Interreg ADRION ADRIATIC-IONIAN

EUROPEAN UNION

European Regional Development Fund - Instrument for Pre-Accession II Fund

FUTURE 4.0

# Revised Professional profiles

## DELIVERABLE D.T3.2.3

WP4 T3, ACTIVITY A.T3.2

**Final Version**
**December/2020**

| | |
|---|---|
| **Project number and acronym** | 294 – FUTURE 4.0 |
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# Index

# 1. Professional Profile Analysis: Methodology for Facilitator / Assessor

## Introduction

### 1.1 Interreg Adrion FUTURE 4.0 project: an overview on competencies

Research and activities performed by the partners of project Interreg Adrion Future 4.0 offer an excellent foundation for designing a model and methodology of assessment competencies along knowledge transfer and digital transformation processes.

In the innovative organizations – as the companies that are involved in the projects – the methodologies of people management must be consistent with the technological evolutions, organizational changes and the development of the new business that are taking place in the companies. Digital transformations and knowledge transfer are modifying organizational structures and processes and therefore the competencies profiles of people that work at various levels of responsibilities: operators, supervisors, technicians, and managers or executives.

As the studies of Politecnico di Bari and University of Patras have pointed out, the digital transformation has strengthened and sped up the tendency to enlarge and enrich the set of necessary competencies to implement innovation strategies successfully. University of Patras proposes the following competencies classification:

1. Technical competencies;
2. Methodological competencies;
3. Interpersonal competencies;
4. Fundamental competencies.

SIAV study states that there is a tendency to consider technological transfer as limited to technological dimension in the strict sense, without considering instead the need to extend and integrate it within the wider logic of knowledge transfer. The acquisition of

new external knowledge must be completed with its adaptation and integration of use within the new organisational and production context. It might be better therefore to speak about transformation rather than transfer. This transformation is driven by the learning process. On the foundation of Liyanage[i] model, SIAV identifies 3 phases and their connections can be summarised as follows[ii]:

1. Awareness: it is the phase in which the company identifies the new knowledge deemed most appropriate to use and that responds adequately to its innovation needs.

2. Acquisition: the company identifies the "supplier" of knowledge deemed most credible and accessible. Both parties must ensure the ability and the motivation to manage complex processes;

3. Transformation: the acquired knowledge requires it to be processed, "worked out" so that it can become usable by the company: first it is necessary to perform an adaptation activity so the new knowledge can be integrated into the heritage of already existing business knowledge. In some cases, it will also be necessary to abandon the knowledge that has become obsolete

The deep digital transformation processes not only change the pattern of competencies to develop, but modify the relationship between each competence too. On one hand, the innovative company must assess the new digital competencies; on the other hand the human capabilities (soft skills and interpersonal and fundamental competencies in the vocabulary of the Patras University) increase their relevance due to the necessity to integrate digital competence into industrial competence. For this reason the soft skills may be considered as “bridging skills”. Steve Jobs pointed out that the success of Apple has its roots in the ability to combine creativity and imagination with computer science. A critical success factor for companies and for the employability of the people is to know how combine the various typologies of competencies.

The model of the assessment of the competencies must:

- Have a systemic and holistic view;

- Foster people growth and development (reskilling and up skilling) consistent with the new technological and competitive environments: every worker must have a baseline set of digital skills at least;
- Adopt an inclusive approach and "democratizing" access to the new digital technologies so that all workers can access data to add greater value to their role;

Easy to use to stimulate people to express their full potential in terms of accountability, intelligence, and proactiveness

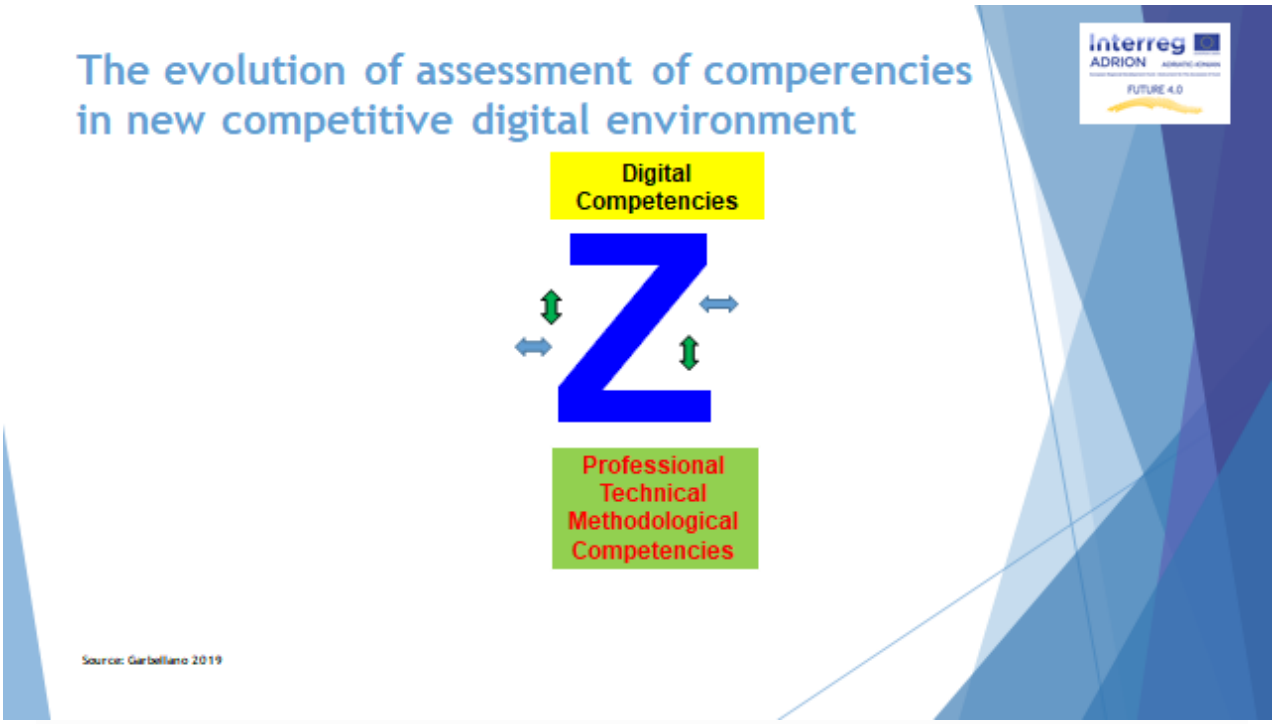
## 1.2 The Z model

### 1.2.1 Toward the Z model

In the 1990s, the growing diffusion of knowledge workers has led companies to adopt broader assessment models than those previously used. People, and in particular, the knowledge workers had to combine both deep functional expertise with large and well-honed social skills to collaborate across departments and organizational units. Today the digital transformation is moving the focus beyond "T shaped skills". As stated above, the new technologies have:

- Introduced new digital competencies;
- Increased the relevance of the soft skills that have a major impact on awareness, acquisition and transformation processes of the new knowledge coming from multiple external sources (University, research centers, companies, etc.). A synthesis of many studies from authoritative Universities, research centers, and consulting firms shows that emerge at least 7 Human Capabilities: Change oriented mindset; Collaboration; Communication; Continuous learning; Creativity; Critical thinking; Customer orientation.

The "Z shaped model" is shown by the figure below.




The model addresses:

- the need to connect digital literacy, multifunctional and inter-disciplinary knowledge;
- the need for convergence and homogeneity of behaviours to implement company innovation strategy and achieve business objectives;
- the need to foster the integration among digital competencies; professional competencies and soft skills. The soft skills are “bridge skills”: they facilitate the integration between external and internal knowledge and between internal departments and organizational units.

Each mark of the Z (Z as “Generation Z”, that has used digital technology since a young age and are comfortable with the Internet and social media) represents a key dimension of the model. Each key dimension may be split in two or three parts: each part may be considered as learning step to the digital development journey.

**1. Digital knowledge** on Key Enable Technologies (KET):

A. Additive Manufacturing

B. Cyber Security
C. Big data and Analytics
D. Augmented Reality
E. Advanced Manufacturing Solutions
F. Cloud Computing

Digital Competencies are evaluated according to the Liyanage model (Awareness, Acquisition, and Transformation) which underpin all learning activities of Adrion Interreg Future 4.0. For each phase of the Liyanage model the main competencies have been identified.

