



# Strategy for Digital Transformation and Work-based Learning in VET-Schools in Homa Bay

05/2024

Partners Meeting

ONLINE

10.05.2024

15am



# Agenda

Introduction

Challenges in Homa-Bay

Initial Analysis for Digital Transformation & Work-Based Learning

Suggested Strategy

Conclusions



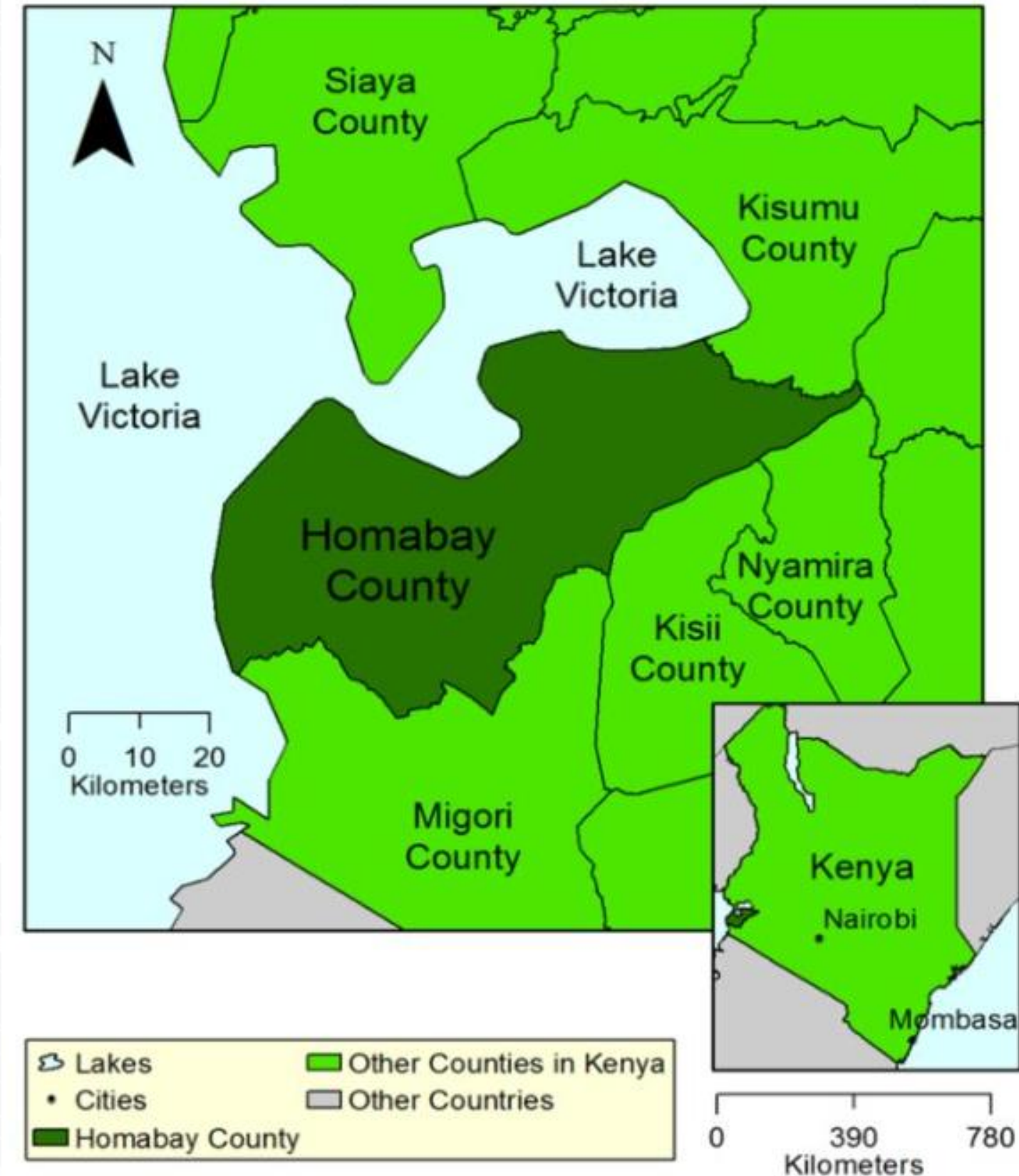
# Introduction

- 3-year Erasmus+ CBVET project (DEVISE4KE)
- 4 countries (Germany, Ireland, Spain, Kenya)
- Period: 11.2023 – 10.2026

## Research Questions:

1. What are the digital competences of students and teachers in Homa-Bay?
2. What competences do local companies want in their workforce (technical, transversal and digital competences)?
3. How can student competences be promoted through (digital supported) learning and work tasks?
4. How should digital training be designed to build on existing teacher competences?

