

# Sustainability in Textiles: A New Paradigm in Undergraduate Education

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## Strategic Vision for New Major Development

As the world recognizes the imperative of sustainability, one practical approach is to integrate it into educational curricula. As part of this effort, the German-Bangladesh Higher Education Network for Sustainable Textiles (HEST) was initiated to address the inadequacy of sustainability-related topics in the existing textile engineering syllabus.

Through a collaborative effort involving Technische Universität Dresden (TUD), AUST, and Notre Dame University Bangladesh, the HEST project surveyed the current curriculum. The findings revealed that the inclusion of sustainability-related topics in the textile engineering syllabus was unsatisfactory.

To address this gap, the proposed solution involved the integration of sustainability concepts into existing courses within the textile engineering syllabus. A total of 9 courses of the B.Sc. in Textile Engineering program were modified.

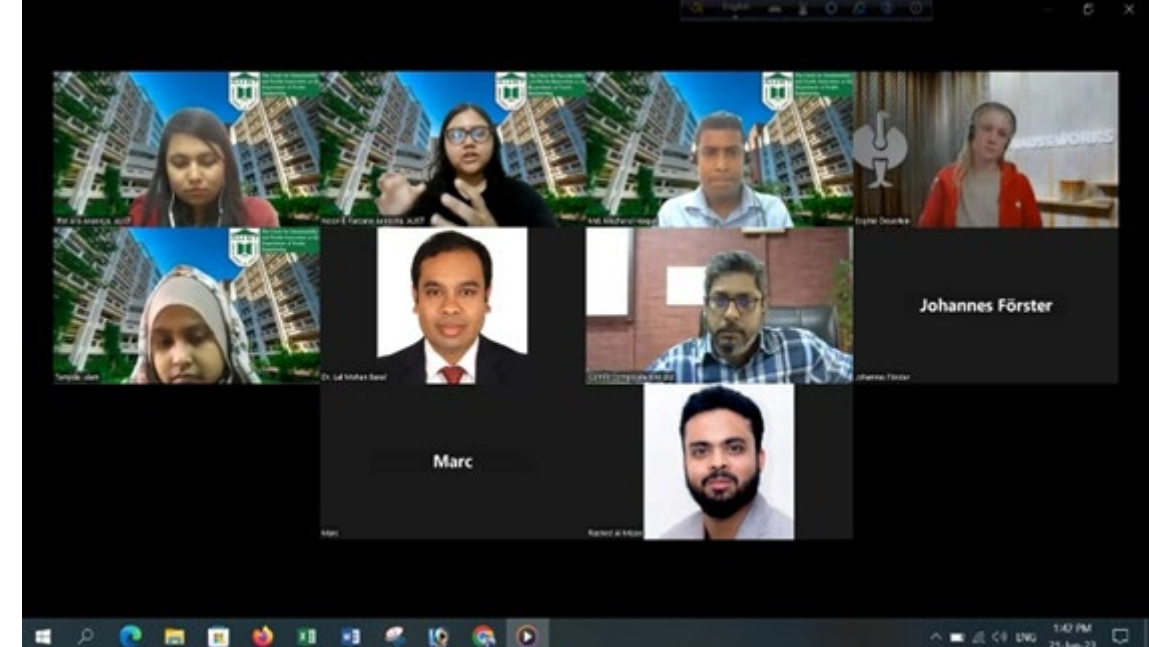
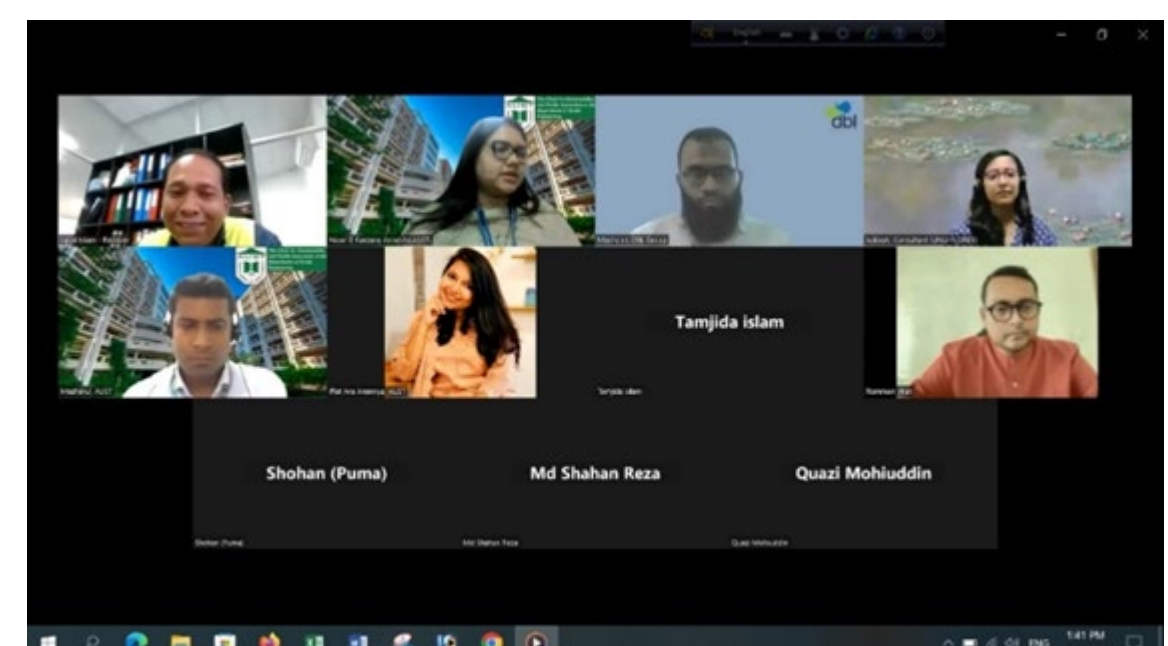
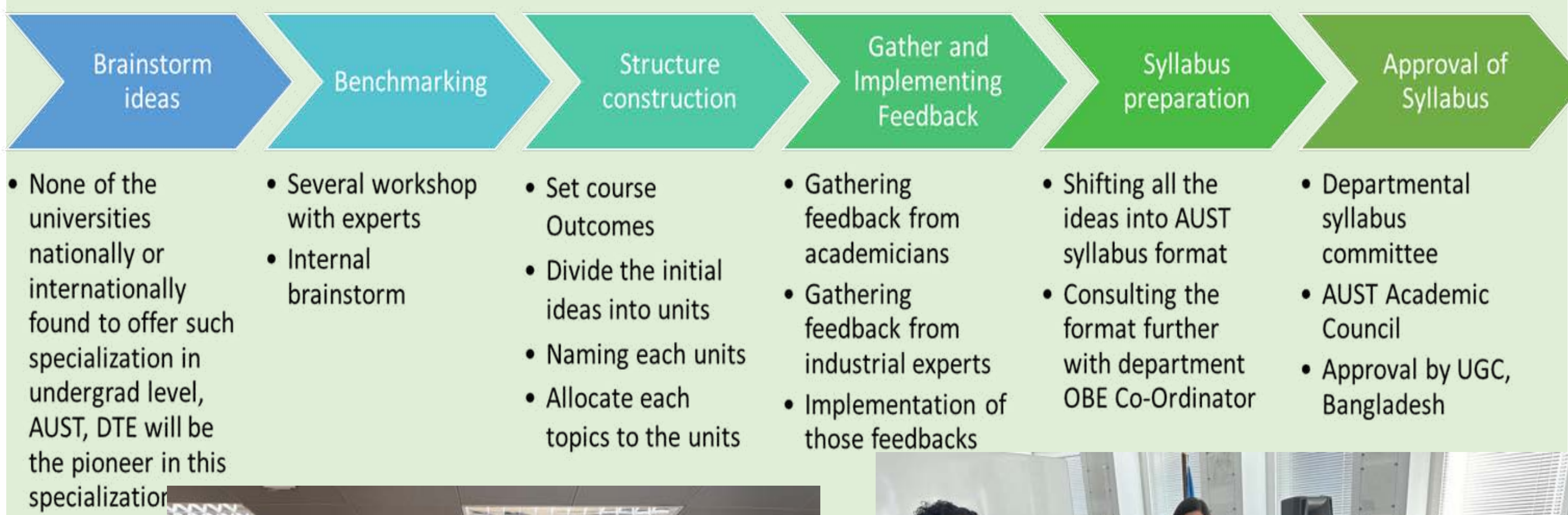
After the HEST project, it was determined that additional collaborative initiatives were necessary to enhance education and awareness of sustainable practices in the textile industry to foster a more responsible and forward-thinking approach among future professionals. Consequently, the recommendation emerged to establish sustainability as a new major within the B.Sc. in Textile Engineering program.

