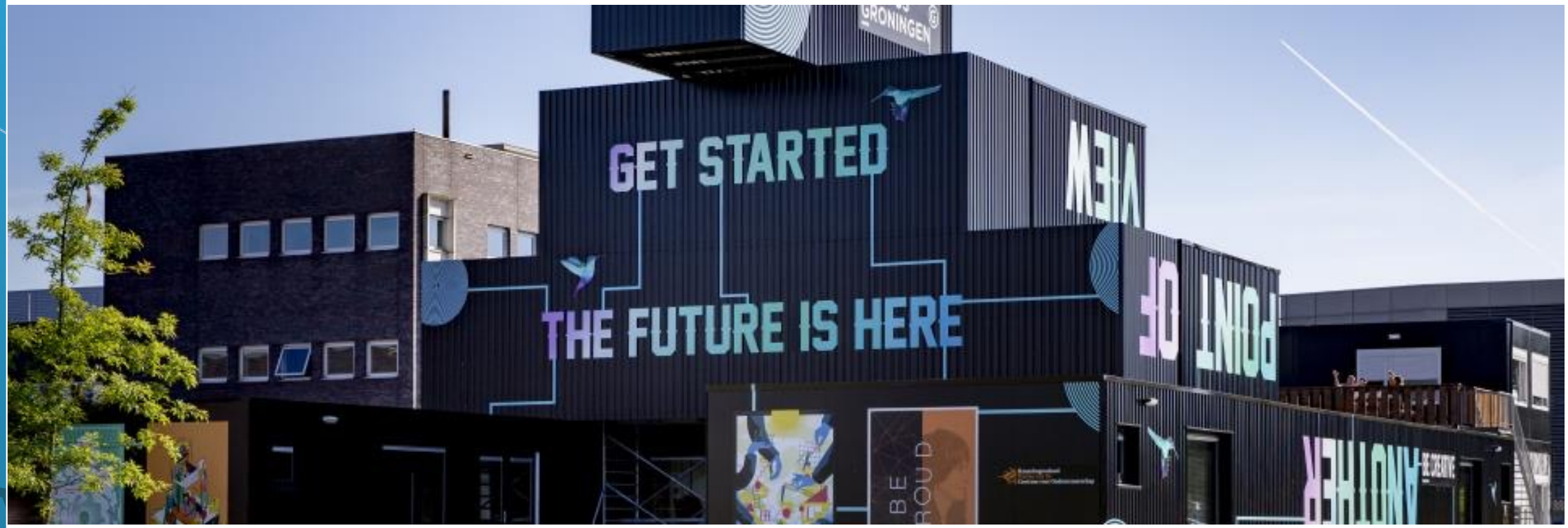
ipb Instituto Politécnico de Bragança

HSB Hochschule Bremen City University of Applied Sciences

Co-funded by the European Union

Who are we: Hanze UAS

Engaged university, engaged learning

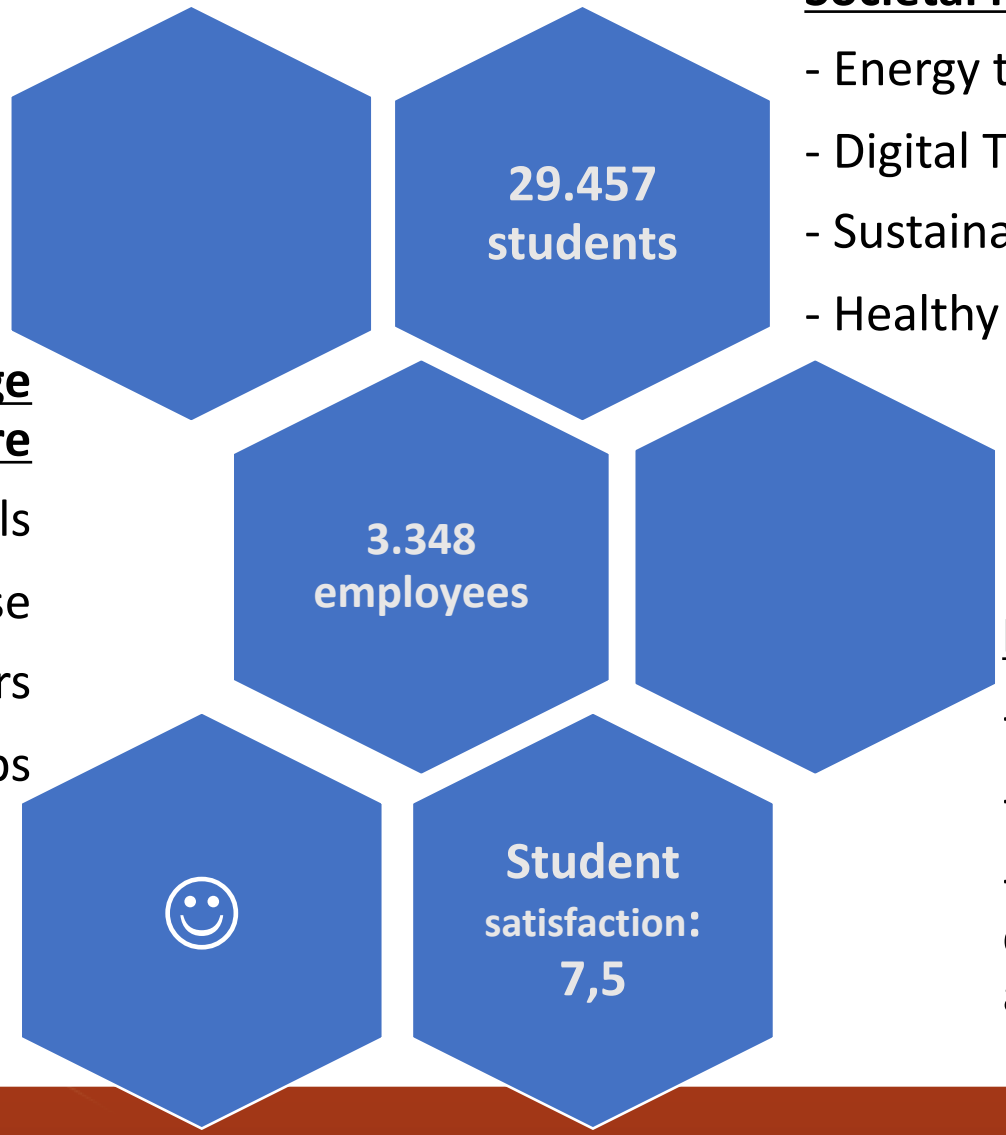


Engaged learning with the region is needed for complex ‘wicked’ problems derived of societal challenges: (healthy) ageing population, climate crisis, (digital) exclusion and inequality, housing, pollution, increased mobility, …