## Homabay County in Kenya



Githuku et al. (2017)

# Challenges for Schools in Homa Bay

## Infrastructure Deficits

ICT-Infrastructure  
Energy Supply



## Lack of Work-Based Training

Lack of Integration  
Missing Partnerships



## New Curricula

Implementation Challenges  
Resource-Intensive

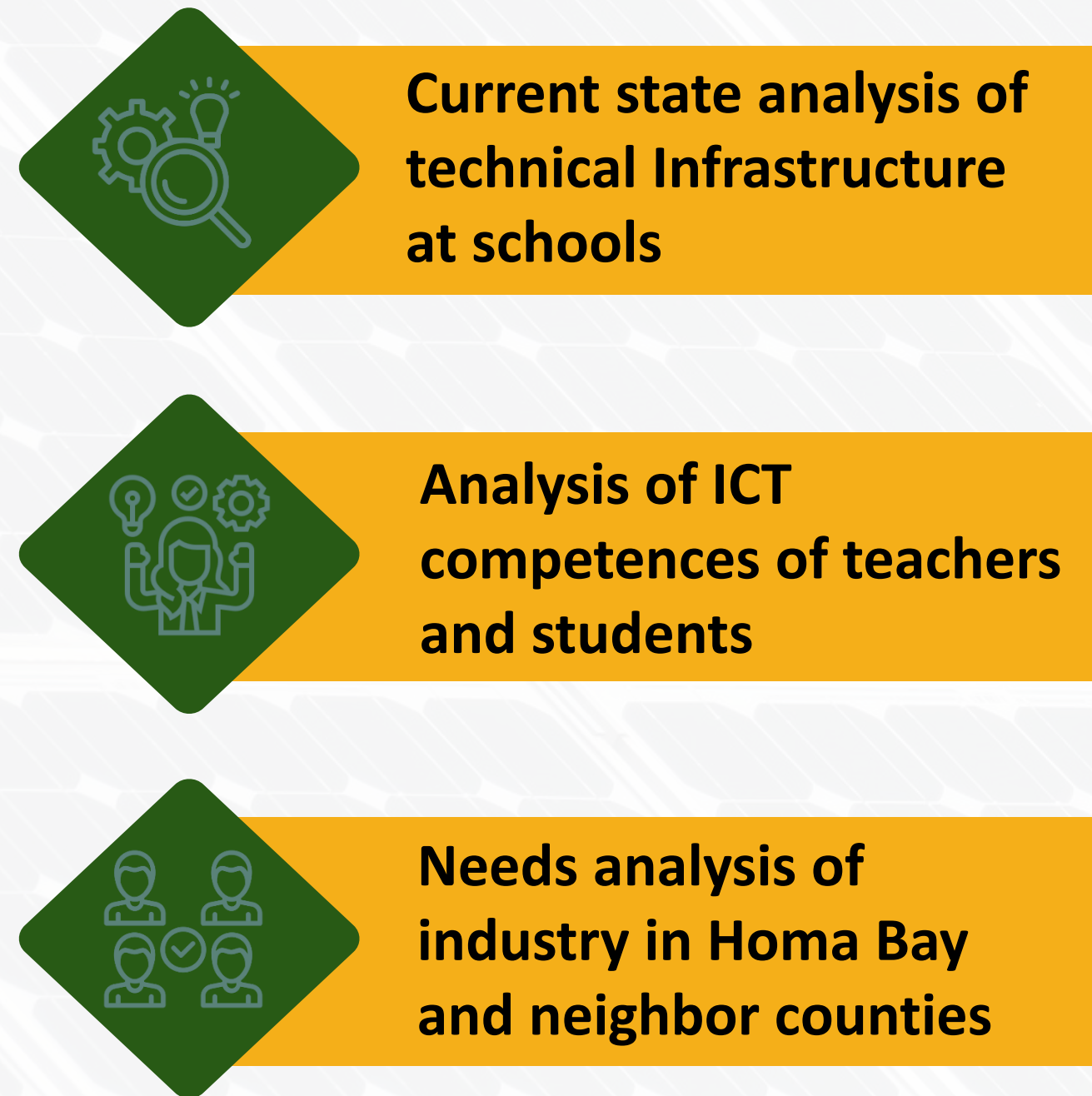


## Insufficient Teacher Training

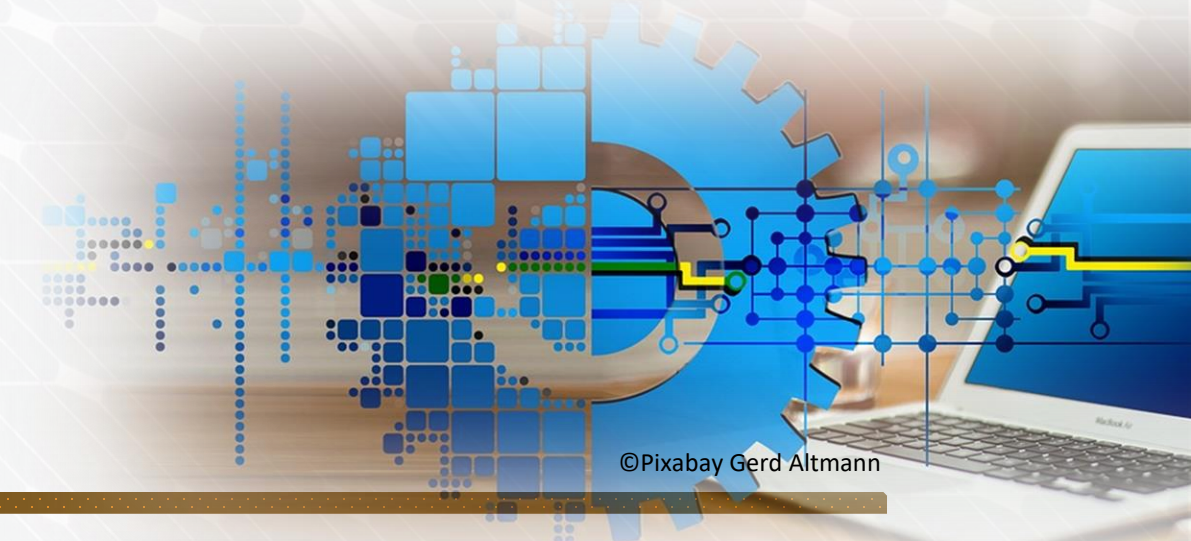
Inadequate Training  
Professional Development  
Resource Constraints



# Initial Analysis for Digital Transformation and Work-Based Learning in VET Schools in Homa Bay



**Digital Teaching Strategy for ICT and WBL**



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# Current State Analysis of Participating Schools in Homa-Bay