## Introduction of the New Major

AUST is the pioneer in introducing sustainability as a new major in the undergraduate Textile Engineering program, both domestically and internationally. Hence, the recommendation from the HEST project to launch sustainability as a new major within the B.Sc. in Textile Engineering program appears promising and aligned with the current needs of the industry.

As part of its sustainability initiatives, Engelbert Strauss GmbH & Co. KG from Germany is actively contributing to the enhancement of higher education in Bangladesh. Specifically, Strauss aims to elevate the capabilities of future university graduates entering the workforce. Engelbert Strauss generously funded the Chair for Sustainability and Textile Innovation project through GIZ in collaboration with TUD, Germany, and the United Nations University Institute for Integrated Management of Material Fluxes and of Resources, Germany. The project's goals included faculty development and curricular refinement to establish a Sustainability and Textile Innovation major within the B.Sc. in Textile Engineering program. For faculty development, the five members (CSTI team) have been recruited. The CSTI team has prepared the necessary courses for the new major, complementing the existing majors: Yarn Manufacturing, Fabric Manufacturing, Wet Processing, and Apparel Manufacturing.

## 2. Process of Course Development

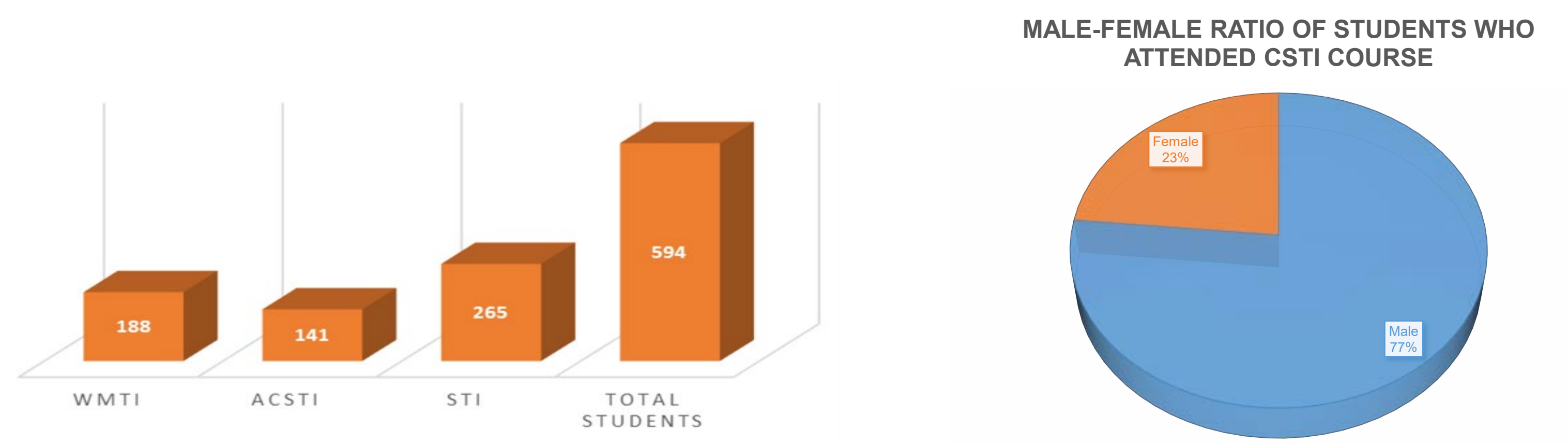


## 4. Outcomes

1) Development of five theory and three sessional courses:

Course Title	Year-Semester	Credits	Link with SDGs			
			SDGs	Social	Economic	Environment
Sustainability in Textiles (STI)	3-1	3	12,13,8,5	✓	✓	✓
Sustainability in Textiles (STI) - Lab	3-1	1.5	12,13,5	✓		✓
Water Management in Textile Industry (WMTI)	4-1	4	6,14			✓
Water Management in Textile Industry (WMTI) - Lab	4-1	1.5	6,14			✓
Special Sustainable Transition Tools in Textile Industry (SSTI)	4-1	2	7,8,9,12	✓	✓	✓
Resources and Their Nexus in Textile Industry (RNTI)	4-2	4	3,7,12,13	✓	✓	✓
Resources and Their Nexus in Textile Industry (RNTI) - Lab	4-2	1.5	3,7,12,13	✓	✓	✓
Application of Computer for Sustainability in Textile Industry: Sustainability Assessment (ACSTI)	4-2	3	12,13			✓

2) Approximately 600 Students Completed Courses Online (Moodle Platform)



## Institutional Measures to Support and Sustain the New Major



Chair for Sustainability and Textile Innovation



Sustainability and Textile Innovation Laboratory 3D view

## Student Feedback after completing courses in Moodle

### STI:

- We have learned the overview of sustainability.
- It was a great course.
- Learned so many things. If it can be incorporated into the syllabus, it would be great.

### WMTI:

- It was perfect.
- As a wet processing student, it will help me in my career.
- I hope this type of course keeps coming to our department.

### ACSTI:

- Learned about LCA.
- It will help me with merchandising.

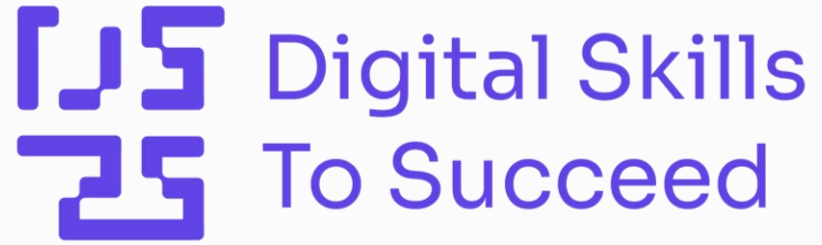
### ACSTI:

- I love this course.
- Traceability is a new learning point.

## Acknowledgements

Academia: UNU-FLORES, TUD, BUTEX, DUET, DIU, and MBSTU.

Industry: Engelbert Strauss; GIZ; Square Textiles; Youngone (KEPZ) Group, Comfit Composite Ltd, Pacific Jeans; DBL, and Urmi Group.



**CHRIST**  
(DEEMED TO BE UNIVERSITY)  
BANGALORE | DELHI NCR | PUNE

# Digital Narrative Design Incubator

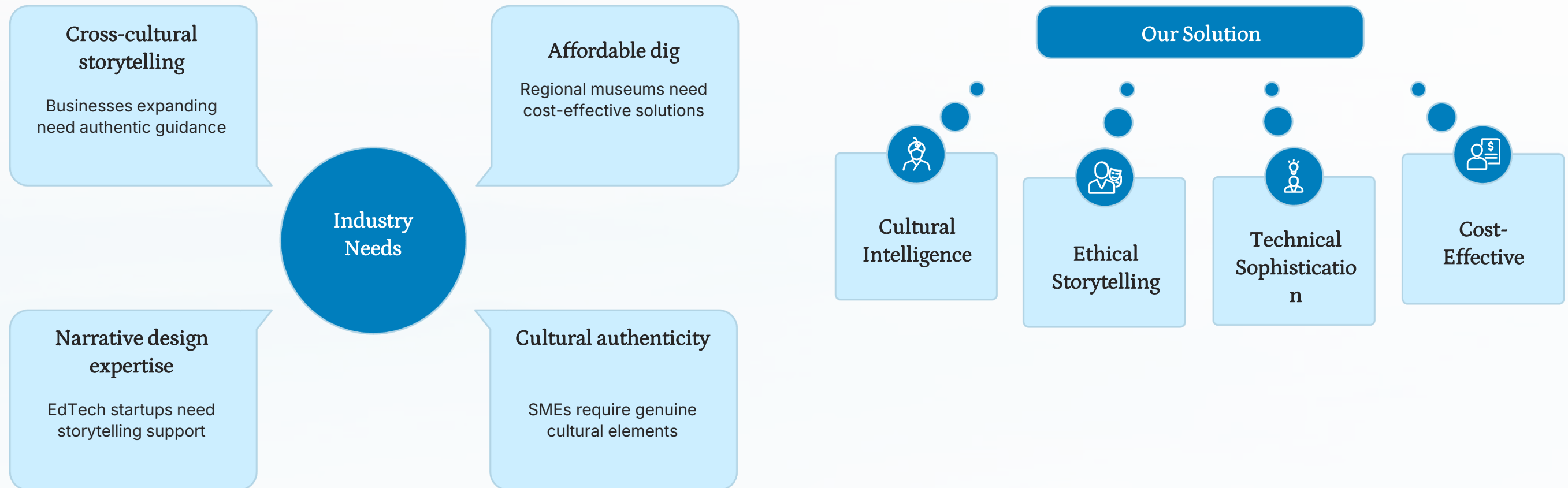
Where Humanities Meets Industry Innovation