**1. Soft skills**

A. **Fundamental Capabilities**: Flexibility, Problem solving, Emotional Intelligence
B. **Key Seven C's for knowledge digital transfer**: Collaboration, Critical thinking, Communications, Customer orientation, Continuous Learning, Creativity and Change oriented mindset

.

**2.Technical/Professional knowledge**

a) **Company / business literacy**: Nautical and shipbuilding ecosystem; Economics / cost evaluation.
*b)* **Methodologies**: Lean Organization/Process management, Quality tools, Project Management, etc.
c) **Information Technology***: for example, specific software for a professional role, Microsoft Office, Sap etc.*
*d)* **Four competencies are specific for each role/employee under assessment**. *The list of the Technical / Professional competencies must be completed according to the role of the employee under assessment.*

A definition has been provided for each item of Soft skills and Technical/Professional knowledge to facilitate the assessment.

### 1.2.2 The proficiency levels

In order to simplify the process of evaluation of Human Capabilities ("Soft skills") and Professional Competencies we suggest (as stated by University of Patras too) to have 3 proficiency levels inspired by the structure, content, and vocabulary of the European Qualification Framework (EQF).

Each level represents a step up in employee' acquisition of the competence according to its cognitive challenge, the complexity of the tasks they can handle and their autonomy in completing the task.

To illustrate this point, we could say that an employee at level 1 is able to remember and to carry out a simple task with guidance and help from somebody. An employee at level 3, however, can apply the knowledge, carry out different tasks and solve complex problems (in terms of activities, departments involved, numbers and professional expertise of people involves, and budget) and also helps others to do.

**Basic Level**:

- To have a basic language, knowledge, and understanding of the subject
- To implement routine tasks or managing well defined situation under appropriate guidance

**Intermediate Level**:

- To have a good knowledge and understanding of the subject
- To act on his/her own to solve straightforward problems having few interacting factors and applying company rules and practices (guidance only where needed)
- To be in charge of operational teams

**Advanced Level**:

- To create solutions to complex problems with limited definition, many interacting factors, and/or global perspective
- To propose and implement innovative solutions, practices and processes
- To guide colleagues and subordinates leading complex projects and/or multifunctional teams.

In order to identify the EQF level, some information on duties and responsibilities must be collected

### 1.2.3 The proficiency levels

- ***The effectiveness of the assessment is deeply influenced by the contents shared along the all-learning path*** *of* Adrion Interreg Future 4.0. It will be very welcome if all instructors have a holistic approach: the new digital competencies have to be taught highlighting the connections and the strong integration among digital competencies; professional competencies and soft skills

- The assessment of the competencies will be more rigorous if implemented **with the help of a facilitator** that may act as coach too (for example, facilitating the gap analysis and providing some ideas to improve the learning process). The facilitator has the responsibility:
    - To understand the level of proficiency of the Assessee: for example, doing the appropriate questions on his/her professional experience, formal education and on the job training
    - To develop a constructive dialogue highlighting the learning aims of Assessment.
- The facilitator must help the Assessee to **complete the list of digital competencies** according to the training path of the employee
- The facilitator must help the Assessee to **complete t*he* list of Technical / Professional competencies** according to the role of the employee under assessment (4 competencies). Examples are provided in the Methodology and Tool documents
- If the Assessee has attended the first two phases of Adrion Interreg Future 4.0.(Awareness and Acquisition) only, the assessment of the digital competency will *not* include the Transformation phase.
- A copy of the completed Tool should be sent to area.progetti@siav.net for statistical purposes and for the identification of the most suitable EQF level.

# 2. Professional Profile Analysis: The Tool

## Introduction

The Tool has three Sections.

**SECTION 1: General Information on Assessee**

**SECTION 2 Digital competencies, soft skills, and technical / professional competencies to assess. The Section has four sub-sections:**

2.1 **Digital Competencies are evaluated according to the Liyanage model** (Awareness, Acquisition, and Transformation) which underpin all learning activities of Adrion Interreg Future 4.0. For each phase of the Liyanage model the main competencies have been identified.


2.2 **Soft skills**

**2.3 Technical/Professional competencies**

**2.4. Description of responsibilities**


**SECTION 3: Conclusion - overall learning evaluation**

## 2.1 Section 1: General Information on Assessee

**Name and Surname**: …… **Company: ……..**

**Position Held**: ……
**Adrion Interreg Future 4.0 Training Courses Attended**

(Please list all the Adrion Interreg. Future activities that the Assessee has attended and tick the appropriate box)

<table>
<tr><td>Adrion Interreg Future 4.0</td><td colspan="3">Learning activities attended by the Assessee</td></tr>
<tr><td>Seminar (4+ 4 hours)</td><td colspan="3">Date</td></tr>
<tr><td>1 Level: Awareness (8 hours)</td><td colspan="3"><table>
<tr><td>Topics<br><br>(Example)</td><td>Yes</td><td>No</td></tr>
<tr><td>Design & Technologies and Augmented Reality</td><td></td><td></td></tr>
<tr><td>New materials & furnishing: functionality on the Additive Manufacturing</td><td></td><td></td></tr>
<tr><td>Digital Technologies 4.0</td><td></td><td></td></tr>
<tr><td>Logistics & Digital Technologies</td><td></td><td></td></tr>
</table></td></tr>
<tr><td>2 Level: Acquisition Pilot Interventions (16 hours)</td><td colspan="3"><table>
<tr><td colspan="3">Selected Key Enable Technology (one or more) to transfer to the company</td></tr>
<tr><td>KET</td><td>Yes</td><td>No</td></tr>
<tr><td>Additive Manufacturing</td><td></td><td></td></tr>
<tr><td>Cyber Security</td><td></td><td></td></tr>
<tr><td>Big Data and Analytics</td><td></td><td></td></tr>
<tr><td>Augmented Reality</td><td></td><td></td></tr>
<tr><td>Advanced Manufacturing Solutions</td><td></td><td></td></tr>
<tr><td>Cloud Computing</td><td></td><td></td></tr>
</table></td></tr>
</table>

<table>
<tr>
<td>3 Level: Transformation Pilot Interventions (32 hours)<br><br>It must be completed only if the Assessee has attended the Adrion Interreg Future 4.0. learning path</td>
<td>The selected KETs (one or more) to apply on specific product or process’s innovation (specify product and/or process)
<table>
<tr><th>Selected KETs</th><th>Product Innovation</th><th>Process Innovation</th></tr>
<tr><td>……</td><td></td><td></td></tr>
<tr><td>……</td><td></td><td></td></tr>
</table>
</td>
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</table>

**Professional background:**

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**Qualification and training:**

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**Years of experience: …….**

**Name and Surname of the facilitator:**

**……**

**Date ……**

## 2.2 Section 2: Digital competencies, soft skills, and technical / professional competencies to assess

### 2.2.1 DIGITAL COMPETENCIES

Additive Manufacturing, Cyber Security, Big data and Analytics, Augmented Reality, Advanced Manufacturing Solutions, and Cloud Computing

*For each item the Assessee assesses the current (for example with a black circle **---------**) and the expected - next 2 years - levels of proficiencies (for example with a red circle **……..).***

***Tick the appropriate box.***

***AWARENESS***

***Definition of Awareness: Awareness is the phase in which the company identifies the new knowledge deemed most appropriate to use and that responds adequately to its innovation needs.***

| *AWARENESS* | *BASIC* | *INTERMEDIATE* | *ADVANCED* |
|---|---|---|---|
| To know main digital megatrends and their impact in shipbuilding and nautical sector | ☐ ○ | ☐ ○ | ☐ ○ |
| To know the potential impact of digital technologies in the companies (from manufacturing to business models) of shipbuilding and nautical sector | ☐ ○ | ☐ ○ | ☐ ○ |
| To know how to identify company digital innovation needs and opportunities in shipbuilding and nautical sector | ☐ ○ | ☐ ○ | ☐ ○ |
| To know how to develop and implement search for exploring and scouting new potential sources and solutions of the digital knowledge in shipbuilding and nautical sector | ☐ ○ | ☐ ○ | ☐ ○ |

**Basic Level**: basic knowledge and understanding; routine tasks or managing under appropriate guidance;
**Intermediate Level**: good knowledge and understanding; acting on his/her own to solve problems having few factors; guidance only where needed;
**Advanced Level**: creating solutions to complex and new problems; guiding colleagues and subordinates.

.