School	Number of Students	Male Students	Female Students	Number of Teachers	Trained ICT Teachers
Kiabuya Mixed Secondary School	311	48%	52%	17	0
Miramba Mixed Secondary School	167	54%	46%	7	1
St. Joseph Olando Mixed Secondary School	124	58%	42%	10	0

## Technical Infrastructure (all schools):

- No power supply /no electricity
- No ICT-Equipment at all

# Analysis of Participating Schools in Homa Bay



# Photovoltaic Infrastructure for Planned ICT-Equipment Per School

## Expected Energy Production

We estimate, based on an average of 5.27 hours of sunshine per day, to produce:

- **839.32 kWh per month**

## Planned ICT Equipment:

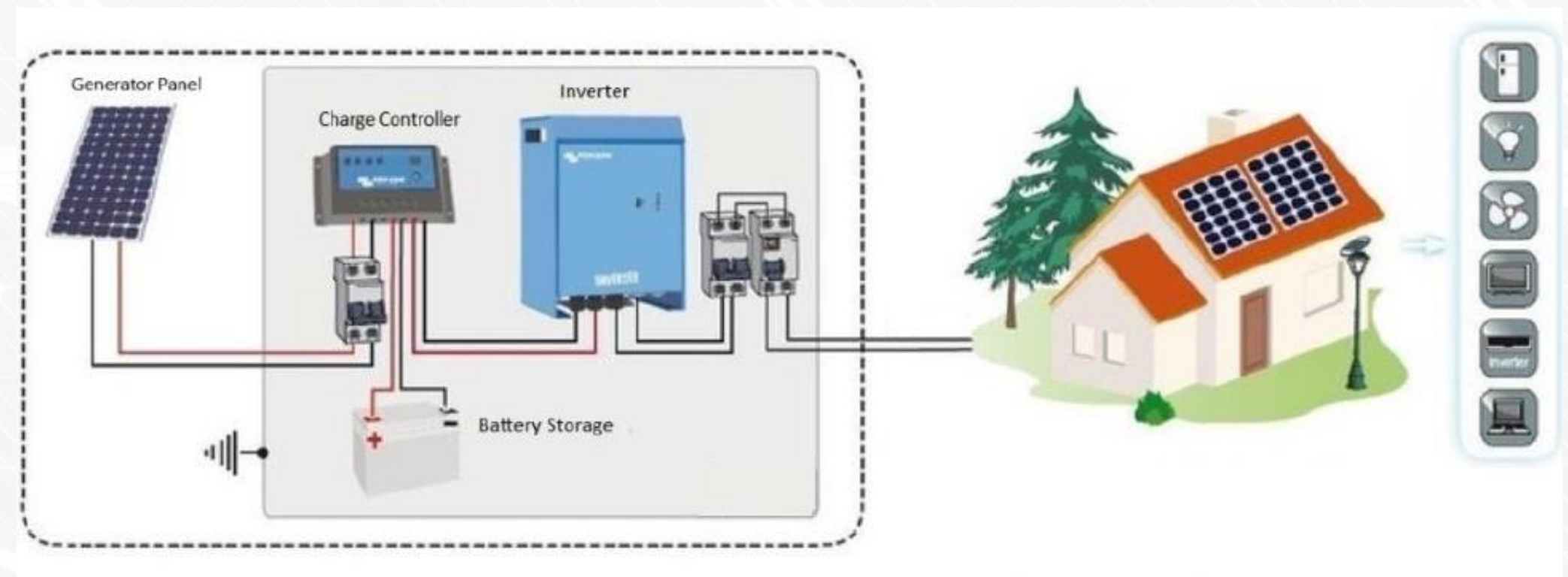
25 student working spaces + equipment to enable collaboration:

- Raspberry Pi, Tablets, Projector, Server, Intranet

## Photovoltaic Infrastructure

- **12 6.7 kW solar panels**

- ➔ Permanent energy supply for ICT equipment
- ➔ Lights for 5 classrooms and 4 security lights for corridors





# Schools Digital Skills Survey in Homa Bay

Students	Teachers
247	23

- Teachers have more access to technology
- Therefore, they are more proficient
- Inconsistencies in some results
- Vast majority of students do not have access to or know how to use digital technology
- Provides a way forward for a Digital T&L strategy



# Survey Results for Teachers in Homa Bay

## Access to Digital Devices

Teachers who own a smartphone	
Kiabuya	25%
St Joseph Olando	29%
Miramba	25%

Teachers who own a tablet	
Kiabuya	25%
St Joseph Olando	21%
Miramba	25%

Teachers whose families own a smartphone	
Kiabuya	50%
St Joseph Olando	64%
Miramba	57%

Teachers whose families own a tablet	
Kiabuya	57%
St Joseph Olando	64%
Miramba	64%

# Survey Results for Teachers

## Smartphone/Tablet Usage

Average daily smartphone usage	8 hours
Most Frequently-Used Apps	WhatsApp, Facebook, Chrome
Most Common Activities	Messages, calls, browsing/searching

## Digital Competences

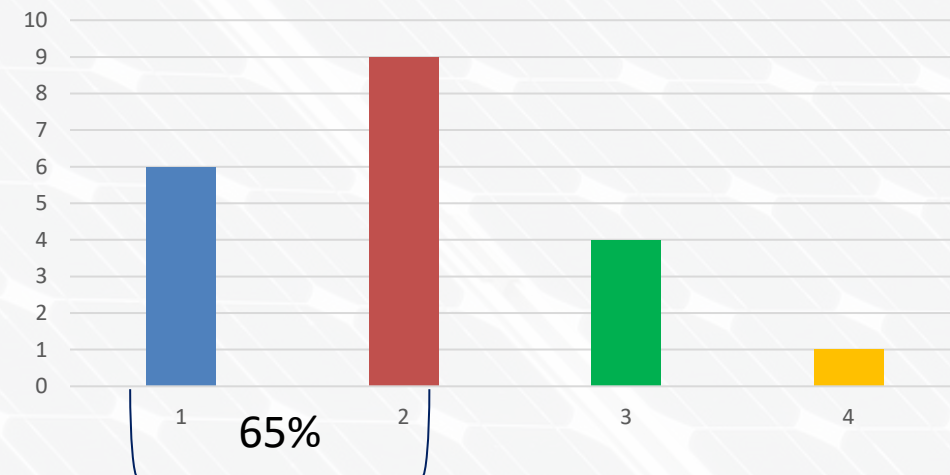
Search Engines and Online Skills (efficiency)	81.3%
Know how to identify online info sources	81.3%
Aware that some online info is false	83.7%

