DIGILOGIC

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D2.2 Agenda and Outline of the Online Mentoring Sessions

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Abstract	DIGILOGIC creates a knowledge base on logistics value chain and latest digital technologies enabling competitive and sustainable logistics processes to be used to foster digital innovation in Africa through online mentoring. This mentoring applies three different formats. The first consists of a series of tech talks on innovative logistics technology and business models. The second format are company specify workshops to develop new approaches for company-specific issues in respect to logistics and digitalization. Coaching sessions are the third format of WP2. Through a series of online sessions, a mentee is coached by a mentor in the implementation of innovative digitalization solutions for logistics.
Keywords	Online sessions, mentoring and coaching, eLearning

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NATURE OF THE DELIVERABLE	R*	
DISSEMINATION LEVEL		
PU	Public, fully open, e.g., web	✓
CL	Classified, information as referred to in Commission Decision 2001/844/EC	
CO	Confidential to DIGILOGIC project and Commission Services	

* R: Document, report (excluding the periodic and final reports)
DEM: Demonstrator, pilot, prototype, plan designs
DEC: Websites, patents filing, press & media actions, videos, etc.
OTHER: Software, technical diagram, etc.

EXECUTIVE SUMMARY

DIGILOGIC is a project funded by the European Union for the cooperation of European and African Digital Innovation Hubs (DIHs). These DIHs aim to support innovators, start-ups, and SMEs to jointly develop smart logistics solutions in close cooperation with industries and ventures. DIGILOGIC sees the horizontally connecting logistics industry at the converging point of interest and priorities for digital innovation for social and business development, a crucial node for Europe's and Africa's sustainable prosperity.

Therefore, a common knowledge base on logistics value chain and latest digital technologies enabling competitive and sustainable logistics processes is established which is used to foster digital innovation in Africa through online mentoring.

This mentoring applies three different formats. The first of which consists of a series of tech talks on innovative logistics technology and business models. Topics of these tech talks include data security, Internet-of-Things, big data analytics, artificial intelligence, 3D printing, digital twins, blockchain / distributed ledger technology, augmented and virtual reality, next generation wireless as well as platforms and marketplaces. Due to the on-going innovation pace this list of topics will be permanently updated during the DIGILOGIC project.

The second format are company specific workshops in which participants from a company together with a mentor develop new approaches for company-specific issues in respect to logistics and digitalization. A typical result of such a workshop is an overall approach to implement a specific logistics innovation for the company.

Coaching sessions are the third format of WP2. Through a series of online sessions, a mentee is coached by a mentor in the implementation of innovative digitalization solutions for logistics. These solutions encompass a technological as well as business model related perspective.

The DIGILOGIC project applies several quality assurance measurements for the three different formats, the performance of its mentors as well as the performance of the mentees. These QA measurements serve for the quality monitoring and permanent improvement of the online mentoring and coaching sessions.

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ABBREVIATIONS

5G	Fifth generation of broadband cellular networks
AGV	Automated Guided Vehicles
AI	Artificial Intelligence
AR	Augmented Reality
CIA	Confidentiality – Integrity - Availability
DOS	Denial of Service
DIH	Digital Innovation Hub
DLT	Distributed Ledger Technology
HLAB	High Level Advisory Board
ICT	Information and Communication Technology
IIB	Innovation and Impact Board
ML	Machine Learning
Q&A	Questions and Answers
VR	Virtual Reality
Wi-Fi	Wireless network protocol for local area computer networks
WP	Work Package

1 CONTEXT OF THE AGENDA AND OUTLINE OF THE ONLINE MENTORING SESSIONS

The purpose of this introduction is to enable readers to understand the context and objectives of this deliverable. Therefore, a short description of the objectives and approach of the DIGILOGIC project is given first. This is followed by a description of the objectives of work package 2 of which this deliverable is part of. Subsequently the structure of this deliverable is presented.

1.1 OBJECTIVES AND OVERALL APPROACH OF THE DIGILOGIC PROJECT

DIGILOGIC is a project funded by the European Union for the cooperation of European and African Digital Innovation Hubs (DIHs). These DIHs aim to support innovators, start-ups, and SMEs to jointly develop smart logistics solutions in close cooperation with industries and ventures. DIGILOGIC sees the horizontally connecting logistics industry at the converging point of interest and priorities for digital innovation for social and business development, a crucial node for Europe's and Africa's sustainable prosperity.

