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# Methodology and Didactic Education for Universities of Applied Sciences **MaDE for UASs**



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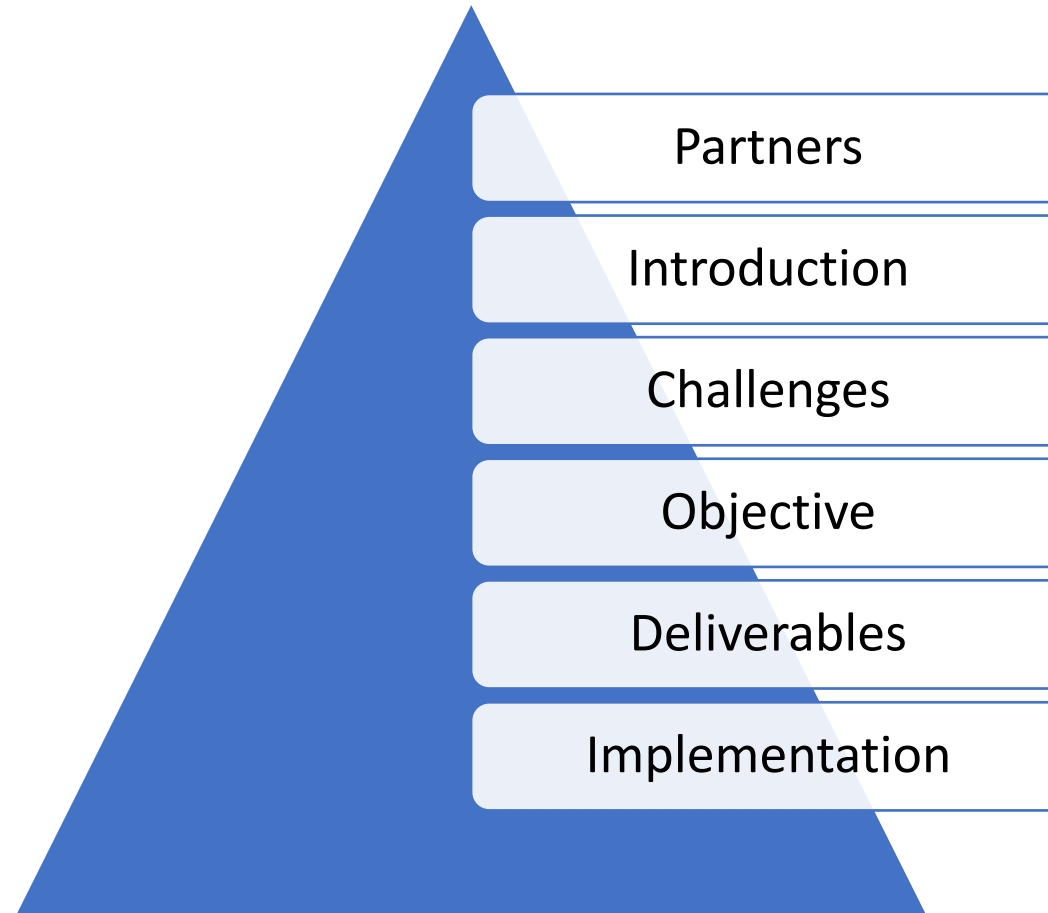
Currently in the Grant Preparation Process



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Tentative Kick-off: Nov. 2024

# Outline





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# Partners

## Beneficiaries:

- Kotebe University of Education (Et) as Coordinator
- Technische Hochschule OWL (DE)
- Hochschule Heilbronn (DE)
- University Bolzano (IT)
- Aksum University (ET)
- Assossa University (ET)
- Dire Dawa University (ET)
- Federal TVET Institute (ET)
- St. Mary's University (ET)
- ThumbsUp Social Entrepreneurs (ET)

## Associated Partners:

- Ambo University (ET)
- Dilla University (ET)
- Ethiopian Engineering Group (EEG)
- Raya University (ET)



# Introduction

## Higher Education Landscape in Ethiopia:

- 2020: Ministry of Education differentiates the Higher Education sector:
  - 8 research universities,
  - 21 comprehensive universities and
  - *15 Universities of Applied Sciences (UASs)*
- Except the 15 UASs, all other higher education institutions could continue with their programmes with minor changes.