Hanze UAS in data

Societal missions:

- Energy transition
- Digital Transformation
- Sustainability
- Healthy Ageing



Knowledge infrastructure

- 18 schools
- 3 centers of expertise
- 3 knowledge centers
- 42 research groups

Innovation:

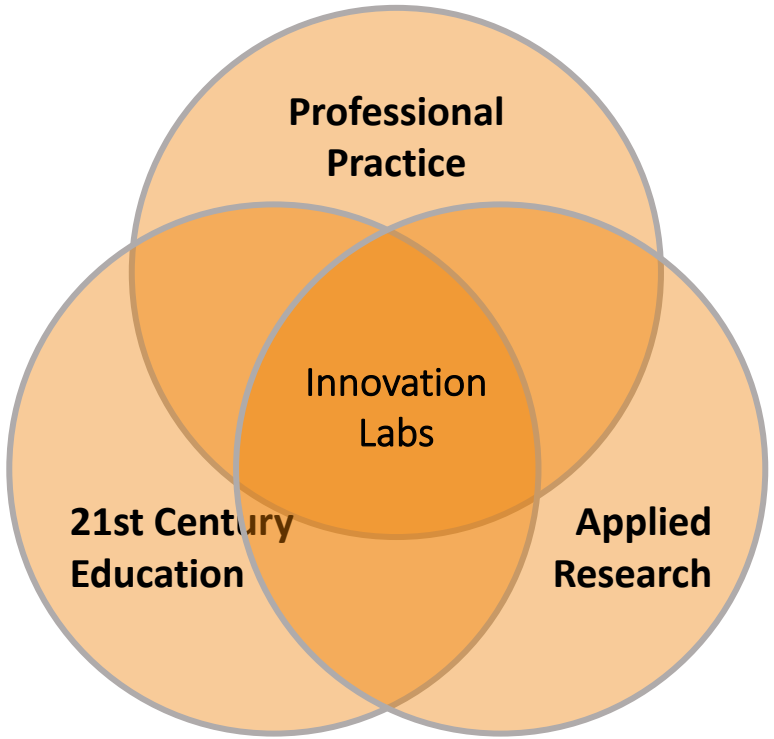
- 100 Innovation labs
- >500 startups
- 569 strategic collaborations with firms and external organizations