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Department of English and Cultural Studies | Christ University, Bangalore

First Humanities-Led, Industry focused, Digital Storytelling Initiative in India

# The Opportunity & Solution



# Three-Phase Pilot Program

## Phase 1: Local Cultural Partnership

Months 1-6

- Museum digital exhibit enhancement
- Community heritage documentation
- Student cultural education modules

*Partners: Regional museums, cultural centers*

## Phase 3: Regional Recognition & Expansion

Months 13-18

- Scaled institutional collaboration
- Cross-cultural business consultation
- Academic conference presentation

*Partners: Neighboring regions, larger organizations*



## Phase 2: Small Business Collaboration

Months 7-12

- Culturally-sensitive marketing campaigns
- Tourism digital storytelling content
- Educational startup content development

*Partners: SMEs, marketing agencies, EdTech startups*

Technology Integration: WordPress • Canva • AI Tools (ChatGPT/Claude) • StoryMapJS • Video Editing



# Outcomes & Partnership Opportunities

## Student Outcomes

Immediate Skills:

- Digital storytelling and content creation
- Cross-cultural communication and analysis
- Community engagement and project management

Career Pathways: Cultural program coordination, Educational content development, Marketing & communications

## Industry Benefits

- Cost-Effective Solutions: Professional work at accessible costs
- Cultural Authenticity: Deep humanities training ensures respectful representation
- Fresh Perspectives: Student creativity + contemporary cultural understanding

**3**

**Museum partnerships**

Within first 6 months

**50+**

**Partnerships**

By 18 months

**Nov 2025**

**Launch date**

Pilot program begins

# REACHING THE UNREACHED

## Innovative Approaches Adopted by IGNOU at Scale

### Innovation in Context



#### MULTI-MODAL DELIVERY

IGNOU blends print, audio, video, radio, television, mobile apps, and online platforms to reach diverse learners.

#### COMMUNITY-BASED LEARNING

Local Study Centres and Community Radio Stations support mentorship, peer interaction, and real-time guidance.

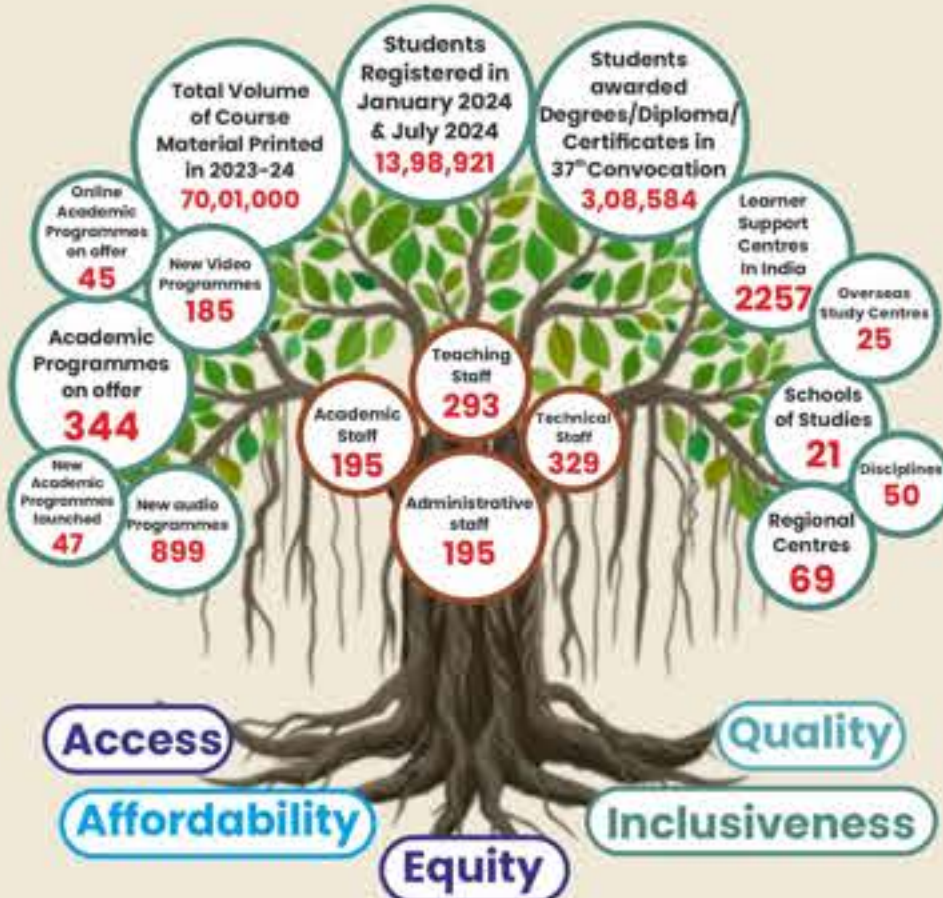
#### PUBLIC BROADCAST PARTNERSHIPS

IGNOU uses Doordarshan (Gyan Darshan), All India Radio (Gyan Vani), and SWAYAM for national reach.



#### LOCAL LANGUAGE INTEGRATION

Courses are offered in multiple regional languages, ensuring accessibility for non-English-speaking populations.



### Student Engagement & Outcomes



#### INCREASED ACCESS

Millions of first-generation learners, women, rural youth, and working professionals have joined higher education through IGNOU.

#### INTERACTIVE LEARNING

Live sessions, teleconferencing, and responsive mobile apps support real-time engagement and clarification.

#### BETTER COMPLETION RATES

Decentralized learner support and multilingual resources have led to improved retention and graduation outcomes.

#### EMPOWERED MARGINALISED GROUPS

IGNOU's inclusive strategies have enhanced participation of tribal, remote, and prison populations in higher education.



### International Presence

"IGNOU's Global Reach: Bridging Across Continents, Empowering Learners Globally."