## Acceptance of Digital Learning

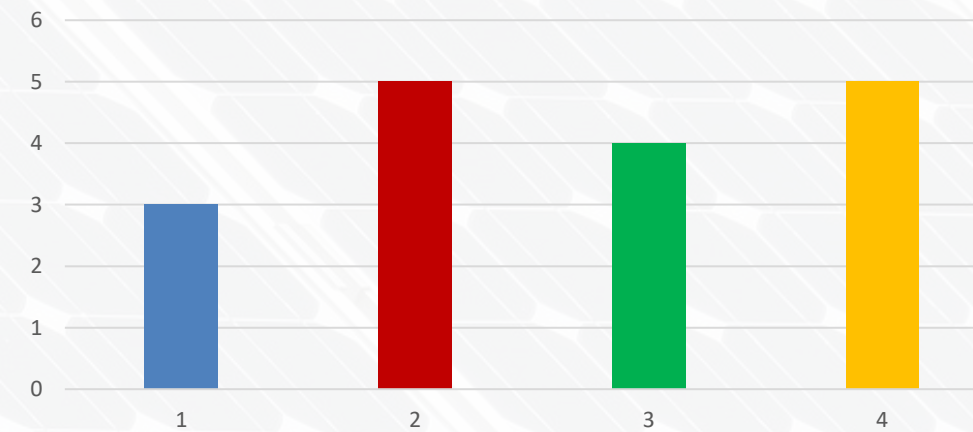
Interest in Digital Learning Skills	88.3%
Believe that digital skills will help them in the job market	83.7%

# Sample Survey Results for Teachers

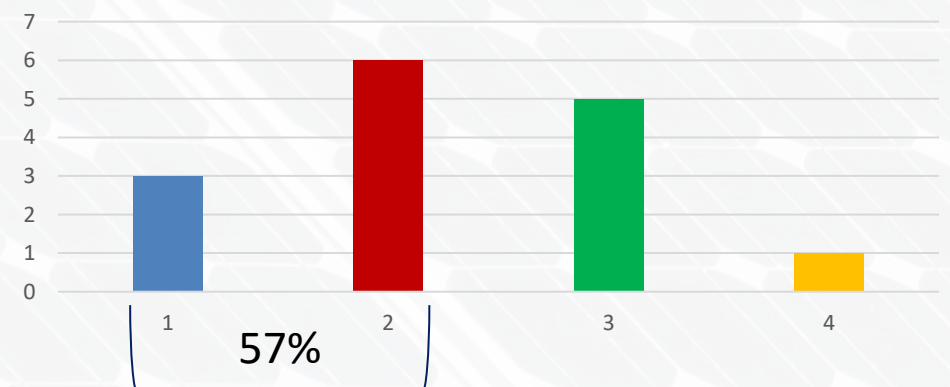
I am aware that digital technologies can support and enhance teaching and learning (e.g. software programs and suites, mobile apps and tools, online and cloud-based resources)



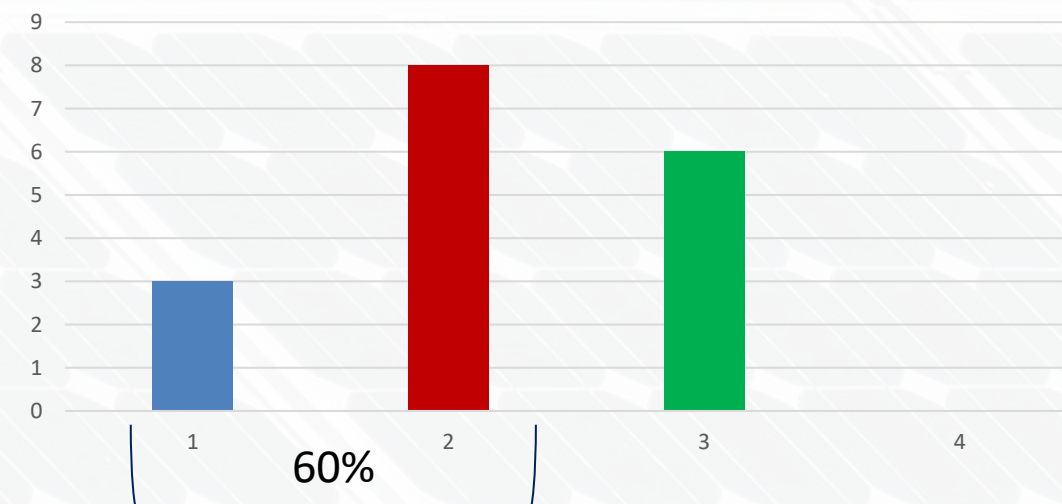
I know how to use digital technologies for capturing students learning, processes and outcomes (e.g. digital quizzes, online polls, forms, assessment platforms)



I know learning activities and resources that can enhance students' information and data literacy (e.g. searching for digital information, evaluating information found, reading graphs, creating and understanding data)



I know learning activities that encourage students to express themselves through digital means (e.g. in the form of text, photos, images, presentations)