## ACQUISITION

*Please write the one or two Key Enable Digital Technologies selected by the Assessee*

***Definition of Acquisition: the company identifies the "supplier" of knowledge deemed most credible and accessible. Both parties must ensure the ability and the motivation to manage complex processes.***

*Tick the appropriate box.*

| ***ACQUISITION*** OF<br><br>1……..<br>2……<br>Write the selected Key Enable Technology (KET) for example IA, VR, etc. applied on company's product or process' innovation | ***BASIC*** | ***INTERMEDIATE*** | ***ADVANCED*** |
|---|---|---|---|
| **To have a deeper knowledge on**<br>1……..<br>2…… | ☐ ○ | ☐ ○ | ☐ ○ |
| To know the factors (technological, costs, etc.) that influence the choice of the supplier of new digital knowledge | ☐ ○ | ☐ ○ | ☐ ○ |
| To know the criteria that measure reputation and reliability of the "supplier" of digital knowledge on | ☐ ○ | ☐ ○ | ☐ ○ |

**Basic Level: basic** knowledge and understanding; routine tasks or managing under appropriate guidance;
**Intermediate Level:** good knowledge and understanding; acting on his/her own to solve problems having few factors; guidance only where needed;
**Advanced Level:** creating solutions to complex and new problems; guiding colleagues and subordinates.

**TRANSFOR-MATION**

***Please write the one or two Key Enable Digital Technologies selected by the Assessee***

***Definition of Transformation: the acquired knowledge requires to be processed, "worked out" so that it can become usable by the company: first it is necessary to perform an adaptation activity so the new knowledge can be integrated into the heritage of already existing business knowledge. In some cases, it will also be necessary to abandon the knowledge that has become obsolete.***

***Tick the appropriate box.***

| ***TRANSFORMATION OF***<br>***1……***<br>***2……***<br>**Write the selected KETs** | ***BASIC*** | ***INTERMEDIATE*** | ***ADVANCED*** |
|---|---|---|---|
| To know how to plan and deploy the selected KTE in specific working contexts | ☐ ○ | ☐ ○ | ☐ ○ |
| To know how to identify and resolve constraints, problems and issues connected with the use of the new digital technology to innovate company processes and products | ☐ ○ | ☐ ○ | ☐ ○ |
| To know how to formalize the new knowledge (for examples, new procedures, new best practices, etc…) and unlearn the obsolete knowledge | ☐ ○ | ☐ ○ | ☐ ○ |

**Basic Level: basic** knowledge and understanding; routine tasks or managing under appropriate guidance;
**Intermediate Level:** good knowledge and understanding; acting on his/her own to solve problems having few factors; guidance only where needed;
**Advanced Level:** creating solutions to complex and new problems; guiding colleagues and subordinates.

## 2.2.2 SOFT SKILLS

*For each item the Assessee assesses the current (for example with a black line---------) and the expected - next 2 years - levels of proficiencies (for example with a red line……..)*

| *SOFT SKILLS* | *BASIC* | *INTERMEDIATE* | *ADVANCED* |
|---|---|---|---|
| **Flexibility / Resilience** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Emotional intelligence** | ☐ ○ | ☐ ○ | ☐ ○ |
| **People management** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Change oriented mindset** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Collaboration** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Communication** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Continuous learning** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Creativity** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Critical thinking** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Customer orientation** | ☐ ○ | ☐ ○ | ☐ ○ |

### *Soft skills definitions*

| | |
|---|---|
| **Resilience / flexibility** | Resilience is the process of adapting well in the face of problems, adversity, threats or significant sources of stress in the workplace |
| **Emotional intelligence** | It is the capability of individuals to recognize their own emotions and those of others, use emotional information to guide thinking and behaviour, and manage and/or adjust emotions to adapt to environments or achieve one's goal(s) (source: adapted by Goleman, 1995) |
| **People management** | It is the management of subordinate and colleagues in an organization (motivating, training, competencies development, rewarding, professional growth, etc.) |
| **Change oriented mindset** | It is a set of believes, assumptions, aptitudes, and methods oriented to the change, future and growth |
| **Collaboration** | Collaboration in the workplace is when two or more people work together through idea sharing and thinking to accomplish a common goal. |
| **Communication** | Workplace communication is the process of exchanging information and ideas, both verbal and non-verbal, within an organization to achieve goals and objectives |
| **Continuous learning** | Continuous learning refers to the aptitude and ability to continually develop and improve one's skills and knowledge in order to perform effectively and adapt to changes in the workplace. |
| **Creativity** | It is typically defined as the generation or production of ideas that are both novel and useful (source: Amabile, 1988) |

| | |
|---|---|
| **Critical thinking** | "The active, systematic process of understanding and evaluating arguments…Critical thinkers acknowledge that there is no single correct way to understand and evaluate arguments and that all attempts are not necessarily successful" (source: Mayer & Goodchild, 1990, p. 4). |
| **Customer orientation** | Customer orientation is defined as an aptitude and approach s in which staff focus on helping customers to meet their current, future, and long-term needs. |

## 2.2.3 TECHNICAL / PROFESSIONAL COMPETENCIES

The list of Technical / Professional competencies must be completed according to the role of the employee under assessment (4 items).

For each item the Assessee assesses the current (for example with a black circle) and the expected - next 2 years - levels of proficiencies (for example with a red circle**)**

***Tick the appropriate box.***

| TECHNICAL PROFESSIONAL COMPETENCIES | BASIC | INTERMEDIATE | ADVANCED |
|---|---|---|---|
| **Shipbuilding and nautical ecosystem** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Economics / Cost evaluation** | ☐ ○ | ☐ ○ | ☐ ○ |
| **……..** | ☐ ○ | ☐ ○ | ☐ ○ |
| **……..** | ☐ ○ | ☐ ○ | ☐ ○ |
| **……..** | ☐ ○ | ☐ ○ | ☐ ○ |
| **……..** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Information Technologies** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Lean organization / Process Management** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Quality Tools** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Project Management** | ☐ ○ | ☐ ○ | ☐ ○ |

**Definitions of Technical/Professional competencies (Company/business literacy, Methodologies)**

| | |
|---|---|
| **Nautical and shipbuilding ecosystem** | To know shipbuilding and nautical sector: competitors, market segments, suppliers, start up, competence centers, etc. |
| **Economics / costs** | To know key financial principles in the company context (interpret balance sheet, ratios - ROI, ROE, etc.), evaluate |

| | |
|---|---|
| | product or service cost and make decisions based on available data. |
| **Lean organization / Process management** | To know how to focus on company key processes to continuously increase customer value with zero waste and defects. |
| **Information Technology** | Know how to use computer software (for example, Excel, ppt, etc..) and IT tools as Sap |
| **Quality tools** | To know how to use methodologies and tools that control, support and improve quality management |
| **Project management** | Project management is the application of methodologies and tools to achieve specific project objectives according to the project acceptance criteria within agreed parameters |


**Example of the technical / professional competencies for a Supply Manager to add**

| | |
|---|---|
| **Planning and negotiating contracts with suppliers and customers** | Know how to plan, select suppliers and negotiate contracts and rates with shipping lines, freight forwarders, customs house brokers, warehouse managers and related third-party logical service providers applying adequate methodologies, ensuring appropriate import and export compliance procedures and, good practices related to quality, safety, and impacts on environment (“green economy”). |
| **Logistics, Warehousing and Distribution** | Know how to organize, manage and oversee the processes of physical flow of the goods (product storage, handling and distribution) applying adequate methodologies to reduce costs and to achieve Just in Time targets |
| **Inventory Control** | Know how to reduce cost, increase corporate profitability and efficiency through improved inventory activities such as demand planning, inventory optimization, safety stock management, excess and obsolete inventory management or right inventory levels to meet customer services expectation with minimum possible inventory applying adequate methodologies |

| | |
|---|---|
| **Forecasting demand** | Know how to forecast according to production plans and the demand in terms of customers' orders applying adequate methodologies |
| **Information Technologies tools for Supply Chain Management** | Know how to use computer software (for example, Excel, pp, etc..) and IT tools to track goods from origin to delivery and to plan, manage and control each supplier and the supplier network through the adequate KPI, measurement and performance systems |

| *TECHNICAL PROFESSIONAL COMPETENCIES* | *BASIC* | *INTERMEDIATE* | *ADVANCED* |
|---|---|---|---|
| **Shipbuilding and nautical ecosystem** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Economics / Cost evaluation** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Planning and negotiating contracts with suppliers and customers** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Logistics, Warehousing and Distribution** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Inventory Control** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Forecasting demand** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Information Technologies tools** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Lean organization / Process Management** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Quality Tools** | ☐ ○ | ☐ ○ | ☐ ○ |
| **Project Management** | ☐ ○ | ☐ ○ | ☐ ○ |

**According to the opinion of the Assessee the current and near future (2 years) weight of each competence needed to accomplish his/her duties is (the sum must be 100%):**

| | **Today** | **Next future (2 years)** |
|---|---|---|
| **Digital competencies** | | |
| **Soft skills** | | |
| **Technical / professional Competencies** | | |
| ***Total*** | ***100%*** | ***100%*** |

## 2.2.4 Description of responsibilities


**Describe the responsibility of the Assessee role:** level of autonomy, who the jobholder report to, list the duties and main tasks, percentage of time spent for each main tasks, resources to be managed (financial, budget); contacts with customers or other company staff; number of subordinates; software, equipment and materials used for duties; foreign languages.