DIGILOGIC will foster the adoption of emerging technologies such as: Cloud Computing, Big Data, AR/VR, Machine Learning, Blockchain, Artificial Intelligence (AI), Smart Devices, IoT and ITS for smart logistic solutions, through the deployment of a dynamic and impactful knowledge transfer and implementation programme.

FIGURE 1: PROJECT VISION

The objectives of the DIGILOGIC Project are (cf. also figure 1):

- To establish a Pan EU-Africa network of initially 5 DIHs focused on the topic of smart logistic and achieve seamless collaboration between the hubs and their pool of emerging technology innovators.

- To strengthen the DIHs technology transfer capabilities to advance African innovators and ICT professionals for better job opportunities.

- To empower African youth, especially women and vulnerable groups with entrepreneurial and digital literacy skills to significantly increase good quality employment opportunities, including self-employment.

- To demonstrate the market relevance of DIGILOGIC network of DIHs engaging at least 200 innovators in the call for Challenges, to participate in the collaborative projects, and value creation in different use cases suggested by stakeholders needs.

- To ensure post project sustainability and growth of the DIGILOGIC ecosystem

The DIGILOGIC project is structure into six work packages (cf. figure 2) and WP7 that covers ethics requirements. The objective of WP1 CONNECT is to create long-lasting partnerships between the engaged EU-AU DIHs to achieve concrete, tangible, and sustainable impact on digital innovation in Africa. WP2 GROUND aims to establish a common knowledge base on logistics value chain as well as to transfer knowledge on digitization for the logistics cases addressed by DIGILOGIC. The goal of WP3 LEARN is to develop an enabling environment managed by EU-AU DIHs for digital start-ups in Africa. These start-ups are to be supported by market driven peer learning and consequent upskilling in digital and entrepreneurship domains. WP4 IMPLEMENT objective is to develop an enabling environment for digital start-ups as well as to establish networks between European and African innovative entrepreneurs and potential investors. WP5 BOOST covers the planning and implementation of the project's dissemination, communication, and exploitation activities. WP6 MANAGE is the project management work package of the DIGILOGIC project.
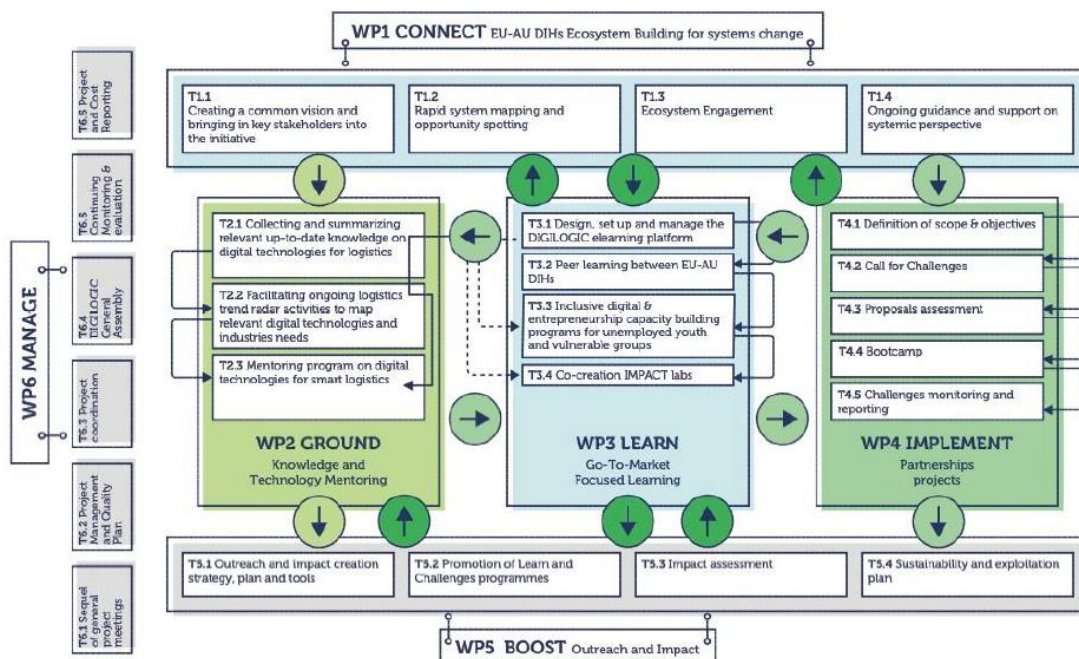

