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FUTURE 4.0

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Future 4.0 Policy recommendations

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Why policy recommendations ?

The policy recommendations coming from the partnership at the end of the project should be in line with the first pillar of the European Strategy for the Adriatic - Ionian macro-region, which is about the Blue growth.

The Adriatic and Ionian Region suffer a lack in “business resource efficient culture” and cooperation of business, research and the public sector.

Blue Growth industrial sectors are short on clustering and fail to fully exploit the advantages of effective cooperation among research centres, public and private sectors and users.

Why policy recommendations ?

It is essential to transfer R&D results of Key Enabling Technologies (IT, robotics, materials, automation) in new end-users components & applications for the advanced manufacturing industries.

EUSAIR Action Plan argues that some key sectors, such as shipbuilding, the boating industry and logistics, risk losing competitive leverage while others, such as marine technologies or blue bio-technologies, have not yet developed their full potential.

Why policy recommendations ?

To face this challenge, the project worked for three years to drive innovative maritime and marine growth and employment by enhancing innovation and business opportunities in blue economy sectors, with a focus on developing human capital, promoting entrepreneurship, fostering cooperation among research, knowledge providers and industry to develop innovative products and knowledge and technology transfer.

Recommendations proposed can be classified into three groups: related to competence development; related to the support to Adriatic Ionian Region companies for understanding digitalisation and Industry 4.0; related to the relations between nautical and shipbuilding companies and their environments.

Recommendations related to competence development

1 In order to support companies and workers to face successfully the changes in the nature of work induced by the technological development and the digitalisation of production linked to Industry 4.0, there is need to update constantly education and training. Enterprises should always maintain reskill and upskill in their working environment in order to support the transit to a new industrial era.

2 Companies should be aware that the interaction man - machine that is so frequent in Industry 4.0 working environments, made the necessary set of skills composed not only of technical competences but also of soft and relational skills. Therefore, it might be useful to foresee the investment on specialists of the training and skills development focussed on specific technologies and on the whole spectrum of relational skills.

3 From a methodological point of view, partners found that the rapid technological development has as result the introduction of new training and learning approach and methodology. One of the most interesting testing was the Teaching Factory paradigm and its application the Academy-to-industry scheme.

Recommendations related to competence development

4 Partners investigated deeply the concept of knowledge transfer. In fact, 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.

5 Companies were involved with the aim of enhancing their final capability to effectively absorb the new external knowledge, unknown respect to the previous experience, developing in this way new routines to integrate the stock of pre-existing know-how and mutually adapting the new codes and cultural models to assimilate them. Partners approach was in three steps: awareness, acquisition, transformation.

6 After elaborating the smart learning model, partners tested it with companies from the shipbuilding sector using seminars, in-company action learning and webinar. One of the results of the testing was the fine - tuning of 4 professional profiles whose competences have been analysed and designed for the maritime industry.

Recommendations related to the support to Adriatic Ionian Region companies for understanding digitalisation and Industry 4.0

1 Project partners became aware that the change towards Industry 4.0 is not merely a matter of investments: it is a technological and cultural change that needs a strategy. The experience done with companies and stakeholders during the local action plans advices to start even with small projects and reduced investments to explore the scalability of Industry 4.0 technologies.

2 A second point regards the importance of the awareness of the implications on company organisation. IT infrastructures are important, but it is not enough to have 4.0 operators and more digital skills. The mindset of managers and workers is equally critical and still lacking.

3 A third point is to frame investments within a specific strategy, avoiding isolated implementations of one new technology. This allows the definition of a technological roadmap, the formulation of a whole strategy for digitization and the identification of key factors to improve competitiveness.

Recommendations related to the support to Adriatic Ionian Region companies for understanding digitalisation and Industry 4.0

4 Companies - and, in general, human capital developers - should be aware of policies and existing support implementation measures and combine them to real business needs. Local synergies and market opportunities can be created on the basis of clustering companies and by promoting stakeholder partnerships among companies with different competences and size in a given field.

5 Companies have to be supported to understand how the business model of the enterprise changes following the adoption of 4.0 technologies. In fact, new technologies strongly impact the business model, bringing multiple and multi-level benefits.

6 The challenge of sharing knowledge is pivotal: it is fundamental to adopt a collaboration perspective with other companies, suppliers and customers to integrate digital technologies into the supply chain. Cooperation with universities and public administration is important as well.

Recommendations related to the relations between nautical and shipbuilding companies and their environments

1 Analysing territorial and economic megatrends for the shipbuilding and maritime sector, partners found that sustainable development is an emerging issue in the process of realising Industry 4.0. The issue is relevant against the background of cross - cutting issues and social challenges like climate change and energy transformation in the industrial context.

2 One example of relations with the local ecosystem: the use of researchers / mentors to establish a link between local companies and the university in the field of Industry 4.0 enabling technologies proved to be very successful.

3 The role of the entrepreneur is central in the process of acquisition and development of new skills connected with Industry 4.0 and digital transformation in companies. The leadership of the owner - manager enables the innovative company to place learning at the centre of their business activities and relations.

Recommendations related to the relations between nautical and shipbuilding companies and their environments

5 In Industry 4.0 ecosystems, socio-economic sustainability trends are anticipated to involve a shift towards lean, clean and green energy in order to reduce resource consumption, achieve sustainability in production processes and material as well as preserve scarce resources.

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Thank you for your attention !!