From a knowledge economy towards knowledge circulation

"Most impact on Innovation and Regional Development is expected from Universities of Applied Sciences"

Report on a Learning Economy (Scientific Dutch Council 2013)

What does this mean for HUAS?
From a teaching to a learning community



- Contributions to Society: addressing challenges and **complex problems**
- University – Business **Collaboration**
- Increased **integration** of practice into education & research
- Learning outcomes AND project results: **regional impact**
- Students **learn**; teachers **learn**; professionals **learn**

What does this mean for HUAS?
From a teaching to a learning community

Strategic plan 2016-2020
Hanze University of Applied Sciences

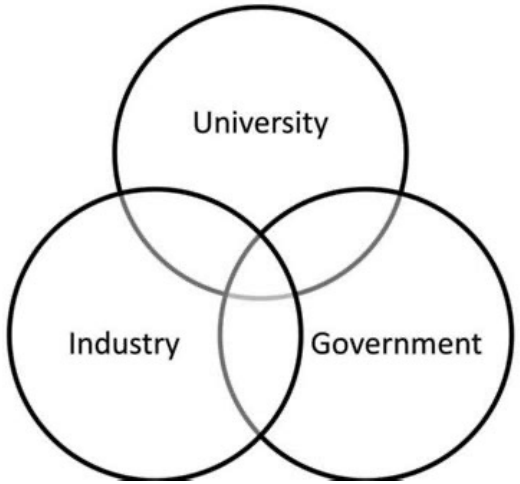
- **“In 2020, every student will contribute – at least once – a semester to an Innovation Lab”**

This means that each semester 3000-3500 students will share their talent with the region

Learning community -> innovation lab => CBL

Triple helix model

(Etzkowitz and Leydesdorff 1995)



"Challenge Based Learning is an engaging **multidisciplinary** approach to **teaching and learning** that encourages students to leverage the **technology** they use in their daily lives to solve **real-world problems**. Challenge Based Learning is **collaborative** and hands-on, asking students to work with peers, teachers, and experts in their **communities** and around the world to **ask** good questions, develop deeper **subject area knowledge**, accept and **solve challenges, take action**, and **share** their experience" (Nichols & Cator, 2008, p. 1)

-> the Apple definition, still valid in HE adding key words of **critical thinking** and **critical doing** (Leijon et al, 2021)

How do we organize CBL at Hanze?

Curriculum

Challenges, once identified, are fit in into the learning outcomes of school's programs and follow a design research based or intervention cycle based curriculum

Learning products

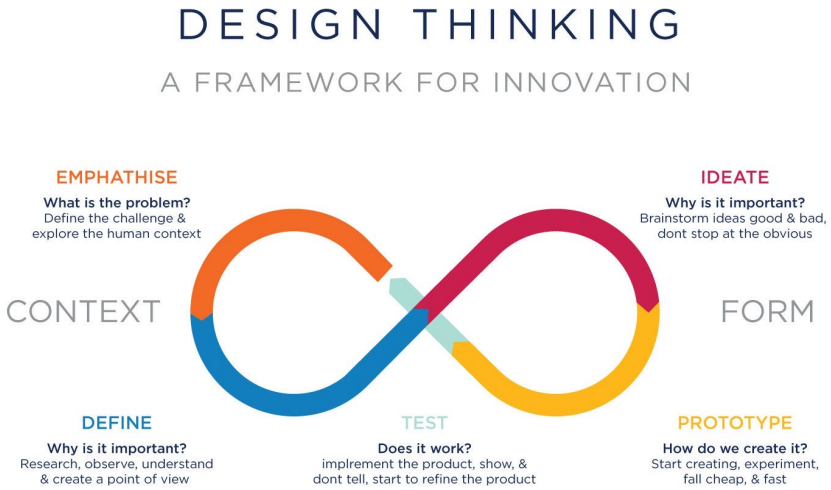
Student teams collaborate with the challenge owner and other stakeholders and deliver products such as:

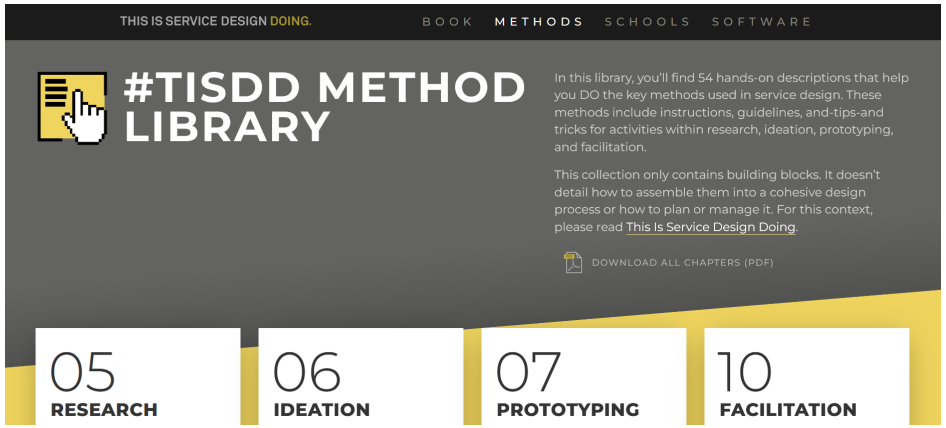
- Design paper
- Prototype (paper or digital)
- Business case
- MVP of the solution
- Intervention plan / policy
- Communication strategy
- Etc.

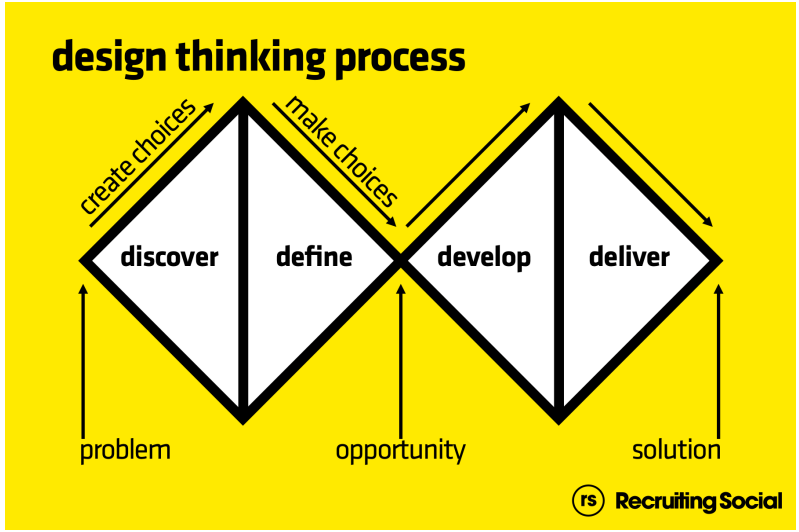
Methodology

Design research:

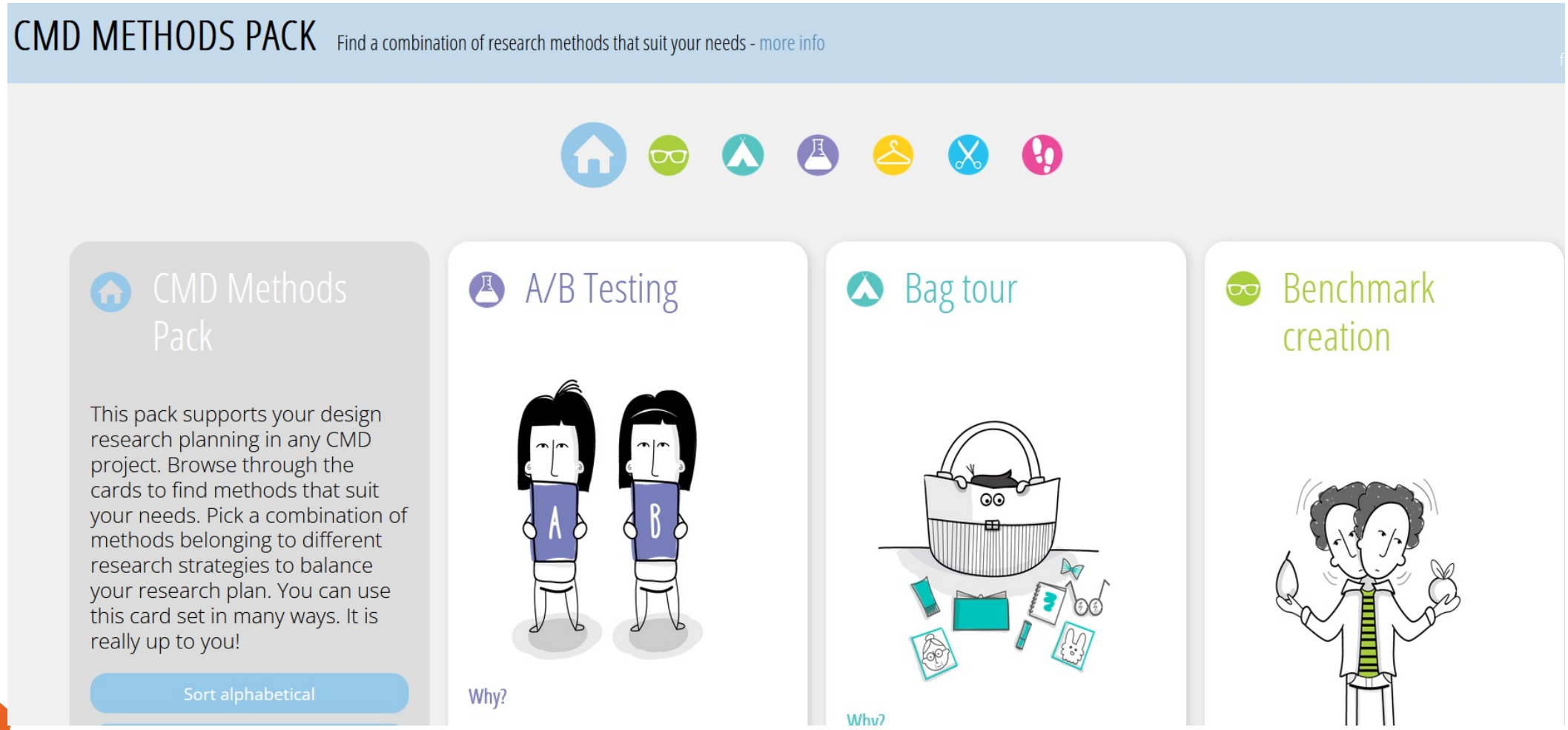
- Exploration
- Ideation
- Concepting
- Prototyping
- Evaluation