FIGURE 2: WORK BREAKDOWN STRUCTURE OF THE DIGILOGIC PROJECT

1.2 OBJECTIVES OF WP2 GROUND

The overall objective of the work package for this deliverable is to establish a common knowledge base on logistics value chain and latest digital technologies enabling competitive and sustainable logistics processes. The specific objectives of this work package are:

- To investigate and assemble up-to-date knowledge on digital technologies for logistics.

- To prepare and edit information on latest knowledge on digital technologies for logistics.

- To structure and continuously enrich information latest logistics technologies in a strategic innovation agenda as knowledge and technology framework.

- To run a sequel of technology mentoring sessions and webinars.

Main outcomes of WP2 are:

- The strategic research and innovation agenda for logistics (D2.1).

- A sequel of technology mentoring sessions and webinars planned according to Agenda and outline of online mentoring (D2.2, this deliverable, and an updated version with D2.3).

- The logistics trend radar (D2.4).

It is hereby of particular importance that these outcomes are tailored to needs of digital innovation in Africa. This means for the online mentoring, that both technology and business aspects must be addressed and that the constraints of the respective African regions must be considered.

1.3 STRUCTURE OF DELIVERABLE D2.2

This deliverable, the "Agenda and Outline of Online Mentoring", describes the approach for the mentoring sessions and webinars. Therefore, it contains a section on three different formats used for the knowledge exchange and mentoring sessions. This is followed by a description of these formats. Section 6 concludes D2.2 with a description of the quality assurance measurements for the online mentoring and coaching.

Please note, that an updated version (D2.3) of this deliverable will be published after project month 12.

2 FORMATS FOR THE KNOWLEDGE EXCHANGE AND MENTORING SESSIONS

The DIGILOGIC project will offer its mentoring and coaching services with three different formats. These formats differ according to the objective and expected results, the number and "diversity" of participants and the duration. Table 1 gives an overview of these formats which will be described in the following text in detail.

TABLE 1 : DIFFERENCES BETWEEN THE MENTORING AND COACHING FORMATS

	Description	Objectives and expected results	Participants	Duration
Tech Talk	• A speaker gives an online presentation on a technology/ business model topic • Followed by a Q&A section	• Create awareness on new technology and business models • Inspire future entrepreneurs • "Advertise" the open consultation and company workshop formats	• From different companies, start-ups, or entrepreneurs • Optional participation from the ecosystem of local DIHs • Ca. 30 to 70	45 to 60 minutes
Company Workshop	• Open discussion on DIGILOGIC topics on smart logistics between a single company / entrepreneur and a DIGILOGIC mentor • Topics to be defined before the workshop by the company/ entrepreneur • Preparation by the mentor	• The mentor gathers an initial understanding of the participants demand • The participant gets reference to solutions • To generate solution approaches for a specific company	• 1 to 5 participants from a single company • One mentor • One representative from a local DIH	2 to 4 hours
Coaching Session	• Telephone or video conference	• To support a company / an entrepreneur implementing a solution		30 to 60 minutes

Note that all three formats are open to potential applicants – companies, start-ups, entrepreneurs/individuals – of the challenges of DIGILOGIC's WP4 IMPLEMENT.

2.1 TECH TALKS

2.1.1 Format of a Tech Talk

A tech talk is an online video presentation given by a speaker to an audience of several participants from different companies/start-ups. It should last between 45 and 60 minutes. Figure 3 shows examples of DIGOLOGIC tech talk

topics on logistics. The tech talk should cover the introduction of new technologies as well as the business implications, especially in relation to start-ups in Africa or specific African regions / countries.