# Initial Industry Analysis in Homa-Bay

Number of Companies	Type of Industry
10	Commerce, IT, Tourism, Wheat Mill

## 3 Areas of Research Interest

- Transversal skills of employees
- Digital competences of employees (DigiComp)
- Human Ressource Development

## Research Methods

- Semi-structured interviews (qualitative content analysis based on Kuckartz 2020)
- Standardized questionnaires (4-point Likert scale)



# Importance of Transversal Skills for Companies in Homa Bay

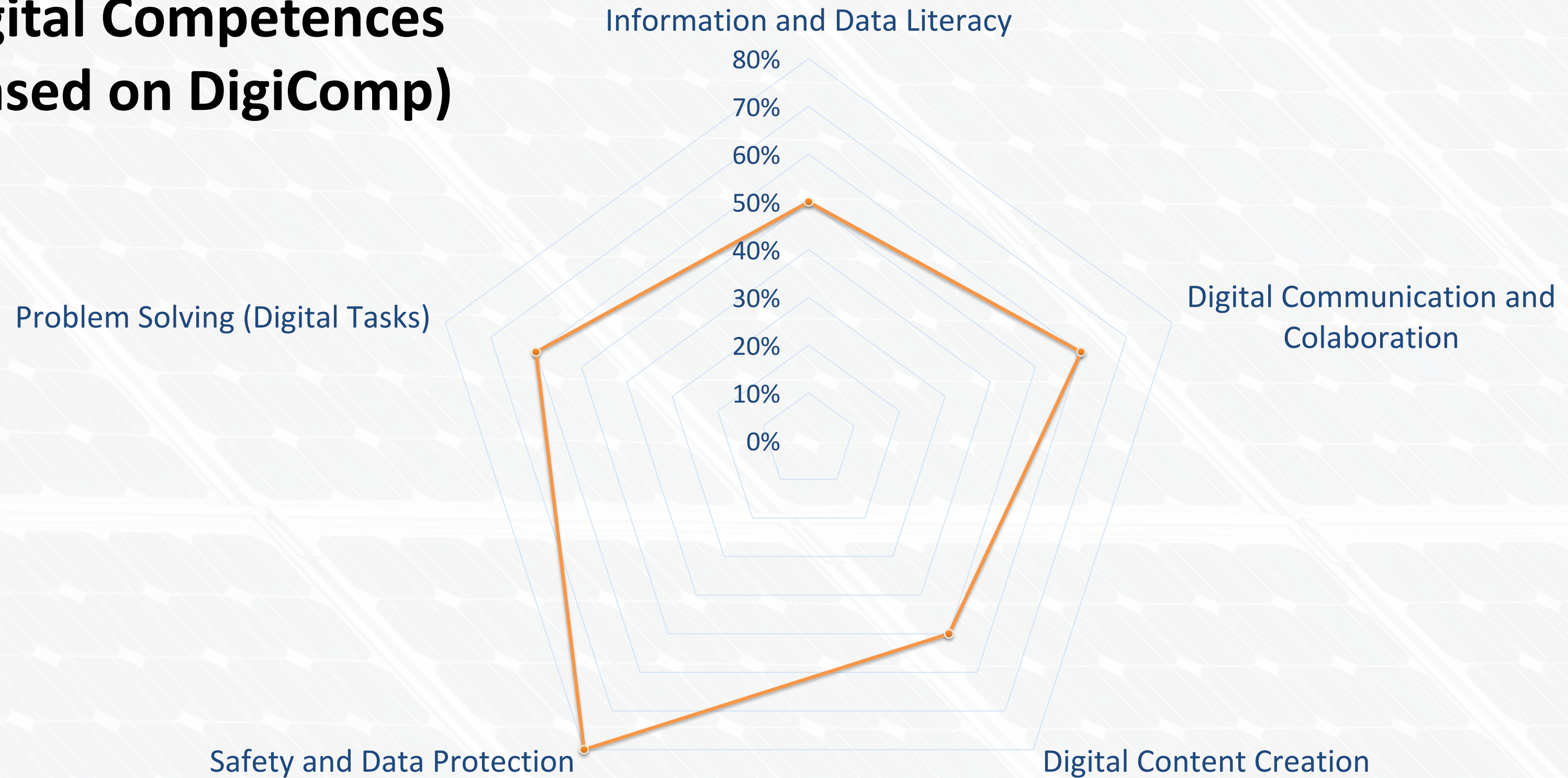
Standardised questionnaires (4-point Likert scale)

Transversal Skill	Percentage of Votes
Collaborative problem-solving	80%
Learning to learn, continuing to learn	80%
Adaptability	70%
Initiative and independent thinking	70%
Cultural awareness and expression	70%

