619130-EPP-1-2020-1-FR-EPPKA2-CBHE-JP

Selection: 2020

KA2 – Cooperation for innovation and the exchange of good practices –
Capacity Building in the field of Higher Education

strENgtHening skills and training expertise for TunisiAN and MorocCan transition to industry 4.0 Era / ENHANCE

D2.7. Digital innovation Hub

Deliverable Identifier	D2.7
Deliverable Date	M38 – 14 / 03 /2024
Deliverable Version	V 1.3 - 2024
Deliverable Leader	IIT
Deliverable participants	All
Dissemination Level	Public

Document Control Page

Title	Digital Innovation Hub
Version	V1.4 – 2024
Deliverable number	D2.7
Work-Package	WP2
Status	☐ Draft ☐ Under Review ☐ Under Update ☐ Accepted by the coordinator ☒ Submitted to the commission
Authors	Achraf Ammar, IIT
Contributors	All partners
Peer Reviewers 1:	Joao Sarraipa (UNL)
Assigned Date	18/12/2023
Received Date	20/12/2023
Peer Reviewers 2:	Abdelmajid Elouadi (UIT)
Assigned Date	20/12/2023
Received Date	22/12/2023
Date of Delivery	14/06/2024
Dissemination level	☒ Public ☐ Confidential, only for ENHANCE Consortium (including EC) ☐ EU-Restricted

Version History

Version	Date	Description	Edited by
1.0		Initial Version	Achraf Ammar
1.1		Draft for Consortium sharing	Achraf Ammar
1.2		Final Draft with integration of comments from reviewers	Achraf Ammar
1.3		Final Version	Achraf Ammar and Nejib Moalla
1.4		Submitted to the commission	Nejib Moalla

Table of contents

Table of figures

Table of Tables

1. Introduction

This document is developed as part of the ENHANCE project.

1.1. Purpose of the document

This document reports the creation of three Digital Innovation Hubs (DIH) in the partner countries as one among the outcomes of the project enhance. Based on the European vision related to the DIH, and their services and the existing Competence centres created also in this project, the different steps to create the DIH are defined in this document.

1.2. Reference documents

Deliverable D1.6: The administrative organisation of the DIH.

1.3. Applicability

This document will be used by the different partner countries institutions to assess the existing competence centre and the to create the DIH.

1.4. Definitions

Competence Centre: are institutions offering expertise in key enabling technologies.

Digital Innovation Hub: one-stop-shops organisations proposing digitalisation services to industry.

1.5. Structure of the document

This document is organized in 6 sections:

- Section 1: Introduction
- Section 2: ENHANCE project overview
- Section 3: Competence centres and Digital Innovation Hubs as outcomes of the Enhance project
- Section 4: Digital Innovation Hub: definition and services
- Section 5: The methodology to create Competence Centres and Digital innovation Hubs
- Section 6: Annexes

1.6. List of acronyms

- CC: competence centres
- DG-CNECT: Directorate-General for Communications Networks, Content and Technology
- DIH: Digital innovation Hub
- HEI: Higher Education Institution
- KET: The Key Enabling Technologies
- LEL: Lifelong eLearning platform
- MPQ4.0: Maintenance Production Quality 4.0

2. ENHANCE project overview.

ENHANCE – strENgtHening skills and training expertise for TunisiAN and MorocCan transition to industry 4.0 Era – is an Erasmus Plus project founded under the KA2 Cooperation for innovation and the exchange of good practices (Capacity Building in the field of Higher Education) programme by the European Commission under Grant Agreement N° 619130, to be conducted in the period January 2021 until January 2024. It engages 7 partners from 5 countries with a total budget of 779k€. Further information can be found at http://eplus-enhance.eu/. Figure 1 gives an overview of the ENHANCE project organization.

The emergence of industry 4.0 concepts and applications brings new paradigms impacting all the industrial business domains when they need to conduct successful digital transformations or increase workshops connectivity. The evolution of Maintenance, Production and Quality Engineering (MPQ 4.0) represents the main application domains where Industry 4.0 produces effective beneficial results.

Figure 1. ENHANCE project organization.

The ENHANCE project focuses on building new MPQ training capacities at Higher Education Institutions (HEI) in Tunisia and Morocco to establish interactions between the following stakeholders:

- European universities and research institutions (from France, Germany and Portugal) confirmed MPQ 4.0 competencies, training materials, collaborative research projects, full operational Digital Innovation Hubs (DIH), technology transfer experiences, etc.
- Partner country universities (from Tunisia and Morocco) with teaching and training activities in MPQ and existing connections with their local industrial partners.