The tech talk will be performed through common video conference solutions used for webinars such as Zoom or Microsoft Teams and has the following generic agenda:

- Introduction to the tech talk and introduction to speaker (5 minutes)
- The speaker presents the topic (25 to 40 minutes)
- Questions and answers (up to 15 minutes)

A tech talk might be recorded so that it can made available on DIGILOGIC's Community-platform (https://community.digilogic.africa/). It is further advised that participants register for a tech talk to manage the number of participants. If there are many (e.g., more than 100) participants registering for tech talk then it should be either considered to give the tech talk several times to have sufficient time for the questions and answers or to have several experts available so that the parallel Q&A sessions can be performed. Optionally, representatives from the DIH's ecosystems could take part as well.

Warehousing
- Tracking
- Pooling of resources
- Cold chain storage
- Automatization

Transport
- Environmentally friendly vehicles
- Matching
- Routing
- Tracking technologies
- Cold chain monitoring
- Vehicles and drivers' security

Point of sale
- Tracking
- Addressing
- Routing
- Inventory and ordering technologies for retailers and distributors

End consumer
- Addressing
- Tracking
- KYC analytics
- Biometric ID
- Smart lockers

FIGURE 3: CHALLENGES ACCORDING TO WP2 AS TOPICS FOR TECH TALKS

2.1.2   Topics of Tech Talks

The topics for the tech talks should relate to the WP4 Challenges. The following is a *first list of possible topics* for tech talks. Please note, that this list will be updated not only with the D2.3 (Updated Version of the Agenda and Outline of the Online Mentoring Sessions) but also during whole duration of the DIGILOGIC project. It is the nature of technological innovation that this is fast-paced and requires a constant update depending on needs for digital innovation in the various African regions as well as to reflect changes in the technology.

Please note further that these topics are independent from each other. This means, that the order in which participants attend these talks is not relevant. Also, it is very likely that participants will only attend a subset of these tech talks.

2.1.2.1   Secure data exchange and data Sovereignty

All digital innovations require the exchange of data between the involved participants. The security of this data is of key importance. Breaches in the data security could lead to problems as described by the well-established CIA[1] triad of computer security:

- Confidentiality
  Many business data exchanged between a company and its customers is of a private nature. Consequently, the privacy of this data is of key importance. Companies offering new digital services must ensure the data privacy is always enforced.
- Integrity
  The protection against data corruption is the second topic in the CIA triad. This applies not only through the data exchanged but also to the digital systems of the company and its customers. Corrupted data could lead, e.g., to so-called ransomware attacks.
- Availability
  Customers expect a high availability of digital services, meaning that downtimes are kept as low as possible. Therefore, companies must especially prepare against malicious attacks, also called DOS (Denial of Service) attacks.

2.1.2.2   Internet of things

Embedded systems are systems based on small computers that perform autonomous and independent outputs. With the Internet of Things (IoT), these are, for example, the monitoring of urban processes, such as the movement of assets, the monitoring of load carriers regarding shock, temperature, light exposure, humidity or temperature, or the monitoring of supply and filling levels of containers through image and non-image-generating sensor technology.

The added value lies in the energy and cost efficiency of the embedded systems. The latest semiconductor technologies in both processor technology and sensor technology allow the development of devices that function for up to 10 years without needing maintenance. Production costs of just a few euros mean that sensor technology can be used across the board even for the simplest processes.

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[1] Please note the CIA triad has no affiliation to the intelligence service of the USA.

2.1.2.3   Big Data Analytics

Big Data is defined by the rapid growth of digital data volumes, which are generated from different sources in different data structures by a constantly increasing number of users, sensors, processes, and other sources and can be analyzed using methods from the Big Data Analytics area. Innovative big data analytics methods play a decisive role in generating added value, e.g., in decision support or forecasts.

Due to the close linking of processes in logistics with IT systems and the simultaneous increase in the complexity of logistics, the existing IT systems must manage ever more complex tasks and ever-increasing amounts of data and the most diverse data structures. In addition to the large amounts of data, the complexity and the various data structures, the need for real-time decision-making is increasing. Due to this development in logistics, current IT systems are reaching their limits and will have to be expanded in the future to include methods and systems from the field of big data analytics.