### Replication Potential

#### SCALABILITY

IGNOU's blended model is cost-effective and can be scaled across disciplines and geographies.



#### CONTEXTUAL ADAPTABILITY

Universities can localize content and delivery based on learner needs and available infrastructure.



#### RESOURCE SHARING

Use of open educational resources (OERs), public media, and cloud platforms allows efficient replication.



#### COLLABORATIVE NETWORKS

Partnerships with government, industry, and civil society can support sustainable, inclusive education models.



QR CODES



<https://ignou.ac.in>



<https://swayam.gov.in>



<https://egyankosh.ac.in>



Centre For Innovation & Entrepreneurship,  
Jamia Millia Islamia, New Delhi, India

# Forging The Future: A Landmark Industry Academia Collaboration

Enord, incubated at CIE, JMI, is India's first AI-on-Edge drone startup. Their drones use a proprietary AI Pilot system to fly in complex spaces without GPS, powering applications in disaster response, infrastructure inspection, defence, and agriculture.



## From Idea to Industry: How CIE Fuels Enord's Growth

### Dedicated R&D Lab Space:

CIE has provided Enord with significant, dedicated space to establish a state-of-the-art Research & Development and Assembly Facility right on campus.

### Strategic Mentorship

Access to a network of seasoned mentors and faculty from JMI's Faculty of Engineering and Technology to guide business strategy and technical development.

### Access to a Premier Talent Pool

Direct pipeline to Jamia's brightest engineering students for high-value internships, projects, and future recruitment.

### Ecosystem & Credibility

The backing of a prestigious central university like JMI provides immense credibility and opens doors to vital industry and government networks.

### Internship

CIE empowers drone startup Enord with mentorship and resources, turning ideas into innovation. Interns gain hands-on experience and exposure to cutting-edge tech.

### Research

Research sparks progress. At CIE, curiosity drives discovery. By supporting Enord with research guidance and resources, we help transform cutting-edge drone ideas into real-world solutions.

## From Industry to Classroom

### A Live Innovation Hub on Campus

Enord's R&D facility is not just for the company; it acts as a live, on-campus hub for drone technology, exposing students to cutting-edge innovation daily.

### Bridging Theory and Practice

Students get unparalleled opportunities for hands-on internships and projects, working on real-world AI and robotics challenges.

### Inspiring a Culture of Entrepreneurship

Born within JMI, Enord proves that student ideas can grow into real enterprises. With vision, courage, and resilience, it inspires a culture of entrepreneurship that transforms innovation into lasting impact.

### Driving Future-Ready Education

The collaboration has led to the development of new skill-based courses in future, including a short-term program on Drone Technology, ensuring JMI students are equipped with the skills for tomorrow's industries.

### Innovation

Research sparks creativity. By reimagining possibilities, enord design solutions that solve real challenges and inspire change.

## A True Synergy: Mutual Growth and Innovation

This partnership is a powerful model of how academia and industry can co-create the future.





# MICRO-CREDENTIAL (MC) ON AI & DATA: EMPOWERING UG STUDENTS OF RAMA DEVI WOMEN'S UNIVERSITY IN PARTNERSHIP WITH DS2S

DS2S Digital Skills  
To Succeed

## About the University

- Only Women's University in the state of Odisha with 48 affiliated Women's colleges
- Students strength: On campus 5000 ; Affiliated Colleges: 7500
- UG Program: 28 ; PG and PhD Program: 13
- Physically Challenged and differently abled Students: 150
- Strong alumni network and proud to be the alma mater of the President of India, Smt. Droupadi Murmu

## Conceptualization of DS2S Partnership and Introduction of MC



MoU signed between RDWU and DS2S



DS2S advisors inducting RDWU students



RDWU students at DS2S Summer School



Interaction between DS2S and RDWU



RDWU representatives at DS2S Regional Meeting, Bangalore, India



## MC Curriculum Approval



## Implementation of MC on AI & Data at RDWU

MC (AI & Data) in  
NEP -2020  
Curriculum

3 Credit  
Course  
(45 Hrs)



Skill  
Enhancement  
Course (SEC)  
option in 2<sup>nd</sup>  
Semester of  
UG

Data (1 credit)

AI (1 Credit)

Industry Exposure  
(1 credit)