Whittemore 2018

# Importance of Digital Competences (based on DigiComp)

## Percentage of Companies



# Assessment of Company Human Resource Development in Homa Bay

Semi-structured interviews (qualitative content analysis based on Kuckartz 2020)

## Current and future needs of employee competences

Collaborative problem-solving	80%
Learning to learn, continuing to learn	80%
Digital competences	80%
Adaptability	70%

## Impact of digital transformation on companies

Improved visibility	50%
Need for digital trainings for employees	30%

## Desired skills to be taught in educational institutions

IT skills	60%
Communication skills	40%

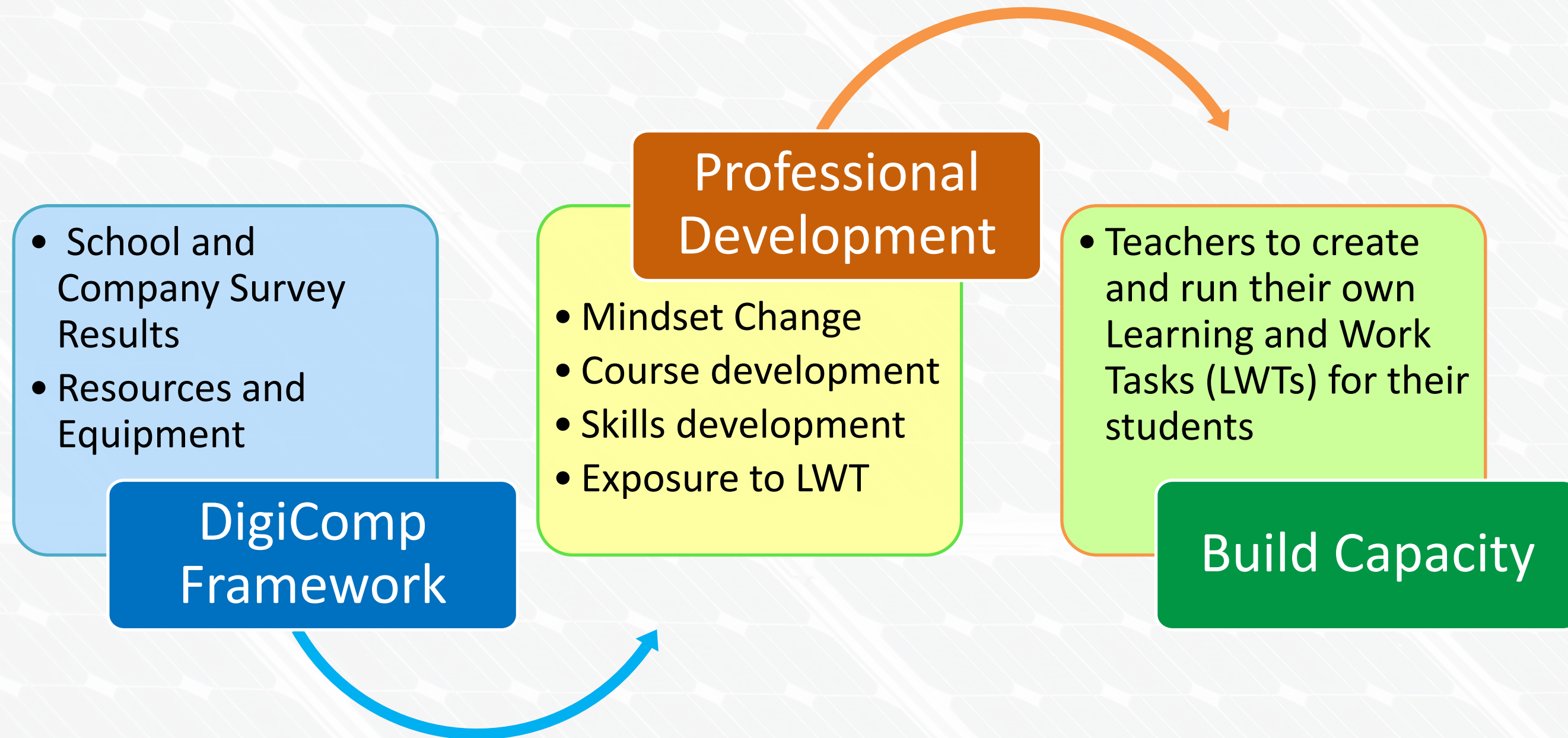
## Challenges in human resource development

Personal resources	60%
Lack of motivation	50%
Time constraints	30%



# Suggested Digital Teaching and Learning Strategy

Compared against SAMR, TPACK, DigCompEdu, etc.