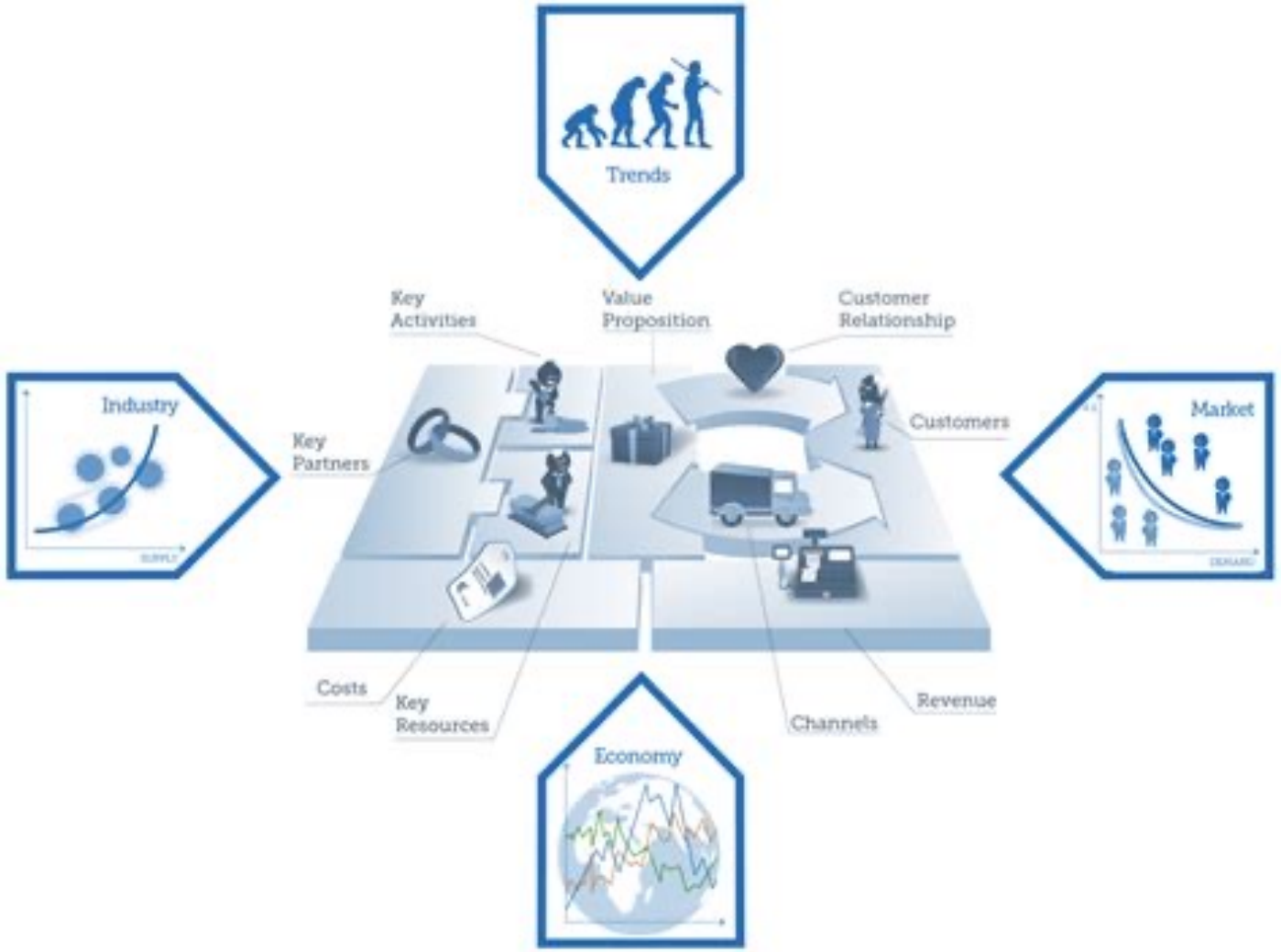


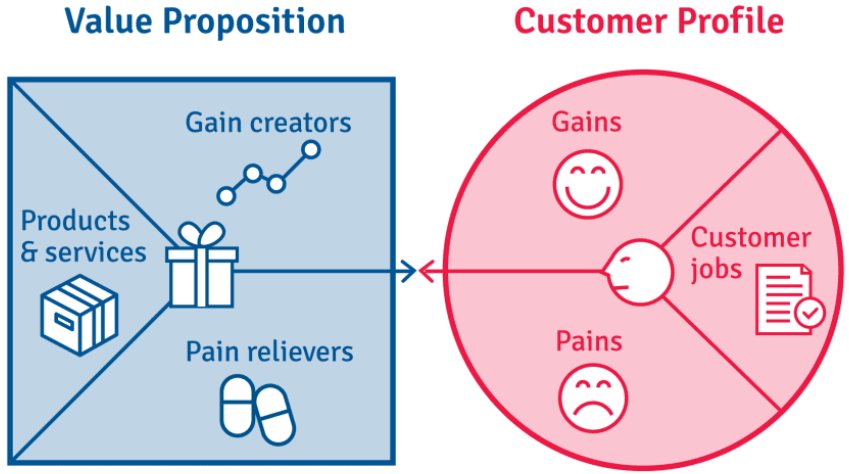


Tools: design driven



Tools: business driven approach





CBL at the CMD program: characteristics

- Learning - expertise and professional attitude
- Reflect, in coaching and assessments
- Challenges (open in most cases, societal impact)
- Innovate
- Experiment
- Explore context of use & domain
- Collaborate
- Individual responsibility