## 2.3. Section 3: Overall learning evaluation

**How much have the learning activities accomplished in the project Adrion Interreg Future 4.0 contributed to improve/update the technical / professional skills of the Assessee?**

***Tick the appropriate box.***

| Level | *To some extent* | *To a good extent* | *To a large extent* |
|---|---|---|---|
| Seminar (8h) | | | |
| Level 1 – Awareness (8h) | | | |
| Level 2<br>Acquisition (16h) | | | |
| Level 3<br>Transformation (32h)<br>***Only if the Assessee has attended the*** Adrion Interreg Future 4.0. ***learning path*** | | | |

**List the 3 technical / professional skills that have been *more* improved and/or updated with the participation in the learning activities accomplished in the project Adrion Interreg Future 4.0**

| | |
|---|---|
| 1 | |
| 2 | |
| | |
| 3 | |

**How much the learning activities accomplished in the project Adrion Interreg Future 4.0 have contributed to improve/update the soft skills of the Assessee?**

| Level | *To some extent* | *To a good Extent* | *To a large extent* |
|---|---|---|---|
| | | | |
| Seminar (8h) | | | |
| Level 1 – Awareness (8h) | | | |
| Level 2<br>Acquisition (16h) | | | |
| Level 3<br>Transformation (32h)<br>***Only if the Assessee has attended the*** Adrion Interreg Future 4.0. ***learning path*** | | | |

**List the 3 soft skills that have been *more* improved and/or updated with the participation in the learning activities accomplished in the project Adrion Interreg Future 4.0**

| | |
|---|---|
| **1** | |
| **2** | |
| **3** | |

**Would the Assessee recommend to a friend/colleague to participate in a project having similar learning objectives, contents and methodologies of the Adrion Interreg Future 4.0?**

**Yes**

**No**

**Why** ……
……
……

***THANK YOU!***

***Please send a copy of the document to area.progetti@siav.net* for statistical purposes only**

## 3. The Sample shared with the partnership

| | VENETO | *Interviews* | APULIA | *Interviews* | GREECE | *Interviews* | CROATIA | *Interviews* | ALBANIA | *Interviews* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I Professional Profile | IT MANAGER | 3 | ..... | 3 | ..... | 3 | ..... | 3 | ..... | 3 | |
| II Professional Profile | LOGISTIC MANAGER | 3 | ..... | 3 | ..... | 3 | | 3 | | 3 | |
| III Professional Profile | DATA PROTECTION OFFICER | 3 | ..... | 3 | | 3 | | 3 | | 3 | |
| IV Professional Profile | ..... | 3 | | 3 | | 3 | | 3 | | 3 | TOTAL |
| | | 12 | | 12 | | 12 | | 12 | | 12 | 60 |

For the sustainability of the Professional Profiles analysis and report:60 interviews

In consideration of the target companies involved in the knowledge transfer experimental actions on 4.0 technologies, foreseen on the five Local Pilot Actions, the partners proceeded with the identification and revision in each region of four relevant profiles in the naval industry, the shipbuilding and the related supply chain. For the sustainability of the analysis and the subsequent revision of the identified professional profiles, it was agreed to realize about 60 interviews in total (three interviews for each of the four regional professional profiles) in order to assess and review their current and expected level of digital competences, soft skills, technical / professional competences on 4.0 technologies applied to their reference sector.

## 3.1 Consideration about the sample of companies

The sample of companies that participated in the Future 4.0 project reflects three factors that should be taken in consideration:

1. The tendency towards homogeneity that comes from belonging to the same sectors
2. The territorial specificities in which each partner is an active subject in promoting and driving innovation.
3. The rapid evolution of the Nautical and shipyard ecosystem.

It is probably this last aspect that deserves a necessary reflection: the rapid evolution is not only a transversal and common aspect for all the area in which the Project has been carried out, but it is a clear sign of the profound changes that all the business are taking place now.

As in fact, as it happens for most of the sectors, also for the nautical and shipyard sector there is a tendency to make more blurred, fluid and "liquid" the separations between the different sectors.

This aspect deserves particular attention: the ecosystem of the nautical and shipbuilding sectors does not only include the companies that traditionally were part of it, such as, for example, those related to tourism or maritime law, but is gradually expanding towards a plurality of new industrial enterprises and services that provide services with higher added value.

The latter companies have not always been founded to serve only companies in the shipping sector, but they are in the search for new clients. These companies are developing the awareness of economic and social importance of naval and shipbuilding sectors. In fact, most of these enterprises are micro and small companies that are entering or trying to enter a sector they consider potentially interesting in terms of new collaboration and business opportunities.

A significant number of these innovative technological companies have or have had connections with the academic world and in particular with local Universities, Polytechnics and research centers.

Therefore, the composition of the sample shows the growing direct and indirect

influence of the centers of excellence both on the enabling technologies on Industry 4.0 and on digital technologies in the innovation processes implemented in the nautical and shipbuilding sector.

On the one hand, the proximity links between centers of excellence on innovative technologies and SMEs represent a strength point and a huge opportunity for the whole ecosystem, on the other hand they can bring out cultural distances and cognitive dissonances with companies, especially micro and small ones.

These signs have emerged in the interviews and therefore constitute factors on which it is necessary to continue to work in the near future to create and maintain relationships and partnerships that may otherwise become impoverished and even extinguished. Some SMEs were only at the first steps of their innovation path. In these cases, the start of computerization was an important opportunity to significantly redesign and improve managerial and operational processes.

The nautical and shipyard sector also shows a digital divide from the generation point of view: the youngest respondents seem to be very familiar with the new technologies and their use in companies is almost taken for granted. This is not the case for people with many years of work.

Therefore, the analysis of the sample shows that the nautical and shipbuilding sector shows relevant potential opportunities to increase the visibility of its innovation dynamics, needs, and specificities.

In the same way, a further source of opportunities for the nautical and shipbuilding sector is to increase the visibility as a strategic hub at local, national and European level too.

Therefore, the Future 4.0 project has enabled to focus on the challenges and opportunities of technology-based innovations and has promoted a fruitful and useful dialogue between researchers and practitioners working with technology.

For the next future the following challenges for the stakeholders emerge from the interviews:

1. To find new and more continuous ways of intensifying interactions and co-operation
2. To prompt innovative brainstorming, meetings and conferences

3. To identify the local challenges and opportunities
4. To foster meaningful and collaborative projects.

Among the companies that participated in the survey very few companies state that they are not interested in acquiring new technologically advanced skills.
Among these, one is particularly significant: it belongs to a micro entrepreneur who owns a boat through which he "sells" his skipper activity. His love for the sea is so deep that it leaves no room for digital world.

# 4. Evidences & Transversal considerations on the Naval and Shipyard Sector

## 4.1 Introduction

Nautical and shipyard sector is accelerating the speed of innovation. As the world has grappled with the COVID-19 pandemic, with closing of borders, lockdowns and other movement restrictions, digitalization has come to the rescue: Industry 4.0 technologies and digital services have taken center stage in nautical and shipyard business too. The pandemic has suddenly accelerated the transformation of the entire nautical ecosystem: shipyards, suppliers, value chains, companies that provide both traditional (legal, administrative, etc..) and innovative services.

The Shipyards that are involved in the Adrion Interreg Future 4.0 Project have acquired:

- The awareness that the enabling technologies of Industry 4.0 are actually able to create new competitive advantages increasing the flexibility and the quality of production processes, the relationship with the suppliers
- The urgency to speed up the cultural, organizational and technology changes to create new value for the company, customers and the whole ecosystem.

The innovative services companies are offering completely new types of activities (from activities of research and development, to design ships using the new enabling technologies as virtual reality and augmented reality, data management, etc.). Most of service companies are, in fact, already or potential suppliers specialized in Industry 4.0 and digital technologies.

