



**MetaTech Exchange**

BRIDGING INDUSTRY 4.0 IN WESTERN BALKANS



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# SUMMARY REPORT

METATECH EXCHANGE:  
BRIDGING INDUSTRY 4.0 IN  
WESTERN BALKANS  
(METATECH4.0)



Co-funded by  
the European Union

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## 1. Project goal

The project "MetaTech Exchange: Bridging Industry 4.0 in Western Balkans (METATECH4.0)" is an activity that responds to the challenges of the modern world in several key areas. These activities include: broadly understood digital challenges, implementation of artificial intelligence solutions, introduction of modern production technologies and provision of services based on technologies such as 3D printing, 3D scanning, Artificial Intelligence, Industry 4.0 tools. The project involves both organizations dealing with vocational education and representatives of industry and entrepreneurs. Such a combination means that during discussion panels, jointly developed training materials, e-learning platform, and methodologies for implementing modern industry 4.0 tools, it is possible to properly match the content that satisfies all represented parties.

As part of the project implementation, several activities are planned, which are preceded by broadly understood consultations, which is presented in the further part of the report in relation to the developed national reports.

## 2. Project cooperations

At the current stage of work, cooperation between representatives from all project countries took place through a Kick-of-Meeting and online working meetings and the exchange of email correspondence. Coordinating this work made it possible to develop a preliminary methodology for further proceedings and to develop certain guidelines for further work consisting, among others, of developing digital materials.

Training materials - the development of this material in consultation with all representatives from the project countries took place during the period of consultations, modifications, and adjustments to both the content and the form of testing knowledge. Depending on the specifics of the economy of a given country, conditions and requirements, the 50-pages training materials were supplemented with content assumed in the project but focused on selected tools, such as industry 4.0, digitization, virtual reality, etc.

E-learning materials - work on materials supporting the education process in such a way as to adapt it to the needs of the economies of the project countries began with consultations, which were based on the guidelines included in the "Training materials" materials, but also expanded with additional modules that could be implemented. The development of materials is ongoing and is also monitored in a way that ensures the implementation of the project's planned points. The current challenge is to work on developing such a form of e-learning materials that will be attractive to students and graduates as well as current employees and that their content will be both high quality and have practical possibilities of use.

### 3. Implementation of project in the countries

As part of the implementation of the current stage of the project, three country reports have been developed from Kosovo, Bosnia and Herzegovina and Montenegro. The reports contain information on the implementation of individual project tasks with a focus on two areas: work already completed and planned for implementation..

#### 3.1. Kosowo

Based on the country project prepared by: University "Haxhi Zeka" it can be stated that the level of advancement of the project implementation by the Kosovo partner is at the level assumed in the project. As part of the implementation of their tasks, study visits were carried out in four companies. In addition, visits to several other companies were planned, all of which were mentioned in the country report. The companies and educational institutions that were visited as part of the visits or are planned to be visited in the future are selected in an appropriate way, i.e. in a way that fits into the framework of the metal and manufacturing sector project. The report emphasizes the emphasis on focusing on cooperation with partners involved in vocational education, manufacturing companies and employee representatives. During regular meetings or exchange of information via e-mail, the project participants from Kosovo showed progress in diagnosing the needs that the project should focus on. Targeting the needs, as indicated in the country report, was carried out through meetings with representatives of the parties in a given country, companies and vocational VET education. As emphasized in the conclusions of the national report, national participants from Kosovo see a great involvement of companies and schools in the project activities and look forward to the implementation of its further stages.

### 3.2. Montenegro

Based on the country project prepared by: Montenegrin Employers Federation, it can be stated that the level of advancement of the project on the side of the partner from this country is also at the level expected in the project calendar. Representatives of this country participated in both the Kick of Meeting and in correspondence related to the process of adapting the content of the project to the current needs of the national and local employment market and industry. The country report for Montenegro contains information on the current situation in the country related to the activities targeted by the project. The problem related to the lack of qualified staff was broadly described, emphasizing the high expectations regarding the project in this area, the problem related to low investment in modern technologies was presented, and consequently in the unadapted process of vocational education (VET). At the same time, concerns were expressed about the development of the industrial sector and its need to be protected.

As part of conducting research in the area of enterprises and adapting the content of the project and its materials to national needs, key industries were diagnosed, described in the country report, and specific examples from these industries regarding employee needs.

The broadly described report also touched upon the issues of vocational education and changes in this, which indicates the great involvement of the partners in the implementation of the project. As part of the search for the best training program and identifying key gaps that should be filled by the project in the area of Vet and the metal sector, the problem of digitization and modern tools of industry 4.0 such as 3D modeling (also know as CAD), production optimization was broadly discussed, which can have a large positive impact on ecological issues in the era of development of artificial intelligence and the possibilities it creates in the area of both prototyping and manufacturing optimized projects with reduced mass and, consequently, reduced amount of energy needed to produce such products. The national report described the barriers identified by the partners from Monetenegro in the area of digitization, financing and many other areas, which will certainly be helpful at the stage of carrying out subsequent activities in the project. To sum up, the activities of the representatives from Montenegro, among others, described in the project, aim at the correct implementation of the project and are aimed at increasing national and international cooperation in this area as well as at developing a solid development strategy in this area, including both legal conditions, financial issues and technology transfer in the field of industry and vocational education VET (development of e-platforms, etc.).

### 3.3. Bosnia and Herzegovina

The national report prepared by Digital Innovation Hub ONEX indicates the proper implementation of the current stage of the project by partners from Bosnia and Herzegovina.

Similarly to the previously described activities, partners from Bosnia and Herzegovina actively participated in consultations between project partners both in the form of Kick-off Meetings and via email correspondence. In the report, they indicated key problems of the metal industry in Bosnia and Herzegovina and known forms of support. In the area of the metal industry itself, they indicated development opportunities and some barriers. The area of the analysis of the current metal and manufacturing market for Bosnia and Herzegovina carried out by partners from this country also included the vocational education sector, where the current state of VET and the challenges currently posed to this industry in connection with the ongoing industrial transformation 4.0 were described. In addition, recommendations were presented regarding the possibilities of adapting the VET industry to the current needs of the developing economy and the issue of the so-called Target Groups for all parties involved in the project in Bosnia and Herzegovina was raised. Such a comprehensive presentation of the problem certainly indicates the great commitment of the project partners and their high level of substantive and theoretical preparation. The report contains an extremely large amount of useful information.

## 4. Conclusions

In summary, it can be stated that at this stage all project partners have completed their tasks at a satisfactory level and the forecast for further cooperation is promising. In addition, the active participation of partners in the first stages of developing materials and currently at the stage of creating an e-learning platform allows us to positively assess the tasks planned for implementation. The large contribution of individual project partners in adapting the VET vocational education process to the needs of the current, changing and developing industry is also at a very good level. The project drew attention in the currently developed materials to the issues of an appropriate technological process focused on and greater efficiency and optimization, which also has an impact on the ecological aspect, also related to smart manufacturing and smart design.



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