# Conclusions

- There's a huge need for digital competences in rural Kenya.
- A number of issues need to be tackled:
  - a) A reliable power supply
  - b) Access to low-energy devices
  - c) Mindset change for teachers to use devices for teaching/learning
  - d) Knowledge-building for digital-led didactics and content-creation
  - e) Better link to industry-required competences (e.g. LWTs)
  - f) Capacity-building element
- Sustainability and self-sufficiency



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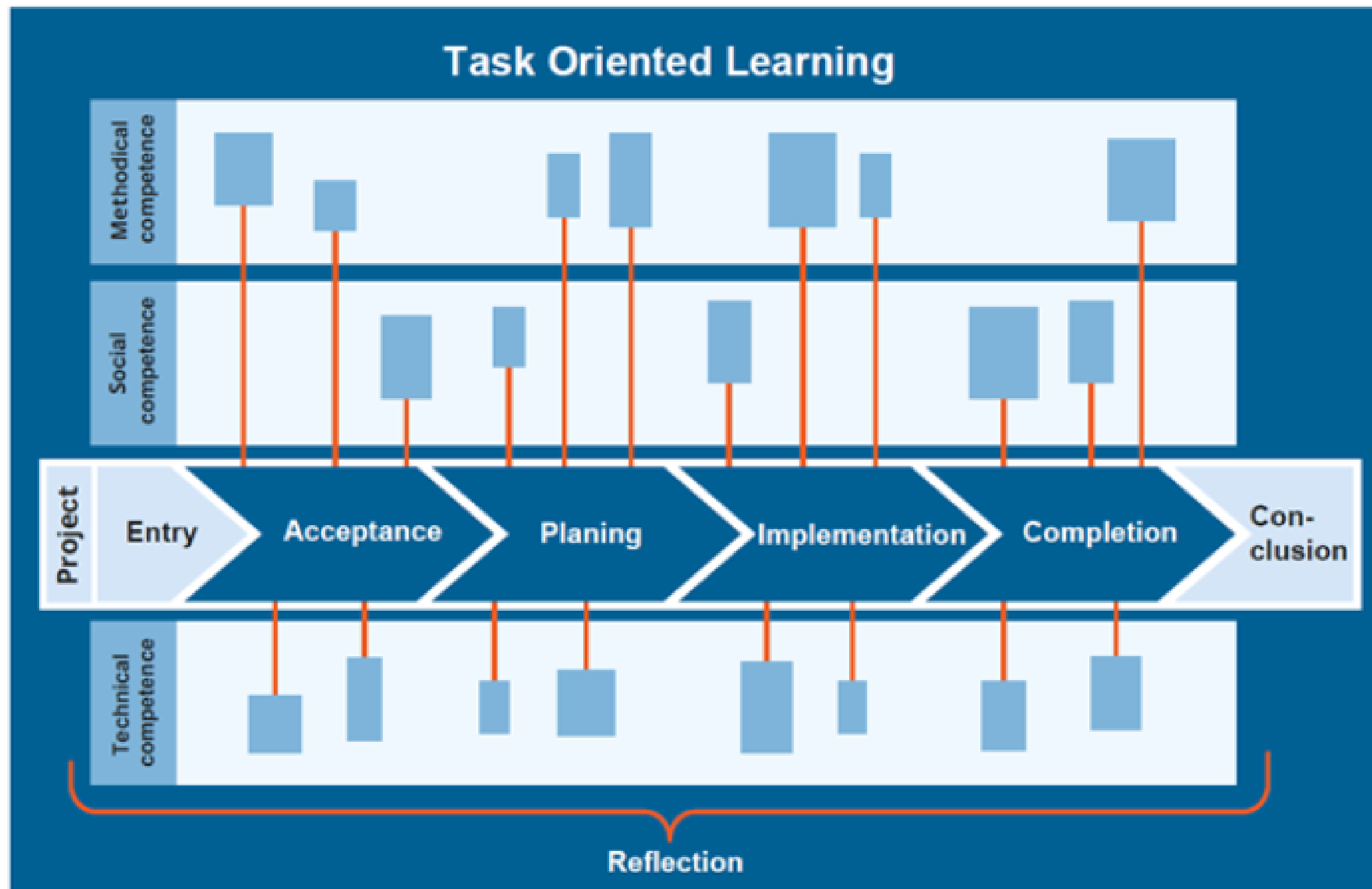
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# Occupational Spheres of Activity



*Fig. 9: Training mission statement: process orientation with systematic reflection on the subject*

# Learning and Work Tasks (LWTs)



LWTs are a proven didactic-methodical concept for a work process-oriented, project-based and possibly also cross-learning location vocational training (Howe 2017)