The 4.0 project has been the adaptive and flexible tool:

- to speed up the digitalization process and therefore the process of awareness, acquisition and transformation of new I knowledge.
- to develop an innovative ecosystem in which the relationships between different actors (from Universities, local authorities to enterprises and their business

associations) produce flows of new knowledge and ideas that are transformed into new products, services and processes.

The project Future 4.0 highlights four main aspects on implementing Industry 4.0 and Digital Transformation:

1. Must be driven by the needs of the companies
2. A project to be successful require that all the organizations involved (from regional authorities, association representing companies, universities, consultants, and, of course, companies and their employees) have to work in a collaborative way for finding and implementing solutions in an effective, simple and speedy way
3. The companies are realizing that the new technologies are able not only to improve the effectiveness of the internal process, but also to create new business opportunities. The new technologies, in fact, are enable to speed up the growth of the companies creating new relationships with the customers and/or potential customers, to conquest new markets and, in short, to develop new business models
4. Many SMEs need qualified support to gain access to or accelerate the acquisition of new knowledge and technology, given their limited resources.

The companies that claim to have had the greatest benefit in terms of increasing new knowledge are those that have completed the entire Project Adrion Interreg Future 4.0.

Implementing all three phases (Awareness, Acquisition, and Transformation) has allowed companies to transform the new knowledge acquired into visible and to achieve tangible business results. Achieving near real-time efficiency improvements, increases in speed and simplicity, and cost reductions has been the key to the success of the project.

The process of acquisition and transformation of the new knowledge must be managed and supported by experts who have an open and who are open-minded and know the dynamics that take place in and between companies. The presence of these

factors has been important aspects for the success of the Project. Only in this way the new digital knowledge can be incorporated into products and business processes,

The ability to acquire and absorb new knowledge and to achieve results quickly were achieved through the teamwork of researchers, consultants, employees and entrepreneurs, the latter playing a key role in innovative SMEs. The project team became the place where problems, assumptions and solutions were identified.
First main conclusion: digital innovation is a …. human drive innovation process

## 4.2 The emerging connection between new technologies and sustainability

It is interesting to note that the implementation of the digital and enabling Industry 4.0 technologies has had a further effect: it has increased the sustainability of companies. Sometimes the results in terms of reduction of pollution and better use of scarce natural resources have appeared "unexpected" by those who have obtained them.
Entrepreneurs, managers and operators have realized and appreciate immediately that the acquisition of digital technologies improve the preservation of natural ecosystems, especially in situations of high fragility, such as, for example, the Venetian lagoon.
It is the confirm that sustainability and digital innovation are two aspects having strong connections between them. Therefore, the new term “innovability” (innovation + environmental sustainability) is useful to indicate this joint effect.

## 4.3 Towards a new set of competences: the role of the entrepreneurs

The Future 4.0 project has highlighted the centrality of the role of the entrepreneur in the processes of acquisition and development of new skills connected with Industry 4.0 and digital transformation in SMEs. It is the leadership of the owner-manager that:

1. Enable the innovative SMEs to place learning at the center of their business activities and relations

2. Make sure that their employees develop skills by taking advantage of all learning opportunities that may arise
3. Plays a vital role in orienting the attitude, behaviours and actions of its employees regarding up- and re-skilling programs. However, it is sometimes left up to employees to take the initiative to identify and suggest up- and re-skilling opportunities.

In the interviews carried out with entrepreneurs, their interest in the acquisition of the new enabling skills Industry 4.0 and digital transformation was evident and emerged two needs:

To be supported and accompanied in the processes of transformation and incorporation of new knowledge into business processes and practices

To develop and improve their skills to managing cultural and organizational changes.

The Future 4.0 project highlights that Industry 4.0 and digital innovation have led to a sharp redefinition of the set of competencies and skills needed to lead and to manage companies and organizations. The redefinition concerns not only the new skills and competencies that today must be part of the all-professional profiles in nautical and shipyard industry, but also the relationships between knowledge and skills.

All the interviewees highlight the need to integrate their professional profiles with new digital competencies. The integration of new digital skills changes according to the responsibilities, activities and tasks. For example, the new digital competences are different for an IT manager, or project manager or a supplier manager or an HR manager.

In the innovative SMEs, Industry 4.0 competences and digital skills are not the exclusive monopoly of some super specialized professional profiles (for example, data scientists) but become widespread within the company, the organization and the people (from the CEOs and entrepreneurs to executives, middle managers and blue collars).

Industry 4.0 and digital competencies are not enough to implement innovation projects. High performing people show a strong connection between digital knowledge and soft skills. They must have strong communication, team working, motivation skills

to overcome the usual way of doing, the resistances to changes, and fears towards the future too. The diffusion of Industry 4.0 and digital technologies enable the «production» of new data and new information.

In the traditional organization the data were owned only by few people; now data and information can be spread in real time among within the entire company community and sometimes even outside. For example, for shipping companies that operate in logistics, some data and information are now disseminated to truck drivers too. Even for the latter, a very important change has been noted: the need to “read” data and make decisions on the basis of them and therefore not only on past habits and experience.

# 7. Professional Profiles Interviews

| | VENETO | N.Interviews realized | Interviewees | APULIA | N.Interviews realized | Interviewees | GREECE | N.Interviews realized | Interviewees | CROATIA | N.Interviews realized | Interviewees | ALBANIA (CCIT) | N.Interviews realized | Interviewees | ALBANIA (MC) | N.Interviews realized | Interviewees |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I Professional Profile** | IT AND INNOVATION MANAGER | **1** | 1. Francesco Zanotto (CANTIRE NAVALE VITTORIA) | IT MANAGER | **3** | 1. Rocco Rubino (BReD Srl)<br>2. Antonio Magistro (Marina Sport Srl)<br>3. Tommaso Ranieri (Nautica Ranieri) | BUSINESS DEVELOPMENT MANAGER | **3** | 1. Kapopoulos Xristoforos (AQUA TERA)<br>2. Ioanna Kotsi (ENALIA)<br>3. Panagiotis Georgiopoulos (More Yachting) | FINANCIAL MANAGER | **1** | 1. Adam Vukelić (Cimera i suradnici) | IT and INNOVATION MANAGER | **3** | 1. MsC. Elidon Hasanaj (VIP SALOTI)<br>2. MSC. Selajdin Kamberaj (TECNOPLAST)<br>3. MSC. Elvis ALIAJ (NASTO ENGINERING) | CEO | **1** | 1. Ardian Jasini (Albsea trasnport) |
| **II Professional Profile** | R&D MANAGER | **2** | 1. Fabio D'Alessi (M31 Italia Srl)<br>2. Gianimede Mancini (Cantiere Mancini Srl) | TECHNICAL AREA MANAGER | **4** | 1. Rocco Rubino (BReD Srl)<br>2. Paolo Ferrari (Ferrary Yatch Design)<br>3. Antonio Magistro (Marina Sport Srl)<br>4. Daniele Bruno (MICAD Srl) | ENGINEER | **3** | 1. Alexandros Patsias (Sammy Yachts)<br>2. Fountzoula Dimitra (Sammy Yacht)<br>3. Roumpini Petropoulou (Freelancer Engineer) | CHIEF INFORMATION OFFICER | **1** | 1. Moise Bašić (Nomen d.o.o) | ADMINISTRATIVE & FINANCE MANAGER | **3** | 1. Ilir Banushi (Regina Group sh.p.k)<br>2. Muharem Jazaj (ALB ADRIATIC SH.P.K )<br>3. Nertila Perallaj (PORT of VLORA Sh.P.K) | PROFESSOR AT UNIVERSITY & FREELANCER | **2** | 1. Osman Metalla (University of Durres)<br>2. Edmond Senko (Freelancer) |
| **III Professional Profile** | ADMINISTRATIVE & FINANCE MANAGER/SUPPLIES MANAGER | **6** | 1. Giampietro Bertolini (Cantiere Manicini Srl)<br>2. Marco Baldan (SPV Servizi Portuali)<br>3. Alvise Pallini (INGECOS srl)<br>4. Marco Zancanaro (Conepo Servizi)<br>5. Michele Friselle (Conepo Servizi)<br>6. Chiara Bortolami (VECON SPA) | QUALITY & SECURITY MANAGER | **3** | 1. Paolo Ferrari (Ferrari Yatch Design)<br>2. Antonio Ranieri (Nautica Ranieri)<br>3. Antonio Magistro (Marina Sport Srl) | FREELANCERS | **3** | 1. Aias Retsinas (Lawyer)<br>2. Fotiadis Leonidas (Freelance in Tourism)<br>3. Sofia Zarkada (Freelance in Tourism) | CEO / GENERAL DIRECTOR | **2** | 1. Vladimir Kanić (Puppis d.o.o)<br>2. Senad Hadžić (SMART 4 d.o.o) | QUALITY & SECURITY MANAGER | **3** | 1 MSC. LENDI NASTO (NASTO ENGINERING)<br>2. Mr. Vasil Bedinaj (REGINA GROUP)<br>3. Mr. Enrik Mehmeti (owner, JULKA Company) | ENGINEER | **3** | 1. Erald Berberi (Albsea transport)<br>2. Denis Iaci (Vital Shipping)<br>3. Mithat Hoxha (Finicas Company) |
| **IV Professional Profile** | SALES, LOGISTICS AND COMMERCIAL MANAGER | **3** | 1. Fabiano Fattoretto (SPV Servizi Portuali)<br>2. Giuseppe Ventura (INGECOS srl)<br>3. Riccardo Vianello (VECON SPA) | HUMAN AND RESOURCE MANAGER | **3** | 1. Albina Scioti (BReD Srl)<br>2. Antonio Ranieri (Nautica Ranieri)<br>3. Antonio Magistro (Marina Sport Srl) | OWNERS | **3** | 1. Ilias Kantzos (EY SAILING)<br>2. Ignatios Fotiou (TOBEA.gr)<br>3. Alexandra Makrigeorgou (Liofyllo) | SOFTWARE SALES MANAGER | **1** | 1. Ivo Mataija (RIS d.o.o) | BUSINESS DEVELOPMENT MANAGER | **3** | 1. Ms. Katerina Koci (Pashaliman SH.P.K)<br>2. Genta Ahmeti (LIFE on a BOAT)<br>3. Msc. Dritan Malaj (ALB ADRIATIC) | MANAGER | **2** | 1. Bledar Mataj (Pelican SHPK)<br>2. Marinela Jasini (economist at Albsea transport) |
| | | **12** | | | **12** | | | **12** | | | **5** | | | **12** | | | **8** | |