2.1.2.4   Artificial Intelligence

Artificial intelligence (AI) has become one of the top topics in a variety of forums, newspaper articles, expert panels and in the business community in recent years. The importance of this technology is also growing rapidly in the logistics industry.

The use of AI and especially machine learning (ML) methods is strongly supported by the development of ICT infrastructure. With new communication technologies, such as 5G networks, data generated by IoT technologies can be transferred quickly and from anywhere to cloud systems. There, large amounts of computing power can be used to train ML models based on the data, and the insights can either be sent back to the technologies or used for further analysis.

The possible applications of AI in logistics are as diverse as the tasks of logistics. The opportunities to use resources more efficiently, improve logistics services and enable new business models through AI in logistics are considerable.

2.1.2.5   3D Printing

The application of 3D printing technology has continued to accelerate over the course of the last few years. More and more materials can be printed faster and in significantly better quality. This type of manufacturing can be used for both individual pieces and series - and around the clock. Shorter supply chains, the avoidance of overproduction and spare parts warehouses, the use of recyclable materials in a closed-loop system can all be realized. Additive manufacturing, as 3D printing is called in an industrial context, can also be used to produce customized parts in large quantities.

2.1.2.6   Digital Twins

Logistic systems are hard to comprehend by the human mind. Many distributed actors must coordinate with each other, and the variety of processes has greatly increased due to individualization of products and services. Under the notion digital twin different ICT approaches have been propagated to better cope with this complexity. A digital twin is a digital representation of the real world in the digital world. It is possible to model both the current situation as to simulate future states. Consequently, digital twins are used in logistics for the supply chain event management as an early warning system as well as to perform what-if analyses for a better decision making.

2.1.2.7 Distributed Ledger Technology

The blockchain or distributed ledger technology (DLT) offer high innovation potentials for logistics. Transactions can take place without delay, operational trading risks are minimized, manual errors and coordination problems are reduced. Nowadays, reconciliations between customers and companies had to take place manually or semi-automatically; the blockchain could automate this process in the long term. DLT can improve transparency and reduce costs in the interactions between companies, individuals, and public organizations. Blockchain-enabled IoT devices enable real-time data collection and autonomous real-time control of supply chains. The secure integration of physical and monetarily relevant processes into a blockchain-based ecosystem ensures horizontal and vertical networking.

2.1.2.8 Augmented and Virtual Reality

Augmented and virtual reality is used in many different logistics processes, such as incoming goods receipt, order picking or packaging. For example, the order picker receives certain product information about the product during the picking process. In addition, the coordinates of the product location and the quantity to be picked are visually displayed. The use of Augmented Reality (AR) technologies is not limited to the AR glasses but works just as well with a smartphone or tablet.

Virtual reality (VR) is frequently used in the development of new logistics technology as well as for training purposes. Processes and workplaces can be designed and tested in the VR environment regarding evaluation parameters such as performance or physical and cognitive ergonomics. A coupling with motion capturing suits is possible. The virtually designed workplaces and processes can be transferred into a training environment for the employees. By embedding them in a game concept, employees can be trained in a motivating and immersive way on the laptops, tablets, or mobile devices.

2.1.2.9 Next Generation Wireless

Wireless communication with so-called 5G and Wi-Fi 6 promises significant gains in respect to data rates, extremely low latency along with maximum reliability, and countless numbers of connected devices. Wi-Fi technologies are designed to provide devices with exceptional signal coverage and high-speed data transmission for indoor or local activities. Next generation wireless communication techniques thus are enabling technologies for many new logistics services.

2.1.2.10 Platforms and Market places

Many of the most successful and largest companies such as Amazon, Google, Alibaba, Netflix, Facebook, or Apple operate from internet platforms. This kind of business model is implemented in the logistics domain as well. Logistics companies may have no own fleets of trucks, ships or aircraft and offer their logistics services via platforms and marketplaces.

2.2 COMPANY WORKSHOPS

A company workshop is a format through which companies / entrepreneurs can discuss logistics digitization topics with a mentor. Start-ups can receive direct and personal initial advice on all questions relating to the logistics topics of DIGILOGIC. The discussion is between a mentor and participants from a single company (or a future start-up). Furthermore, it is advised that representatives from a local DIH take part as well.