The ENHANCE project will create several outputs and two primary tangible outcomes:

- New MPQ 4.0 equipment and training materials developed in connection with the existing training programmes and consolidated through three industrial pilots. The new material will be used to train the trainers and the students in the different partner country universities.
- Two DIHs, one in Tunisia and one in Morocco to sustain the project outcomes through their reuse for training in industry.

ENHANCE aims to become the reference model for creating effective and sustainable training material for MPQ 4.0 in both partner countries with content approved by academia and industry.

3. Competence centres and Digital Innovation Hubs as outcomes of the Enhance project

The creation of one competence centre (CC) in each HEI partner and the creation of at least one Digital Innovation Hub (DIH) by country is among the objectives of the project. All the outputs of the project will represent an input for the creation of the CC and DIH. The relation between the output of the projects and how these outputs deserve to push the CC and DIH activities are presented in Table 1.

Table 1: ENHANCE project outputs and link with CC and DIH

Project outputs	How to serve for the CC and DIH?
MPQ 4.0 courses and activities	The MPQ4.0 learning materials may be used by the CC and DIH to animate training sessions for students and industrial experts
The LEL platform	It will be accessible by the partners and users of the CC and DIH
The learning equipment	The selected and purchased equipment during the project will be used to train industrial and trainers, work on real use cases and show MPQ 4.0 technologies
Dissemination activities	All the workshops, seminar and training sessions will help to increase the visibility of the CC and DIH
Train trainers' sessions	These sessions permit to have several qualified trainers who will be able to animate training sessions and work on real industrial projects

4. Digital Innovation Hub: definition and services

The definition of DIH and the different services are already detailed in the deliverable 1.6. This section is just to remind the related concepts.

4.1. DIH Definition of Digital Innovation Hub

The European Commission defines Digital Innovation Hubs (DIH) as structures to help and support companies, in particular SMEs, in improving their business and production processes and their products and services using technologies.

By offering a better understanding of opportunities in the field and easier access to knowledge and testing facilities and centres, they help companies better master their digital transition and make them more competitive.

4.2. Services of DIH

The DIHs are organized around several organizations but act as a "one stop shop" serving businesses in their region. To do this, they adopt an approach targeted to the needs of businesses.

The services offered by the DIH include:

- The identification and active search for companies that could benefit from digitalization of their processes, products or business models, and the promotion of successful digitalization cases.
- Understanding the needs of these companies through working together to develop appropriate solutions and helping to connect with technology suppliers.
- Infrastructure to allow technology providers and users to test the advisability of certain approaches, and if necessary, adapt the proposed technology to the specific needs of the company. These support services can take the form of expertise, technological building blocks, pilot lines to produce prototypes or a first series of productions, test facilities and living labs to validate new products/business models.
- Mentoring programs and specific expertise relating to start-up/scale-up, business, access to financing, incubation support, internationalization, marketing, market access, trend analysis, value chain analysis.
- Digital skills with training of the workforce in new products, processes and business models linked to digitalization.

Each region is free to establish the priorities of its DIH according to regional specificities: it can be focused on a sector, on a technology, an application, etc. or encompass the regional ecosystem. More explanation about CC and DIH is given in the deliverable D1.6 (DIH administrative organization in Morocco and Tunisia).

5. The methodology to create Competence Centres and Digital innovation Hubs

The creation methodology in this project consists in starting with the creation of a CC in each HEI partner and then the creation of DIH following the instructions defined in Figure 2. This figure is taken from Deliverable 1.6.

Figure 2 DIH administrative organization in Morocco and Tunisia Taken from D1.6 (figure 8)

As described in Figure 2, the process started by defining the Key Enabling Technologies (KET) for all the partners. The KETs have already been defined in D1.1. The association activity's – KET is presented in the table 2 of deliverable D1.6. Each partner should refer to the CC creation template to start creation. This creation will be evaluated and validated based on some criteria that will be defined. The DIH creation phase will be based on the guide and the maturity model presented in D1.6 figure 4 and 5 as

mentioned in the diagram above. Once the creation is validated, we start the procedure to submit the applications to DGCNECT.

Based on these instructions and to ensure synchronization between the different steps, a work plan is defined between M18 and M36 of the project. The planning of CC and DIH creation is presented in Figure 3.