# 6. Recognition of the skills acquired

The recognition of the skills acquired by the Project 4.0 participants has been the final result of a process that started in close cooperation, coordination and agreement with all partners from the early stages of the design and implementation of the activities.
From the very first stages of the Project design, in fact, the development of new skills necessary for the implementation of Industry 4.0 and Digital Transformation has been:

1. One the fundamental pillars of the proposed activity and
2. A primary objective to be achieved.

As highlighted by many researches and studies, the lack of new competences is one of the main obstacles to the diffusion of innovation processes in companies, especially small and medium sized ones[iii].
As the studies of Politecnico di Bari and University of Patras have pointed out, the digital transformation has strengthened and sped up the tendency to enlarge and enrich the set of necessary competencies to implement innovation strategies successfully.
In addition, valuable contributions have been made by all stakeholders in the marine ecosystem. For example, among them, the contribution of Albania's partner focused on the collection of needs, expectations and opinions on the professional profiles expected in the country.
The choice of the Liyanage model, which is articulated in the 3 phases of Awareness, acquisition and transformation as a fil rouge and guiding theme of the whole project, is a strong signal for companies in the naval and shipbuilding sector: the development of a new set of skills and abilities is necessary so that the new technological knowledge can be effectively taken up by people and incorporated into company processes, products and services.
In consistency with this approach, a new methodology for identifying and recognizing skills has been designed. The Methodology and the Tool have been shared with all partners in sessions specifically dedicated to this topic. In order to ensure alignment

further sharing moments were carried out throughout the entire Project Adrion Interreg Future 4.0.

In particular, for each of the 3 phases of the Liyanage model, the main competences necessary for the effective management of the whole process of awareness, acquisition and transformation of new knowledge have been identified.

For the first Awareness phase, the following competencies have been identified:

1. To know main digital megatrends and their impact in shipbuilding and nautical sector
2. To know the potential impact of digital technologies in the companies (from manufacturing to business models) of shipbuilding and nautical sector
3. To know how to identify company digital innovation needs and opportunities in shipbuilding and nautical sector
4. To know how to develop and implement search for exploring and scouting new potential sources and solutions of the digital knowledge in shipbuilding and nautical sector.

For the second Acquisition phase, the following competencies have been identified:

1. To have a deeper knowledge on selected Key Enable Technology
2. To know the factors (technological, costs, etc.) that influence the choice of the supplier of new digital knowledge
3. To know the criteria that measure reputation and reliability of the “supplier” of digital knowledge on

For the third Transformation phase, the following competencies have been identified:

1. To know how to plan and deploy the selected KET in specific working contexts
2. To know how to identify and resolve constraints, problems and issues connected with the use of the new digital technology to innovate company processes and products
3. To know how to formalize the new knowledge (for examples, new procedures, new best practices, etc…) and unlearn the obsolete knowledge.

Moreover, the following competencies have been identified for each professional profile:

1- SOFT SKILLS

1. Flexibility / Resilience
2. Emotional intelligence
3. People management
4. Change oriented mindset
5. Collaboration
6. Communication
7. Continuous learning
8. Creativity
9. Critical thinking
10. Customer orientation

For each soft skill a definition has been provided to align their identification and recognition

2.. GENERAL TECHNICAL / PROFESSIONAL COMPETENCIES

1. Nautical and shipbuilding ecosystem
2. Economics / costs
3. Lean organization / Process management
4. Information Technology
5. Quality tools
6. Project management

For each general technical / professional competencies a definition has been provided to align their identification and recognition.

2.1ROLE SPECIFIC TECHNICAL / PROFESSIONAL COMPETENCIES

Within the Project 4.0 the recognition of competences has only learning purposes. For this reason, as highlighted in the methodology and shared with the partners in all

meetings, the Assessor plays the role of coach and facilitator in order to promote the development of new skills through dialogue, the search and the identification of evidences supporting the acquisition of new know-how.
To reinforce the adequacy of the identification and recognition, the form ("The Tool") has been filled with the interviewee:

- at the end of the seminars in presence and virtual or
- through dedicated meetings that also took place in presence and or virtual.

The choice of sharing the results with the participants has promoted the acquisition of a meta-competence: the methodology able to guide companies and people to identify and absorb innovative knowledge
In the teaching activities, many references have been made to the Liyanage model, which has been the fil rouge of the entire project.
The consistency of the approach from the really first steps has therefore been maintained and reinforced in the Recognition phase: in fact, the facilitator had d the opportunity to meet the person "face to face" (sometimes real, other times virtual).
These talks were carried out in a serene and constructive mood and the value of continuous learning has always emerged as a factor of success of individuals, organizations and companies.

# 7. The Revision of the four relevant Professional Profiles for the Naval Industry, the Shipbuilding and the supply chain according to EQF

As is known, in recent years a large number of professional profile description models have been proposed and implemented. Many have arisen in the field of business consulting; others have their origin in the academia. As a result, companies and organisations have a wide range of options available.

A further factor to be taken into account is the diversity of job profile models adopted by each country and sometimes also at local level. National and local regulations, practices and customs have led each country to adopt its own specific framework of skills analysis and survey.

To overcome these critical issues, the Future 4.0 project has decided to adopt a European shared model: the European Qualifications Framework (EQF).

The EQF:

- acts as a “translation device” to make national qualifications more readable across Europe, promoting workers’ and learners' mobility between countries and facilitating their lifelong learning.
- aims to relate different countries' national qualifications systems to a common European reference framework.

Individuals and employers will be able to use the EQF to better understand and compare the qualifications levels of different countries and different education and training systems.

Since 2012, all new qualifications issued in Europe carry a reference to an appropriate EQF level. The core of the EQF concerns eight reference levels describing what a learner knows, understands and is able to do – 'learning outcomes'. Levels of national qualifications will be placed at one of the central reference levels, ranging from basic (Level 1) to advanced (Level 8). This will enable a much easier comparison between national qualifications and should also mean that people do not have to repeat their learning if they move to another country.

In a consistent way with the aims and the typology of the Future 4.0 project participants and, in particular, with their responsibilities and skills, the revision of the professional profiles refers to EQF Level 5.

In order to identify knowledge and skills, references have also been made to what has been indicated in the previous par.1 and par. 4 of this chapter and therefore the "learning outcomes" of the Project itself.