Coaching

- 2X3 hours weekly
- All groups and coaches are in class during those hours for coaching and project work, shared topics to discuss.
- In classrooms, pair of coaches
- Workshops (week 3 and 6)
  - exploration/design research
  - concepting
- Individual talks with coach
- Formative assessments (research & design posters)

Learning as assessment

- Formative P1/2:
  - 3 research posters, prototype sessions
  - Weekly coaching sessions

- Summative P2:

Individual Criteria Based Interview with input from:

  - observations during coaching per project coach
  - final prototype
  - 3 individual research posters
  - Individual reflection report, based on IWP Learning outcomes
  - Individual supporting portfolio (design informing materials: e.g. with index hyperlinking, approach, feedback, indiv. results, indiv. analysis). Examples follow.

Challenges on CBL

Lecturers:

- Change of roles: from lecturer to facilitator
  - from expertise towards (design) process
- Assessment as learning -> constant feedback and evidence building of competence development

Students:

- Dealing with multiple stakeholders: client, problem owner, target audience, experts, coaches -> higher consultancy skills: communication, collaboration, leadership
- Learner's agency

To make it more challenging: in 2020 we had to move online!

Pilot Spring 2021: *Challenge Based Innovation in a 3D collaborative learning environment*

- 11 coaches
- 28 students in 7 international student teams collaborate to come up with solutions for 7 regional challenges

Using Momentum, a massive 3D collaborative online arena, designed for a global hackathon on blockchain that went online due to Covid19 in November 2020

Hanze's own 3D world

Your own, highly interactive space.

3D, live and persistent.

Where relevant connections are made, ideas, problems are shared and solutions are created

- Customized design

- Collaborative spaces for students and teachers in which you can host your own
  - challenges, projects, courses
  - collaboration processes, events

- Enabling anyone to instantly contribute to the goals of students and teachers

What did we learn?

Students are inspired by the 3D environment and appreciate the possibility to have a look at other team's work

Lecturers are interested in learning how to design and implement their courses

Lecturers and students value the possibility of showcasing student's work and portfolios and lecturers giving feedback and keeping track on student's progress

Late readiness of the platform caused students to organize themselves with other tools and not (want) to come back to Momentum

User experience of students was pretty good but technical requirements made it difficult for students to participate when having older laptops

User experience of lecturers:

1/3 nice and easy

1/3 needed some help

1/3 bad: not able to use the platform

Lessons learnt after the Momentum pilot

- **Start onboarding** (training, invitations) before the start of the course is mandatory
- **Technology adoption:** pivot with strategies to engage teachers, i.e. students in the lead or working with early adopter first
- **Workload** in higher education is a limitating factor: less changes for serendipity and innovation by flying around and ‘sightseeing’
- **Interactivity and added value** of 3D gamified environments like Momentum for CBL have to be researched more in-depth (and we did: spoiler alert, CBL in metaverse will not be our first option!)

Thank you!

Dr. Nejla Karabulut: n.Karabulut@pl.hanze.nl

Dr. Madelon van Oostrom: m.van.oostrom@pl.hanze.nl

Important Findings

- CBL can easily be facilitated with a 2D website or tool
- It would encourage and support self-directed learning and provide the users with a level or understanding and independence
- Would allow coaches, clients and stakeholders to view the teamwork as they progress
- However, this way could make CBL and teamwork isolating again
- The metaverse is the closest thing to having in-person interaction which would allow for unplanned and informal interaction
- The Metaverse can improve distance team relations by providing team bounding experiences
- However, its complicated and Unfamiliar to users which are currently more comfortable with 2D websites

Future Actions

- Create a website or platform that is easy for users to specifically facilitate CBL
- Slowly add pieces of 3D and the metaverse
- Experiment with different platforms/tech (ei phone vs VR vs AR and XR)
- Experiments and explore with small groups from monodisciplinary then multidisciplinary
- Allow small test groups to experiment with a version of the product for a week and then give feedback for the product to be developed on