	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
Creation of the CC	■	■	■	■	■	■	■	■	■										
Creation of Websites					■	■	■	■	■	■	■								
Evaluation of the CC and review results								■	■	■	■	■	■	■	■	■			
Creation of the DIH																■	■	■	■
Creation of the DIH websites																	■	■	■
Administrative procedure for DIH creation																			■

Figure 3: The planning of CC and DIH creation

5.1. Creation of the Competence Centres

The first stage of this process is the creation of the competence centres. Three competence centres have been created the different HEI partners:
- UCAR: INNOTECH
- IIT: SmartecH
- UIT: Cosinus

5.1.1. The CC websites:

To be more visible and to facilitate the communication of CC services, all the useful information that helps to present the CC is shown in the CC websites. Each website contains the following elements already inspired from Figure 4 of D1.6: ENHANCE Competence Centre organization template:

- CC name
- CC mission, vision and objectives
- List of industrial and academic partners
- Services and technologies catalogues
- list of technical and human resources
- Events portal
- Contacts list

The CC websites are accessible from the web site of the project: https://eplus-enhance.eu/competence-centres/

The different websites are:
- UCAR: INNOTECH: https://innotech.eplus-enhance.eu/
- IIT: SMARTECH: https://smartech.eplus-enhance.eu/
- IUT: COSINUS: https://cosinus.eplus-enhance.eu/

5.1.2. Evaluation the CC

A list of criteria is defined to assess the CC websites and the different services:

- C1: Clear definition of the organisation of the competence centre (link with university, Lab, etc.)
- C2: Presence of infrastructure and technology assets and platforms
- C3: Presence of resources (human, etc.) with clear expertise (their profiles) in digitalisation, digital transformation, Innovation, etc
- C4: Clear definition of CC missions
- C5: Structured examples of experimentations with end-users: Examples of Showcases (Videos, demonstrations, etc.) technologies in pilot factories, fab labs, etc

5.1.3. Review results of the CC structure

Each CC has been evaluated based on the mentioned criteria in the previous section. The results review for the three CC are presented in the following three tables. This evaluation was made in the plenary meeting in Lisbon between 13th and 17th November 2023. The different partners were invited to update the contents of their CC websites according to the different comments.

Table 2: Review results for UCAR

Criteria	Comments
C1	in the main page, add information about the legal entity supporting the CC
C2	Add one page per team member with short presentation of each resource, competences, experience in projects dev, etc.
C3	add material resources (all equipment)
C4	supporting digital transformation in manufacturing companies with applications related to product quality, predictive maintenance, etc.
C5	Example of structure to describe delivered digitalisation services: industrial partner: collaboration period: Topic :(improve product quality in plastic industry) Key enabling technologies: provide services: link with digitalization: impact of the experimentation:
C6	Illustration in front of each experience

Table 3: Review results for IIT:

Criteria	Comments
C1	In the main page, add information about the legal entity supporting the CC
C2	Add one page per team member with short presentation of each resource, competences, experience in projects dev, etc.
C3	Update listed materials with more information about competences and exploitation capabilities
C4	supporting digital transformation in manufacturing companies with applications related to product quality, predictive maintenance, etc.

Co-funded by the
Erasmus+ Programme
of the European Union

Criteria	Comments
C5	Example of structure to describe delivered digitalisation services: industrial partner: collaboration period: Topic :(improve product quality in plastic industry) Key enabling technologies: provide services: link with digitalization: impact of the experimentation:
C6	Illustration in front of each experience

Table 4: Review results for UIT:

Criteria	Comments
C1	in the main page, develop more the information about the legal entity supporting the CC
C2	Add one page per team member with short presentation of each resource, competences, experience in projects dev, etc.
C3	add material resources (all equipment)
C4	to be updated
C5	Example of structure to describe delivered digitalisation services: industrial partner: collaboration period: Topic :(improve product quality in plastic industry) Key enabling technologies: provide services: link with digitalization: impact of the experimentation:
C6	Illustration in front of each experience

5.2. The creation of the DIH

After the validation of the CC creation, we move on to the creation of DIH. This creation should respect the specificities of DIH presented in D1.6 (figures 4, 5, 6, and 8).

Based on the elements presented in D1.6, a set of criteria are defined to help each partner in the DIH creation process. These criteria will be used to help partners creating the DIH websites starting from the ones used for the CC.