# *Excursus*

- MaDE for UASs is build as extension/continuation of the Erasmus+ Strand 1 Project FAITH which focuses on the specifics of UASs such as the management and organisation of UASs.
- Coordinator:
  - Kotebe University of Education (ET)
- Beneficiaries:
  - Center for Higher Education (DE)
  - University of Applied Sciences Osnabrück (DE)
  - Saxxon University (NL)
  - Jijiga University (ET)
  - Wollaito-Sodo University (ET)
  - Ministry of Education (ET)

# FAITH: Our first experience

Project Name: FAITH (Ethiopian Universities of Applied Sciences are F(it), A(djusted), I(innovative), T(rendy) & H(olistic) to meet Industries and the Labor Market)

Maximum grant amount (after evaluation): 1, 000, 000.00 EUR

FAITH is structured in Work Packages; WP 1(Project Management), WP 2 (Development), WP 3 (Designing the toolboxes), WP 4 (Roll-out), WP 5 (Monitoring and evaluate), WP6 (Quality Assurance), WP7 (Sustainability) and WP 8 (Dissemination)

# FAITH: Objective



The main objective of the project is; to build a framework for the UAS sector and to work on an Ethiopian UAS model



Specific Objectives are;

- Establish Ethio-European UAS partnerships
- Generate lessons learnt from Europe, adjusted to the Ethiopian context, as toolboxes for Ethiopia practice
- Conceptualize tested, piloted & optimized toolboxes
- Establish a community of peer learning through a training institute to accommodate the knowledge & expertise



# Current Status: Deliverables

- Project Handbook
- Dissemination strategy
- Quality Assurance Plan
- Best Practices
- Ethiopian UAS Status Quo
- Toolbox Development
- Piloting the toolbox
- Lesson learnt from pilot test



# Goal of the Toolboxes

- Goal: Design “toolboxes”/adapted concepts for the selected characteristics and prepare those for the implementation.
- Ethiopian UAS use the lessons learnt from Europe to develop “tools”/models for UAS in Ethiopia and test the tools in pilot projects at Ethiopian UAS.

# STARTING POINT

- **10 Characteristics** of Universities of Applied Sciences
- Agreed on **six tandem topics** for the development of the toolboxes

# The Work on the Toolboxes was done...

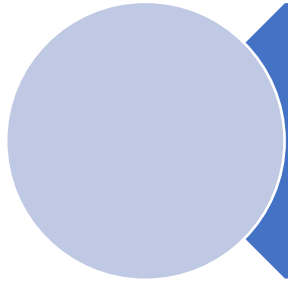
- ... by tandem teams consisting of Ethiopian and European experts.
- ... from September 2023 until January 2024.
- ... to use the concepts for implementation of pilot projects at different UAS in Ethiopia by the tandem experts.
- ...to share it with the rest Ethiopian UAS.

## 10 Characteristics of successful Universities of Applied Sciences (10 topics to be addressed in the transformation process)

1. Having a **mission and culture** of being a UAS – “equal but different”;
2. Offering **practically-oriented, application-based degree programs and their curricula**, focused on the needs of the professional field;
3. Providing real-world on-the-job study experience **through a practical semester/internship integrated in the curriculum**;
4. **Establishing partnership** and networking with **industry/SMEs**;
5. Focusing on demand driven **applied research** and **technology/knowledge transfer**;
6. Supporting measures for **entrepreneurship and start-ups**;
7. Creating **career paths for professors** (teachers and researchers) with experience in applied research and the professional field;
8. Incorporating **part-time lecturers from practice in the teaching** and learning process;
9. Engaging for the **Sustainable Development Goals** (SDGs) in teaching, research and management of the campus;
10. Being active for **regional development**, in citizen science and community service.

## Selected focus areas

1. Implementing high quality **internships** as part of practically-oriented, application-based degree programs
2. Establishing **partnership and networking** with industry/SMEs, and being active for regional development, incl. educating citizens and community services
3. Focusing on demand driven **applied research** and technology/knowledge transfer
4. Creating **career paths** for professors (teachers and researchers) with experience in applied research and the professional field
5. Incorporating **part-time lecturers** from practice in the teaching and learning process and upskilling existing academic staff
6. Engaging for the **Sustainable Development Goals (SDGs)** in teaching, research and management of the campus



# Challenges

- The 15 UASs are in the process of transformation from comprehensive universities.
- The UAS-system is new to Ethiopia and requires a complete change in the organisation, in the study programmes, as well as teaching and learning methodology.
- It is defines that *UAS students are educated for the job* as “**academically trained experts**”, with knowledge, skills and attitudes requested by the regional industries.
  - => These requests are posing huge challenges for the UASs.
  - => Most lecturers are not yet prepared for teaching knowledge, skills and attitudes as demanded by the industry and the World of Work (WoW).
  - => Many lecturers don't have working experience in industry, nor do they have hands-on experiences.