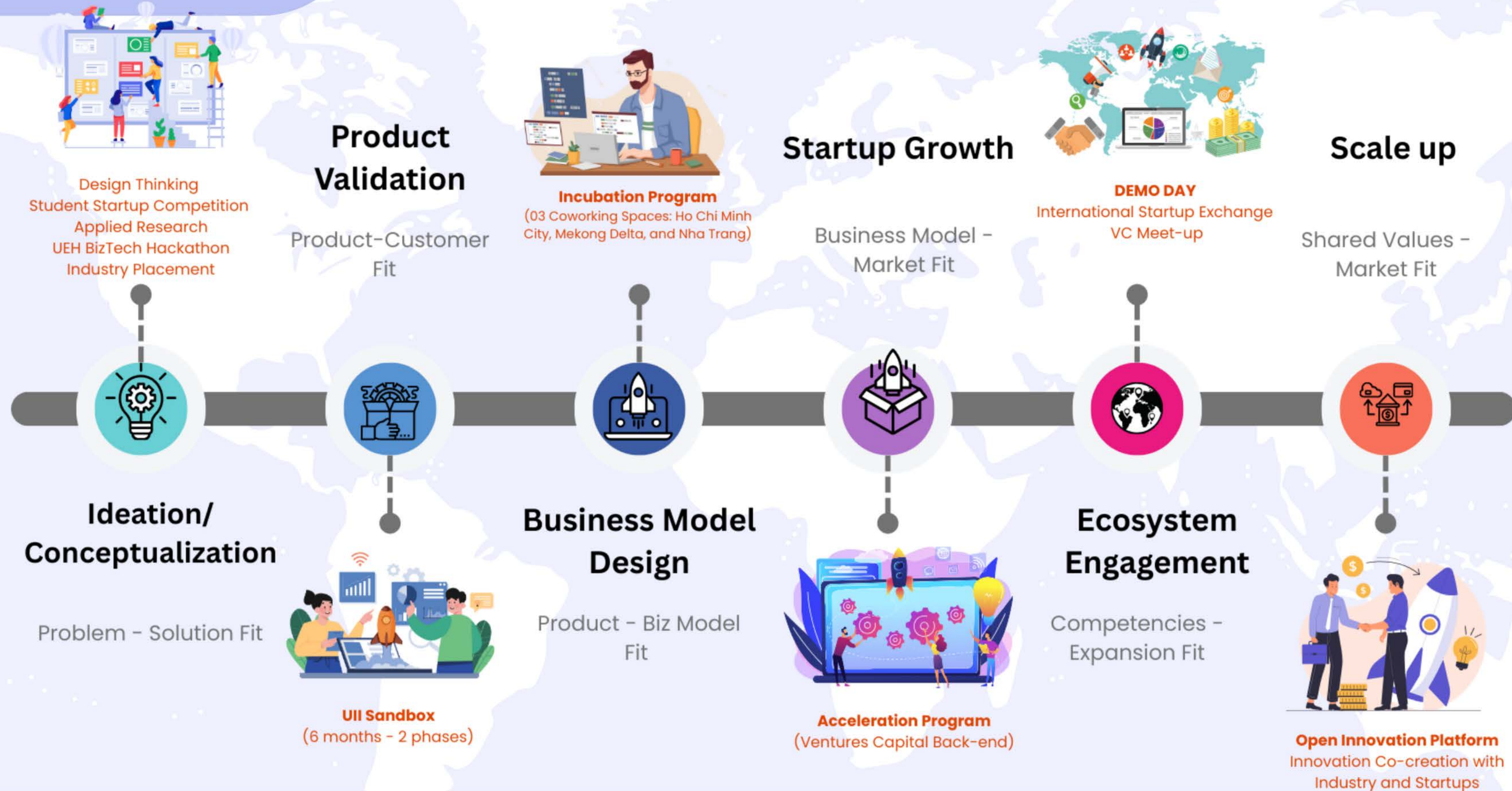
- Offered on Atingi Platform on Self Paced Mode
- HoDs of respective Departments will facilitate the online class and assessment

## Opportunities

- To digitally empower first generation women learners from remote areas
- To reach out maximum students with minimum pupil teacher ratio
- Enhancing digital skill to create employability

## Challenges and Way Forward

- Approval Process of MC implementation in NEP 2020 Curriculum for credit transfer to Academic Bank of Credit (ABC)
- Convincing students to choose the MC as SEC
- ✓ Large scale induction, Government intervention, collaboration and peer interaction



## FinTechNovation – Where UEH and United Overseas Bank (UOB) Shape the Future Together

- ✓ **FinTech Master Class:** 2,400+ students from 50 universities and schools across Vietnam.
- ✓ **FinNovation Bootcamp:** 279 students from 24 universities, 53 initiatives.
- ✓ **UII Sandbox Program:** 10-week incubation program for 15 selected projects.

A total funding of **50,000 SGD** to nurture young talents in the financial, technology and innovation sector



### Introduction

The Innovator Pathway at UEH is a structured journey that empowers students, startups, and partners to **turn ideas into impactful solutions** in 6 stages. This pathway enables **innovation-driven collaboration between academia, industry, and government** to solve real challenges and support Vietnam's entrepreneurial ecosystem.

### Share & Connect

- Place **stickers** to show your existing activities.
- Mark your **status** using color-coded dots:
- Add **sticky notes** to share:
  - What your institution can offer
  - What your institution is looking for

Scan the QR code to dive into the experience!



UEH



FinTechNovation

### Contact Person

Ms. Thao Nguyen  
UEH Institute of Innovation  
thaontp@ueh.edu.vn

## Showcase what you have done

DS2S MICRO-CREDENTIAL COURSES

HACKATHON/ STARTUP COMPETITION

INNOVATION GRANTS/ RESEARCH FUND

INCUBATION PROGRAM/ ACCELERATION BOOTCAMP

OTHERS

## Where can we collaborate

Mark where your institution is ready to co-create and partner with other HEIs, startups, or industry players in the DS2S & iN4iN networks.

### Co-Design Programs

Jointly develop micro-credential courses, training modules, and challenge-based learning initiatives tailored to local and regional needs.

### Co-Develop Solutions

Collaborate on applied research, prototype development, and sandbox experiments with startups and enterprises.

### Co-Scale Innovations

Organize joint Sandbox, shared incubation activities, Acceleration Bootcamp, and open innovation challenges to scale impactful solutions.