The descriptors defining Level 5 are the following:

1. **Knowledge:** comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge
2. **Skills**: a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems
3. **Responsibility and autonomy**: exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others

The 4 professional profiles are consistent with the following aspects:

- They act a relevant role in implementing Key Enable Technologies
- They act a relevant role in the evolution of nautical and shipyard ecosystem
- They act as change agents for the whole nautical and shipyard supply chain.

In the section below the following four professional profiles for the Naval Industry, the Shipbuilding and the supply chain, particularly relevant in the five regions, are revised and declined according to the European Qualification Framework:

**1) IT Manager**

**2) R&D Manager**

**3) Supplier Manager**

**4) HR Manager**

## 7.1 EQF: IT Manager in nautical and ship building sector

### Level: 5

| KNOWLEDGE | SKILLS | RESPONSIBILITY AND AUTONOMY |
|---|---|---|
| ***In the context of EQF, knowledge is described as theoretical and/or factual.*** | ***In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments)*** | ***In the context of the EQF responsibility and autonomy is described as the ability of the learner to apply knowledge and skills autonomously and with responsibility*** |
| • To know how to design an effective IT architecture of the company consistent with real needs and without sacrificing ease of use and cost<br>• To know how to identify company digital innovation needs and opportunities in the strategy and processes of the companies of shipbuilding and nautical sector<br>• To know the potential impact of new technologies (for example, cloud) in the company business model and process<br>• To know shipbuilding and nautical sector: competitors, market segments, suppliers, start up, competence centers, etc.<br>• To know main issues of European, national and local laws on sustainability | • Ability to understand the changing future needs of the company in consistency with its guidelines and strategy<br>• Ability to understand company processes, main decisions and dynamics<br>• Ability to develop a comprehensive understanding of network architecture and client/server technology<br>• Ability to identify and recommend new and emerging technology solutions<br>• Ability to seek and obtain necessary approval on his/her proposals<br>• Ability of dealing with uncertainty and volatility<br>• Ability to speak fluent English<br>• Ability to collaborate and work in team with non-IT managers | • Planning, coordinate and leading computer-system related projects in short and medium term determining the IT activities to fulfil the organization's information systems requirements in compliance with the guidelines and indications of the CEO and/or the entrepreneur in order to achieve the company objectives |
| • To know how identifying and eliminating security vulnerabilities with solutions that increase data security<br>• To know how to review the privacy policy and understand what data (location, access to social networks) an application can access prior to downloading and installing<br>• To know how identify and understand the level of risks of connecting to networks | • Ability to work consultatively and collaboratively with the internal customers in pursuit of overall corporate goals and objectives<br>• Ability to anticipate and solve data breach in a fast way<br>• Ability to increase the awareness of potential risks among entrepreneur, managers and employers<br>• Ability to communicate, both written and verbal report and give updates to the non-technical managers of the company | • Ensuring an adequate level of security company data and information in compliance with laws, company strategy, guidelines, and resources |

| | | |
|---|---|---|
| • To know how the new Information Technology changes company process<br>• To know how to design and implement IT projects according the methodologies of agile project management<br>• To know how to identify and resolve constraints, problems and issues connected with the use of the new digital technology to innovate company processes and products<br>• To know how to evaluate advantages and costs of the new technology | • Ability to choose or contribute to the choice of the right IT technology and supplier for innovation project<br>• Ability to negotiate with IT suppliers in win way<br>• Ability to find fast solutions<br>• Ability to be flexible, innovative and creative in solving problems<br>• Ability to highlight the advantages of new IT solutions to improve environmental issues and problems<br>• Ability to communicate and collaborate with CEO, entrepreneur, and others company departments to develop innovative projects<br>• Ability to ensure that every aspect of a company's information technology implementation is executed cleanly, on-time, and within budget | • Managing IT projects to implement Industry 4.0 solutions and Digital Transformation in order to improve innovation, efficiency and reduce costs |
| • To know how maintain and expand computer networks of the company.<br>• To know how to manage company computer platforms (for example, WAN, LAN, etc.)<br>• To know the methodologies and techniques to overseeing the information technology operations of a company | • Ability to fixing main problems with the current computer system of the company<br>• Ability to train and improve IT skills of colleagues<br>• Ability to looking for ways to grow company networks in a cost-effective way<br>• Ability to implement actions and activities to control and improve supplier management processes | • Developing network maintenance plans keeping the CEO/ entrepreneur and executive team up to date on the latest networking technologies that could help the company to succeed |
| • To know how to organize team working, to distribute responsibilities and activities among his / her subordinates in a fair way | • Ability of communicate with his/her subordinates<br>• Ability of motivation and empowerment<br>• Ability of team leading and team working | • Leading, developing and managing a team able to deliver on the business goals and build future company expert |

## 7.2 EQF: R&D Manager in nautical and ship building sector

### Level: 5

| KNOWLEDGE | SKILLS | RESPONSIBILITY AND AUTONOMY |
|---|---|---|
| ***In the context of EQF, knowledge is described as theoretical and/or factual.*** | ***In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments)*** | ***In the context of the EQF responsibility and autonomy is described as the ability of the learner to apply knowledge and skills autonomously and with responsibility*** |
| • To know shipbuilding and nautical sector and ecosystem: competitors, market segments, suppliers, start up, competence centers, etc.<br>• To know how to be updated in the research and development field at large in order to make sure that the company is aligned with the most advanced R&D developments<br>• To know how to solve problem having a technical mastery<br>• To know how to use methodologies and tool for quality in engineering (for example, DOE)<br>• To know key financial principles in the company context to evaluate innovation costs<br>• To know how to implement Open Innovation strategy<br>• To know how to plan and ensure the optimal project portfolio for the R&D<br>• To know how to plan & prepare the annual and multiyear budget | • Needs of the company in consistency with its guidelines and strategy<br>• Ability to understand company processes, main decisions and dynamics<br>• Ability to create and develop long term relationships with Universities and research centers to scout and select new technologies and new potential suppliers<br>• Ability to foster creativity and generate a portfolio of new products and ideas.<br>• Ability to have a change-oriented mindset<br>• Ability to seek and obtain necessary approval on his/her proposals and plans<br>• Ability of dealing with uncertainty and volatility<br>• Ability of continuous learning<br>• Ability to speak fluent English | • Manage research and development (R&D) activities and resources by implementing technology projects using local and/or internationally located resources focused on a specific technology or functional area<br>• Overseeing the entire development process of new products and programs within the company (from the initial planning phase to implementation or production) in compliance with the guidelines and indications of the CEO and/or the entrepreneur in order to achieve the company objectives |

| | | |
|---|---|---|
| • To know how create technology roadmaps for the R&D<br>• To know how to plan and deploy the new technology in specific working contexts<br>• To know how to identify and resolve constraints, problems and issues connected with the use of the new technology to innovate company processes and products<br>• To know how to formalize the new knowledge (for examples, new procedures, new best practices, etc…) and unlearn the obsolete knowledge<br>• To know how to mitigate risk by supporting the appropriate protection of newly created intellectual property<br>• To know main techniques of lean organization<br>• To know and evaluate the potential impact of new technologies in company organizational structures and process<br>• To know how to use computer software, IT tools (for example SAP) to develop and implement new technology projects and products<br>• To know the potential impact of new technologies on sustainability and environmental issues | • Ability to work cross-functionally and to collaborate with the various departments of the company<br>• Ability to listen to the voice-of-customer and have a customer orientation<br>• Ability to select the “right” provider of new technologies and knowledge<br>• Ability to drive and manage execution of short and midterm development project<br>• Ability to develop and share metrics, KPIs and milestones and goal<br>• Ability to improve the awareness on sustainability issues | • Transferring new technologies in products and process (for example, manufacturing, engineering) company process into the company according to company strategy and sustainability |
| • To know main techniques of lean organization<br>• To know and evaluate the potential impact of new technologies in company organizational structures and process<br>• To know how to use computer software, IT tools (for example SAP) to develop and implement new technology projects and products<br>• To know the potential impact of new technologies on sustainability and environmental issues | • Ability of communicate with his/her subordinates<br>• Ability of motivation and empowerment<br>• Ability of team leading and team working<br>• Ability to coach<br>• Ability to monitor team metrics and objectives ensuring meeting of KPI, milestones and goals | • Leading, developing and managing a team able to deliver on the business goals and build future company expert |