5.2.3. Procedure to evaluate the DIH

The different criteria used to create the DIH website are presented in the following. These criteria were defined during the plenary meeting of Lisbon from 13th to 17th November 2023

- C4DIH1: Clear definition of the organisation of the DIH (link with university, Lab, etc.)
- C4DIH2: Clear definition of DIH missions (digitalisation domains) -
- C4DIH3: Clear connexion with national / regional initiatives in digitalisation
- C4DIH4: Link with existing of innovation ecosystem: link with other DIH / CC / regional institutions

- C4DIH5: Services to support companies to access to finance (regional innovation programmes, etc.)
- C4DIH6: Services for training and education
- C4DIH7: Services for incubation and mentoring
- C4DIH8: Presence of infrastructure and technology assets and platforms: equipment
- C4DIH9: Presence of resources (human, etc.) with clear expertise (their profiles) in digitalization, digital transformation, Innovation, etc.
- C4DIH10: Structured examples of experimentations with end-users
- C4DIH11: Examples of Showcases (Videos, demonstrations, etc.) technologies in pilot factories, fab labs, etc.

5.2.2. Creation of DIH Websites

As in the case of the CC, all the useful information that help to present the DIH are presented in the DIH websites. Each website contains the following elements already defined in Figure 5 of D1.6

- DIH Name
- DIH mission, vision and objectives
- List of industrial and academic partners
- Services and technologies catalogues
- list of technical and human resources
- Events portal
- Contacts list

The different DIH websites are:
- UCAR: INNOTECH: https://innotech-fsegn.tn/
- IIT: SMARTECH: https://itep.tn
- UIT: COSINUS: https://cosinus.uit.ac.ma

5.2.3. Review of the DIH website

Each DIH has been evaluated based on the mentioned criteria in the previous section (5.2.2). This evaluation was made in collaboration with a representative of DG CNECT. A set of overall comments is outlined in the following. The different partners were invited to update the contents of their DIH websites according to the different comments.

- Main DIH page to be referenced: each partner should describe more the previous digitalization experiences with local companies. More description should be provided concerning the partner, the budget, the realization period, the proposed services and solutions and the main achievement.
- DIH activities: the description of the key activities of each DIH should be improved:
    - Training activities: the use of training materials should be more described. A simple description of the equipment is not enough
    - Testing: the digitalization experiences should be referenced
    - Networking: The different industrial workshops and training sessions should be well presented
    - Sources of finding: An overview on available finding opportunities and how to access to national and international financing mechanism should be presented

- DIH governance: The resources that may be engaged by each HEI to ensure a best development of the DIH should be presented
    - The contribution of the HEI partner: the additional technical resources that may be provided by each partner should be presented
    - Team of experts: the background of each member of team should be described
    - The capacity to be engaged in collaborative projects should be described by presenting at least the kind of projects that the DIH can integrate
- DIH positioning by giving more description of the national strategy of digitalization, the regional specificities and how each DIH can contribute to regional and national development through the available collaboration channels.

5.3. Administrative procedure to submit DIH application

When the three DIH websites are populated with all the necessary information, the labelling application will be submitted to DG-CNECT. Some administrative and supporting letters are requested before the submission.

5.3.1. Engagement letters form DIH legal representatives

Each HEI partner is invited to formulate a clear engagement to create the DIH and implement the different activities. The three letters signed by each HEI representative are presented in the Annex 1.

5.3.2. Supporting letters from local industrial companies in TN and MA

Each partner should ask the local industrial companies for supporting letters to show the needs of regions for DIH. Examples of the supporting letters are presented in the Annex 2.

5.3.3. Supporting letters from DIHs in EU

A supporting letter from the European partners (DIH managers) of the project are provided at this stage. The three letters are presented are presented in the Annex 3.

6. Annexes

6.1. Annexe 1: Engagement letters form DIH legal representatives

No documents received from the three partners in Tunisia and Morocco.

6.2. Annexe 2: Supporting letters from local industrial companies in TN and MA

No documents received from the three partners in Tunisia and Morocco.

6.1. Annexe 3: Supporting letters from DIHs in EU

The three supporting letters are presented in the next pages.

Co-funded by the
Erasmus+ Programme
of the European Union

Enhance
Maintenance – Production – Quality

January 15ᵗʰ, 2024

Object: Supporting letter for an African DIH creation at the Faculty of Economics and Management of Nabeul, University Carthage, Nabeul – Tunisia.