### Cross-Border Exchange

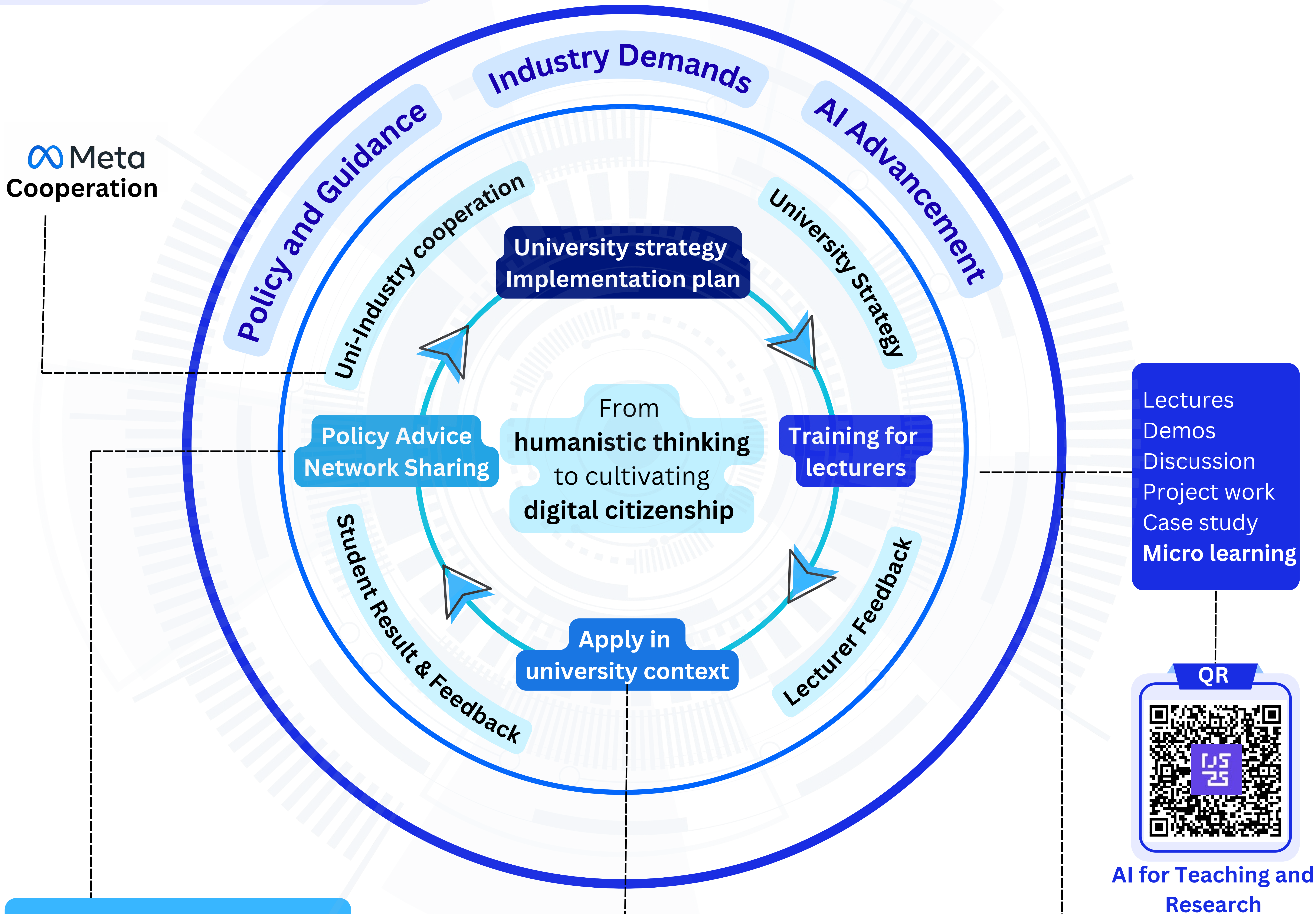
Facilitate student and startup exchange programs across HEIs in the DS2S & iN4iN networks to foster global learning and collaboration.

## HUMANITICS THINKING

Human-centered  
Dignity, freedom, critical thinking,  
responsibility  
Liberal & holistic education

## DIGITAL CITIZENSHIP

Digital skills; Digital ethics;  
Culture & identity;  
Safety & privacy;  
Digital participation