## 7.3 EQF: Supplier Manager in nautical and ship building sector

## Level: 5

| KNOWLEDGE | SKILLS | RESPONSIBILITY AND AUTONOMY |
|---|---|---|
| ***In the context of EQF, knowledge is described as theoretical and/or factual.*** | ***In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments)*** | ***In the context of the EQF responsibility and autonomy is described as the ability of the learner to apply knowledge and skills autonomously and with responsibility*** |
| • To know shipbuilding and nautical sector and ecosystem: competitors, market segments, suppliers, start up, competence centers, etc.<br>• To know modern techniques of planning and forecasting<br>• To know the potential impact of new technologies in the supplier management process of companies of shipbuilding and nautical sector<br>• To know how to identify company digital innovation needs and opportunities in the supplier management process of the companies of shipbuilding and nautical sector<br>• To know how to identify and resolve constraints, problems and issues connected with the use of the new digital technology to innovate company processes and products<br>• To know key financial principles in the company context to evaluate suppliers' costs and make decisions based on available data.<br>• To know principles and main issues on sustainability | • Ability to understand the changing future needs of the company in consistency with its guidelines and strategy<br>• Ability to understand company processes, main decisions and dynamics<br>• Ability to seek and obtain necessary approval on his/her proposals<br>• Ability of dealing with uncertainty and volatility<br>• Ability to speak fluent English | • Long- and medium-term planning on activities and contracts with key suppliers of the supply chain in compliance with the guidelines and indications of the CEO and/or the entrepreneur in order to achieve the company objectives |

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|---|---|---|
| • To know how to manage, control and improve in terms of efficiency and performances the processes of logistics, warehousing and distribution<br>• To know main techniques of lean organization / just in time<br>• To know how reduce costs and<br>• improve efficiency through activities such as demand planning, inventory optimization, safety stock management, excess and obsolete inventory<br>• To know European, national and local law on sustainability that have an impact on the selection and management of the suppliers | • Ability to implement actions and activities to control and improve supplier management processes<br>• Ability to find out and solve problems according data and information available<br>• Ability to communicate and collaborate with CEO, entrepreneur, and others company departments<br>• Ability to communicate effectively with suppliers<br>• Ability to negotiate with the suppliers in win way<br>• Ability to find fast solutions<br>• Ability to be flexible, innovative and creative in solving problems | • Implementing day by day activities with key and second tiers suppliers to ensure the right and timely deliveries according to the specific company needs (for example, manufacturing,<br>logistics, warehousing, inventory and distribution processes) in order to reduce costs, increase corporate profitability and efficiency |
| • To know how to use computer software (for example, Excel, ppt, etc..), IT tools (for example SAP) and new technologies to track goods from origin to delivery and to plan, manage and control each supplier and the supplier network through the adequate KPIs, measurement and performance systems<br>• To know how to apply methodologies of agile project management | • Ability to plan and implement projects having the aim to introduce new technologies for supply chain management<br>• Ability to analyse logistics, warehousing and distribution processes | • Ensuring the appropriate and consistent use of specialized Information Technologies tools for Supply Chain Management<br>• Introducing new technologies to improve effectiveness of supply chain<br>• to achieve company objectives and strategies |
| • To know how human resources methodologies and techniques<br>• To know how to use techniques for distributing responsibilities and activities among his / her subordinates in a fair way | • Ability of communicate with his/her subordinates<br>• Ability of motivation and empowerment<br>• Ability of team leading and team working | • Ensuring the appropriate management of his/her team and of each subordinate in consistency with law and company guidelines |

## 7.4 EQF: HR Manager in nautical and ship building sector

### Level: 5

| KNOWLEDGE | SKILLS | RESPONSIBILITY AND AUTONOMY |
|---|---|---|
| ***In the context of EQF, knowledge is described as theoretical and/or factual.*** | ***In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments)*** | ***In the context of the EQF responsibility and autonomy is described as the ability of the learner to apply knowledge and skills autonomously and with responsibility*** |
| • To know shipbuilding and nautical sector: competitors, market segments, suppliers, start up, competence centers, etc.<br>• To know modern techniques of HRM planning<br>• To know main techniques of lean organization<br>• To know methodologies and tools for managing changes in organizations<br>• To know the potential impact of new technologies in organizational structures and process of shipbuilding and nautical sector<br>• To know the potential impact of new technologies in roles, responsibilities and competencies of shipbuilding and nautical sector<br>• To know key financial principles in the company context (interpret balance sheet, ratios - ROI, ROE, etc.), to evaluate labour costs.<br>• To know the impact of the introduction of new technologies in organizational structures, processes and procedures of the company<br>• To know the impact of the introduction of new technologies in roles, responsibilities and competencies<br>• To know how to design and implement upskilling and reskilling training programs<br>• To know how to communicate innovative change management programs | • Ability to understand the changing future needs of the company in consistency with its guidelines and strategy<br>• Ability to understand company processes, main decisions and dynamics<br>• Ability to understand the future trends of national and local job market<br>• Ability to create and develop long term relationships with Universities and schools to scout and select young talents<br>• Ability to create ad develop long term relationship with business schools, training and consulting companies<br>• Ability to seek and obtain necessary approval on his/her proposals and plans<br>• Ability of dealing with uncertainty and volatility<br>• Ability to speak fluent English<br>• Ability to drive alignment between HR strategy and business goals.<br>• Ability to participate proactively in the implementation of specific projects to ensure the alignment of the workforce with the strategic objectives of the companies<br>• Ability to communicate and collaborate with CEO, entrepreneur, and others company departments involved in change projects<br>• Ability to communicate effectively with employees<br>• Ability to find fast solutions<br>• Ability to be flexible, innovative and creative in solving problems<br>• Ability to find out, solve problems and overcome resistances to change | • Medium term planning the overall HRM activities in compliance with the guidelines and indications of the CEO and/or the entrepreneur in order to achieve the company objectives<br>• Planning, implementing and supporting change management processes connected with Industry 4.0 and Digital Transformation in compliance with the guidelines and indications of the CEO and/or the entrepreneur in order to achieve the company objectives |

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| • To know labour law on industrial relations<br>• To know the evolution and the present development of industrial relations in shipbuilding and nautical sector.<br>• To know how implement safety measures against accidents at work | • Ability to plan and implementing training programs<br>• Ability to negotiate contracts, agreements, and grievance with trade unions | • Managing and handling relations with the trade unions in compliance with law and guidelines of the company |
| • To know how to oversee and manage a performance / competencies appraisal system that drives high performance<br>• To know how to manage, control and improve in terms of efficiency and performances of human resources<br>• To know how to manage training program<br>• To know how to nurture a positive working environment | • Ability to find out and solve problems according data and information available<br>• Ability to analyse data | • Implementing day by day HRM activities in compliance with law and according to the specific company objectives |
| • To know how to use computer software (for example, Excel, pp, etc..) and IT tools (for example SAP) to gather, manage and control HR data and information<br>• To know how to use HR metrics (for example, time to hire and employee turnover rates, etc.)<br>• To know how to maintain employee files and records on employees | • Ability of communicate with his/her subordinates<br>• Ability of motivation and empowerment<br>• Ability of team leading and team working | • Implementing Human Resources Information Systems to ensure all employee records are up-to-date and confidential in compliance with law |
| • To know factors that determine labour costs<br>• To know how to implement actions to control and reduce labour costs | • Ability to find fast and effective solutions | • Managing and control labour cost to achieve aims and companies' objectives |
| • To know how to organize team working, to distribute responsibilities and activities among his / her subordinates in a fair way | • Ability of communicate with his/her subordinates<br>• Ability of motivation and empowerment<br>• Ability of team leading and team working | • Leading and managing the team of Human Resources in an effective way according the company objectives |
| • To know European, national and local laws on sustainability that have an impact on the company roles and competencies | • Ability to communicate sustainability issues in the company | Increasing the awareness on sustainability laws and issues |

# 8. Conclusion

The four examples of professional profiles, developed as a result of the interviews carried out in the Interreg. Adrion Future 4.0, have been outlined on the basis of the following common criteria:

1. The professional profiles refer to roles that, although having different responsibilities, knowledge and skills, operate in companies of nautical and shipyard sector that are committed to the introduction and implementation of knowledge transfer and digital transformation processes. The professional profiles are therefore intended to induce an active and driving force in change and innovation process
2. The professional profiles outlined above can be an effective reference point for companies and professionals working in the sector. These profiles, in fact, can provide useful benchmarking: for example, in order to identify skill gaps between the expected profile and the skills actually held by each individual. In this way, companies of nautical and shipyard sector may define development and training paths and projects in order to bridge these gaps quickly.
3. Professional profiles consider the importance of sustainability issues for all those who work in and for the sea

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