ENHANCE is an Erasmus+ project co-financed by the European Union between 2021 and 2024. As a Capacity Building for Higher Education (CBHE) project ENHANCE is developed by a consortium made up of 7 institutions from 3 different European countries (France, Germany, and Portugal) and 2 partner countries - PC (Tunisia and Morocco).

The overall objective of ENHANCE is to contribute to strengthening the skills and training expertise of both Tunisian and Moroccan universities in the three targeted MPQ 4.0 topics for inciting and assisting the PC transition to industry 4.0 era. The project releases several deliverables covering 42 innovative training materials (courses, uses cases, showcases, etc.), a training platform, access to training equipment and facilities, etc.

In parallel with the European initiative (2021-2023) for international partnership building between European and African innovation hubs (H2020 ICT 58), the ENHANCE project supports the creation of three Digital Innovation Hubs in Morocco and in Tunisia. In fact, the three European partners (University Lumiere Lyon 2 - FR, BIBA - Bremer Institut für Produktion und Logistik GmbH – DE, and Universidade NOVA de Lisboa - PT) are leading their fully operational DIHs with a common interest in Industry 4.0 related concepts, services, and applications. As a consortium, they released procedures to guide the organisation, the creation, and the evaluation of the targeted Competence Centers and Digital Innovation Hubs in Morocco and Tunisia.

The Faculty of Economics and Management of Nabeul in Tunisia via the University of Carthage proposes a Digital Innovation Hub called *InnoTech* for inclusive digital transformation and sustainable development. As a DIH, *InnoTech* develops a strong connection with regional companies in the governorate of Nabeul and many other regions in Tunisia.

The supporting activities proposed by the InnoTech DIH (www.innotech-fsegn.tn) are aligned with the Tunisian National Digital Strategy 2021-2025 to ensure full mobilization of the potential of digital technologies in the country's development projects. The regional and national digital transformation in Tunisia, particularly in the Nabeul region, is comprehensive, targeting to engage stakeholders from the public and private sectors, as well as international organisations, in an open and collaborative spirit. The vision is to put digital transformation at the centre of the country's economic and social development. Artificial intelligence (AI) is being prioritised to accelerate the digital transition, with aims to boost economic productivity and efficiency across various sectors.

The main activities proposed by the *InnoTech* DIH to companies and start-ups are:

- Training activities for workers. The material released under the ENHANCE project is part of the *InnoTech* catalogue.
- Testing before investing. By supporting industrial companies in the development of digitalisation Prof of Concepts (POC) in domains of Quality 4.0 and Maintenance 4.0. The integration of Artificial Intelligence and Augmented Reality are promoted as technologies to develop innovative solutions.
- Networking. By organising industrial workshops aiming at sharing industrial experiences in the adoption of new digital transformations technologies with lessons learned and preconisation for scaling the deployment of solutions and worker's empowerment.
- Support access to financing facilities promoted by the regional chamber of commerce, industry, and services of Nabeul.

Enhance
Maintenance – Production – Quality

The leaders of the three DIHs in Europe ensure the empowerment of the *InnoTech* DIH resources to get knowledge on the enhancement of entrepreneurial and innovation skills of ICT professionals and start-ups. The set of proposed resources, infrastructure, and services at the *InnoTech* DIH reinforce its sustainability as a key player for the improvement of the Tunisian digital economy at the Nabeul region. The three DIH supported by the European partners (in FR, DE, and PT) support the labelling of the *InnoTech* DIH as an African DIH in the Nabeul Region of Tunisia.

Yours sincerely,

Prof. Nejib Moalla
University Lumiere Lyon 2
ICT4Manuf DIH (http://ict4manuf.eu)
Email: Nejib.Moalla@univ-lyon2.fr
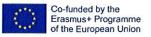Tel : +33 4 78 77 26 61

Prof. Klaus-Dieter THOBEN
Bremer Institut für Produktion und
Logistik GmbH
BIBA DIH (http://www.biba.uni-bremen.de/en/)
Email: tho@biba.uni-bremen.de

Prof. Ricardo JARDIM-GONCALVES
Universidade NOVA de Lisboa
INNOVA4TECH DIH
(https://www.uninova.pt/)
Email: rg@uninova.pt

Co-funded by the
Erasmus+ Programme
of the European Union

Enhance
Maintenance - Production - Quality

January 15th, 2024

Object: Supporting letter for an African DIH creation at the North American Private university: International Institute of Technology (Sfax - Tunisia)

ENHANCE is an Erasmus+ project co-financed by the European Union between 2021 and 2024. As a Capacity Building for Higher Education (CBHE) project, ENHANCE is developed by a consortium made up of 7 institutions from 3 different European countries (France, Germany, and Portugal) and 2 partner countries - PC (Tunisia and Morocco).