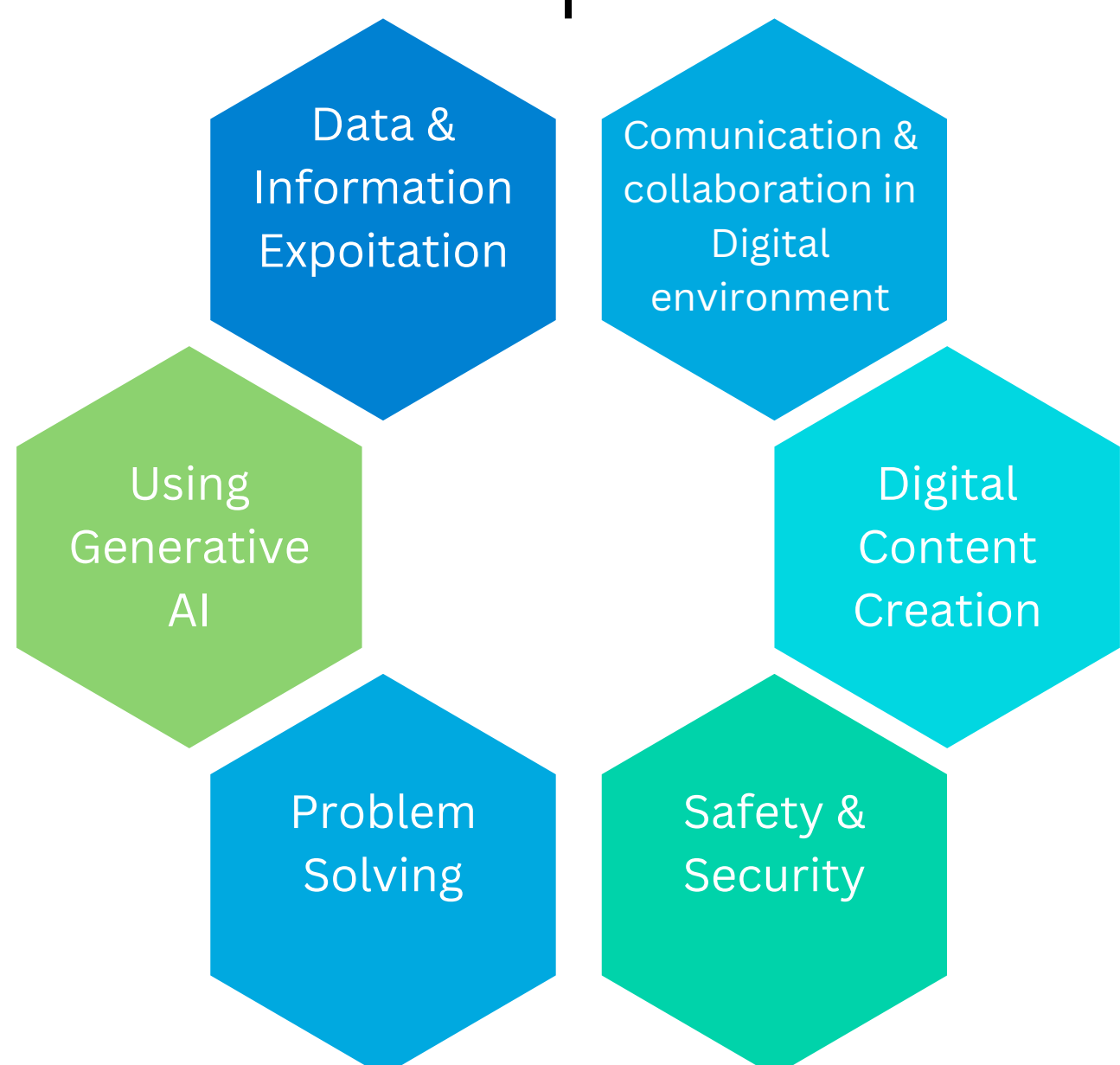


**Policy advice**

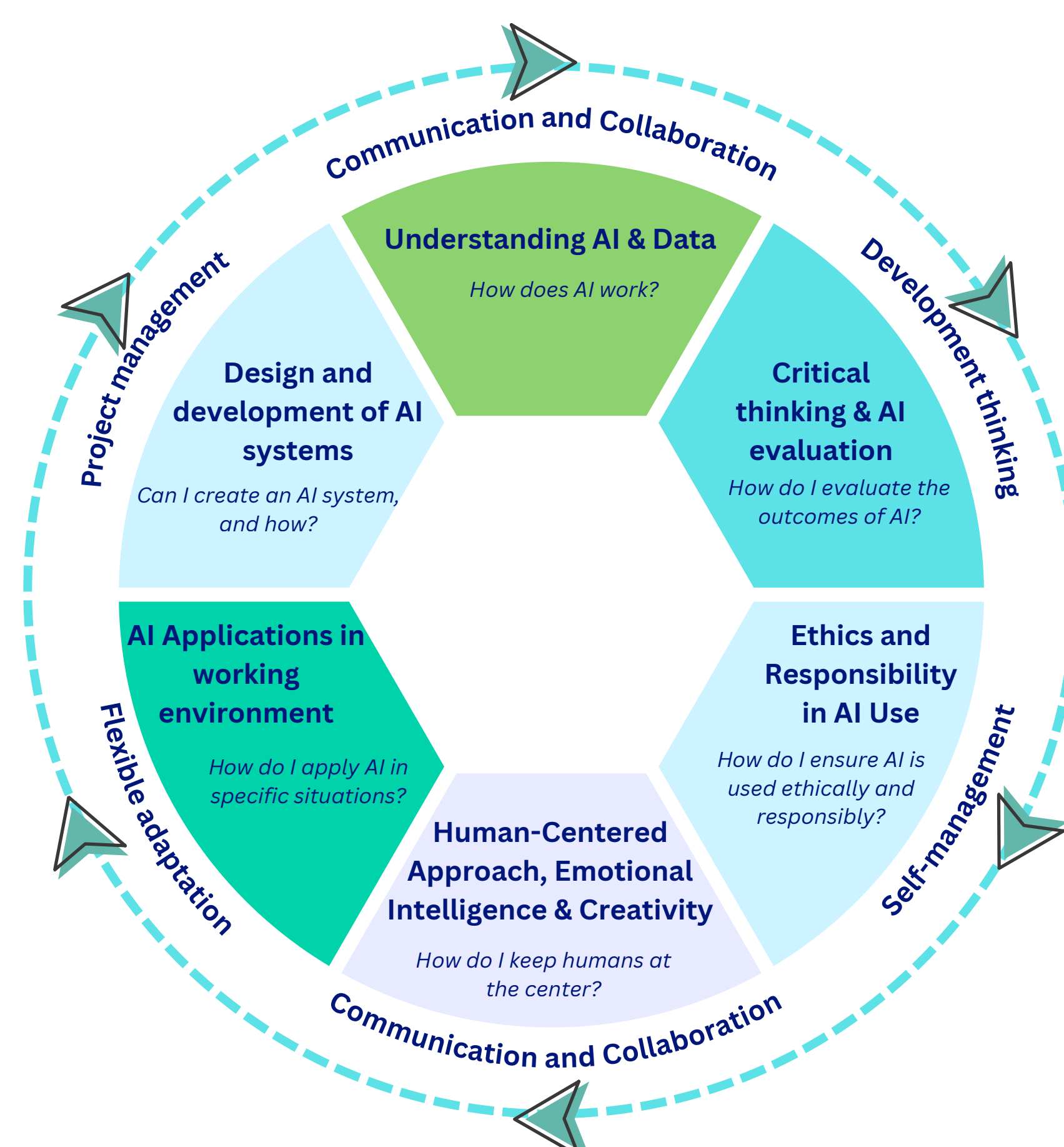
- National policy (MOET - digital literacy and AI literacy, OER)
- Institutional / Uni Policy

**Network and uni sharing**

- >200 universities sharing at local and international level



- Curriculum Innovation
- New digital competency subjects
- Workshops to build humanistic depth indigital era



Lectures  
Demos  
Discussion  
Project work  
Case study  
Micro learning



AI for Teaching and Research

**Teaching**

- AI literacy + prompt strategy
- Content creation
- Designing lesson
- Assessment
- Classroom
- Management

**Research**

- Assisting research journey for international publishing

**+250 lecturers**

**Ethicals & Social & Legal Risks**



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