# Objective

- The MaDE-for-UASs-Project aims to provide lecturers from Universities of Applied Sciences (UAS) access to workplace experience via virtual reality (VR), augmented reality (AR) and simulations.
- Ethiopian UAS lecturers lack work experience in industry. However, they should educate “academically trained professionals” for the industries.
- The Ministry of Education (MoE) is discussing externships and sabbaticals for lecturers for years (16.000 lecturers at UASs need to be accommodated)
- The main objectives are defined to contribute to the Ethiopian government efforts in realising the Reform Agenda (RA):
  - preparing a highly qualified and employable workforce for Ethiopian and international companies.
  - supporting the Ethiopian government’s efforts.

***The MaDE-for-UASs-Project Consortium trains its Ethiopian higher education (HE) partners on how to develop and use VR, AR and simulation tools to mirror working processes in companies.***

# Deliverables

*Best practices (Analysis of VR, AR and simulations to mirror the World of Work (WoW) in Europe (best practice) and the suitability of VR, AR and simulation to replace the externship approach for lecturers)*

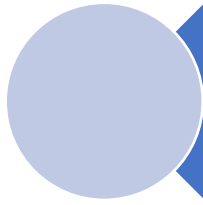
*Toolbox to design and apply VR, AR and simulations to mirror WoW*

*Piloting the VR, AR, and simulations*

*Monitoring, evaluation and revision*

*MaDE-for-UAS-Pedagogic-Center and MaDE-for-UAS-Technic-Center for teaching methodology with certified master trainers*





# Deliverables

- *Indicators (tangible results):*
  - Modules deriving from the 10 topics:
    1. Instructional design strategies for VR, AR and simulation learning
    2. Structure of collaboration with the industries and universities
    3. VR, AR and simulation education instructional design (Toolboxes)
    4. Cases to apply the Toolboxes in the construction sector, smart factor and food processing
    5. Equipment of the VR, AR and simulation Labs equipment
    6. Management, organisation and structure at the Labs
    7. Collaboration with companies in Ethiopia to develop training VRs for company trainings
    8. Business model for sustainability of the VR, AR and simulation Labs
    9. Training programmes for VR, AR and simulation learning designers
    10. Training programmes for master trainers at universities in the use of VR, AR and simulations for self-learners and in the classroom



# Deliverables

- *Indicators (tangible results) cont.:*
  - 60 certified trainers,
  - 3,000 lecturers have participated in the piloting -25% are female lecturers in the piloting,
  - 50% of the participants/graduates use VR/AR/simulation material in their courses by the end of the project-lifetime,
  - 1VR+1AR+1simulation per selected HE sector,
  - 2 MaDE-Centers with their business plans,
  - 2 conferences (national and/or international) in Ethiopia,
  - Minimum of 20 conference contributions (2 per university partner),
  - Website.



# Implementation

## **MaDE for UASs is structured in 7 work packages (WPs):**

1. **WP1** is the Project Management.
2. **WP2** explores best practices from Europe in the field of VR/AR/simulations to gain understanding and its applications for training purposes.
3. **WP3** the Project develops its own VR/AR/simulation training material as examples for selected HE priority fields. The acquired knowledge and skills are put into a Toolbox as a collection of step-by-step recipes. A training-of-trainer workshop prepares the trainers for the outreach.
4. **WP4** is piloting the developed examples in HE fields of construction, electro-technic, ICT, manufacturing, smart factory/food processing.
5. **WP5** accompanies the piloting phase with a monitoring and evaluation process.
6. **WP6** establishes a MaDE-Pedagogy Center and a MaDE-Technology Center to accommodate the Project outcomes and equips them with business plans to become independent entities within the Ethiopian UAS system.
7. **WP7** will promote the MaDE-for-UASs to industries and the wider education sector.

# Lesson for applicants

Contribution for SDG such as quality education (4), Reduced inequality (10)

Selection of partners from Ethiopia using Maximum variation sampling, also known as heterogeneous sampling, is used to capture the widest range of perspectives possible.

Partners from Europe: known to us through their engagement in Ethiopia and relevant for the project

The topic: relevant and timely



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Thank  
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