The overall objective of ENHANCE is to contribute to strengthening the skills and training expertise of both Tunisian and Moroccan universities in the three targeted MPQ 4.0 topics for inciting and assisting the PC transition to industry 4.0 era. The project releases several deliverables covering 42 innovative training materials (courses, uses cases, showcases, etc.), a training platform, access to training equipment and facilities, etc.
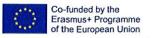
In parallel with the European initiative (2021-2023) for international partnership building between European and African innovation hubs (H2020 ICT 58), the ENHANCE project supports the creation of three Digital Innovation Hubs in Morocco and in Tunisia. In fact, the three European partners (University Lumiere Lyon 2 - FR, BIBA - Bremer Institut für Produktion und Logistik GmbH – DE, and Universidade NOVA de Lisboa - PT) are leading their fully operational DIHs with a common interest in Industry 4.0 related concepts, services, and applications. As a consortium, they released procedures to guide the organisation, the creation, and the evaluation of the targeted Competence Centers and Digital Innovation Hubs in Morocco and Tunisia.

The North American Private university: International Institute of Technology (Sfax - Tunisia) proposes a Digital Innovation Hub called *SmartecH* (Smart technologies for industrial Engineering Hub) for inclusive digital transformation and sustainable development. As a DIH, *SmartecH* develops a strong connection with regional and national industrial companies and organisations.

The supporting activities proposed by SmartecH (https://itep.tn) are aligned with the national Digital strategy 2021-2025. The regional and national digital transformation in Tunisia, particularly in Sfax and the southern region, is comprehensive, targeting infrastructure, public services, and economic sectors to build a robust digital ecosystem that supports sustainable and inclusive growth. Artificial intelligence (AI) is being prioritised to accelerate the digital transition, with aims to boost economic productivity and efficiency across various sectors.

The main activities proposed by SmartecH are:

- Training activities for industrial Staff. The material released under the ENHANCE project is part of the *SmartecH* catalogue.
- Testing before investing. By supporting industrial companies in the development of digitalisation Prof of Concepts (POC) in domains of production, maintenance, and quality. The integration of Artificial Intelligence and Extended Reality are promoted as technologies to develop innovative solutions.
- Networking. By organising industrial workshops aiming at sharing industrial experiences in the adoption of new digital transformations technologies with lessons learned and preconisation for scaling the deployment of solutions and worker's empowerment.
- Support access to financing facilities promoted by the national and international programs.

Co-funded by the
Erasmus+ Programme
of the European Union

Enhance
Maintenance - Production - Quality

The leaders of the three DIHs in Europe ensure the empowerment of *SmartecH* resources to get knowledge on the enhancement of entrepreneurial and innovation skills of ICT professionals and start-ups. The set of proposed resources, infrastructure, and services at SmartecH reinforce its sustainability as a key player for the improvement of the Tunisian digital economy at Sfax and the southern region of Tunisia. The three DIH supported by the European partners (in FR, DE, and PT) support the labelling of SmartecH as an African DIH in Sfax and the southern region of Tunisia.

Yours sincerely,

Prof. Nejib Moalla
University Lumiere Lyon 2
ICT4Manuf DIH (http://ict4manuf.eu)
Email: Nejib.Moalla@univ-lyon2.fr
Tel : +33 4 78 77 26 61

Prof. Klaus-Dieter THOBEN
Bremer Institut für Produktion und
Logistik GmbH
BIBA DIH (http://www.biba.uni-
bremen.de/en/)
Email: tho@biba.uni-bremen.de

Prof. Ricardo JARDIM-GONCALVES
Universidade NOVA de Lisboa
INNOVA4TECH DIH
(https://www.uninova.pt/)
Email: rg@uninova.pt

BIBA
Bremer Institut für
Produktion und Logistik GmbH
Hochschulring 20
D-28359 Bremen

Object: Supporting letter for an African DIH creation at the University Ibn Tofaïl, Kenitra – Morocco.