Mentors – the notion coach can be used synonymously – are experts on digital innovation in logistics. Fraunhofer IML will provide these experts during the duration of the DIGILOGIC project. The DIGILOGIC project should target, that representatives of local DIH are becoming experts as well to improve the sustainability of these coaching and mentoring formats. Furthermore, members of DIGILOGIC's High Level Advisory Board (HLAB) and Innovation and Impact Board (IIB) could become mentors. However, the DIGILOGIC project has no budget to pay these additional experts.

Company workshops are intended to applicants – companies, start-ups, entrepreneurs/individuals – of the challenges of DIGILOGIC's WP4 IMPLEMENT. The DIGILOGIC project teams of WP2 GROUND and WP4 IMPLEMENT will define the specifics of the application process till project month 12 and will be described in D2.3 (Updated Version of the Agenda and Outline of the Online Mentoring Sessions).

The outcome of such consultations could be:

- The company receives generic advice (on technology, support measures, additional resources, business partners, …).
- Companies / entrepreneurs can discuss a specific digitization topic and/or use case with a mentor in more detail. The main result of such a workshop is typically an action plan for the company.

The duration of a company workshop highly depends on the topics to be covered and could last between 2 and 4 hours. Workshops with a longer duration (more than 2 hours) should have a longer break (e.g., 30 minutes).

The workshop is prepared and moderated by the mentor. Before the workshop it is required to perform a test of the computer / video conference solution applied to address (and better eliminate) issues such as low bandwidth as well as problems with the hardware (camera, loudspeakers, microphone) and the ambience (background noise, poor lighting) at all involved participants (mentees, mentor, local DIH).

2.3 COACHING SESSIONS

Coaching sessions are held after a company workshop. In these sessions a mentee is coached by a mentor. Mentees are employees of existing companies as-well as entrepreneurs who are creating a start-up. Coaching sessions are agreed between a mentor and mentee to support the mentee in the implementation of digital innovation. The mentee can discuss with the mentor issues relating to the digitization approach of his/her company. The topic of a coaching session is specified by the mentee in advance to the coaching session so that the mentor can prepare the session accordingly.

These sessions are scheduled as video / computer conference – Zoom, MS Teams, etc. – between a mentor and a mentee. Ideally a representative from a local DIH should take part as well. Again, technological issues regarding the internet connection, the equipment, and the ambience (see above) should be resolved before the coaching session.

3   QUALITY ASSURANCE OF COACHING FORMATS

WP2 applies several evaluation measures for these different coaching formats during the lifetime of the DIGILOG project (cf. table 2). The purpose of these light-weight measurements is to monitor and improve the quality of the tech talks, company workshops, and coaching sessions. The specifics of the quality assurance for DIGILOGIC's coaching and mentoring sessions will be described in D2.3 (Updated Version of the Agenda and Outline of the Online Mentoring Sessions).

Please note that the impact measuring is covered in WP5 of the DIGILOGIC project.

Please note further, that DIGILOGIC is offering content in respect to the description of activities of the Grant Agreement. It could happen, that participants of the three different formats have different expectations and assess the coaching and mentoring as not relevant. However, in this case it is not a quality issue of the formats but a mismatch of expectations and offerings.

TABLE 2 : QUALITY ASSURANCE OF COACHING FORMATS IN WP2

	Impact Measurement
Tech Talk	- Online questionnaire at the end of each tech talk - The participants rate the relevance and usability of the information given (e.g., self-assessment with a 5-point Likert scale)
Company Workshop	- The participants rate the impact of the company workshop immediately after the workshop - Therefore, an online questionnaire at the DIGILOGIC Community-Platform web site should be applied.
Coaching Sessions	- A company usually takes part in several coaching sessions. Consequently, we will measure the impact in timeline structure. - After each coaching session both the mentor and the mentee give feedback on the coaching session and the status of the "project". Therefore, an online questionnaire maintained at the DIGILOGIC Community-Platform should be used. This could be used - for "flagging" issues (e.g., performance, personality fit (openness to receive mentoring), business model). - A final, lean impact measurement should be performed after the last coaching session to gain proof-points for future cohorts.