ENHANCE is an Erasmus+ project co-financed by the European Union between 2021 and 2024. As a Capacity Building for Higher Education (CBHE) project ENHANCE is developed by a consortium made up of 7 institutions from 3 different European countries (France, Germany, and Portugal) and 2 partner countries - PC (Tunisia and Morocco).

The overall objective of ENHANCE is to contribute to strengthening the skills and training expertise of both Tunisian and Moroccan universities in the three targeted MPQ 4.0 topics for inciting and assisting the PC transition to industry 4.0 era. The project releases several deliverables covering 42 innovative training materials (courses, uses cases, showcases, etc.), a training platform, access to training equipment and facilities, etc.

In parallel with the European initiative (2021-2023) for international partnership building between European and African innovation hubs (H2020 ICT 58), the ENHANCE project supports the creation of three Digital Innovation Hubs in Morocco and in Tunisia. In fact, the three European partners (University Lumiere Lyon 2 - FR, BIBA - Bremer Institut für Produktion und Logistik GmbH – DE, and Universidade NOVA de Lisboa - PT) are leading their fully operational DIHs with a common interest in Industry 4.0 related concepts, services, and applications. As a consortium, they released procedures to guide the organisation, the creation, and the evaluation of the targeted Competence Centers and Digital Innovation Hubs in Morocco and Tunisia.

The University Ibn Tofail in Kenitra (Morocco) via the ENSAK institute proposes a Digital Innovation Hub called *COSINUS* (COMPETENCE CENTER OF INCLUSIVE DIGITAL TRANSFORMATION FOR SUSTAINABLE DEVELOPMENT). As a DIH, *COSINUS* develops a strong connection with regional companies in the Atlantic Free Zone near Kenitra.

The supporting activities proposed by the COSINUS DIH (https://dihuit.wordpress.com/) are aligned with the national strategy for digital transformation in Morocco (for 2035) defining the five main challenges to be taken up to ensure full mobilisation of the potential of digital technologies in the country's development projects. The regional and national digital transformation in Morocco, particularly in the Kenitra region, is comprehensive, targeting infrastructure, public services, and economic sectors to build a robust digital ecosystem that supports sustainable and inclusive growth.

The main activities proposed by the *COSINUS* DIH to companies and start-ups are:

- Training activities for workers. The material released under the ENHANCE project is part of the *COSINUS* catalogue.
- Testing before investing. By supporting industrial companies in the development of digitalisation Proof of Concepts (POC) in domains of Quality 4.0 and Maintenance 4.0. The integration of Artificial Intelligence and Extended Reality are promoted as technologies to develop innovative solutions.
- Networking. By organising industrial workshops aiming at sharing industrial experiences in the adoption of new digital transformations technologies with lessons learned and preconisation for scaling the deployment of solutions and worker's empowerment.
- Support access to financing facilities promoted by the regional chamber of commerce, industry, and services of Rabat-Sale-Kenitra.

Co-funded by the
Erasmus+ Programme
of the European Union

Enhance
Maintenance - Production - Quality

The leaders of the three DIH in Europe will ensure that they support the human resources of COSINUS DIH in the start-up of DIH activities based on their expertise, knowledge and knowledge in the field, they share their experience and possibly provide their assistance within the framework of a partnership and/or collaboration established by action.

The set of proposed resources, infrastructure, and services at the *COSINUS* DIH reinforce its sustainability as a key player for the improvement of the Moroccan digital economy at the Kenitra region. The three DIH supported by the European partners (in FR, DE, and PT) support the labelling of the COSINUS DIH as an African DIH in the Kenitra Region of Morocco.

Yours sincerely,

Prof. Nejib Moalla
University Lumiere Lyon 2
ICT4Manuf DIH (http://ict4manuf.eu)
Email: Nejib.Moalla@univ-lyon2.fr
Tel : +33 4 78 77 26 61

Prof. Klaus-Dieter THOBEN
Bremer Institut für Produktion und
Logistik GmbH
BIBA DIH (http://www.biba.uni-
bremen.de/en/)
Email: tho@biba.uni-bremen.de

Prof. Ricardo JARDIM-GONCALVES
Universidade NOVA de Lisboa
INNOVA4TECH DIH
(https://www.uninova.pt/)
Email: rg@uninova.pt

BIBA
Bremer Institut für
Produktion und Logistik GmbH
Hochschulring 20
D-28359 Bremen