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ISSUES AROUND FUTURE ECONOMIC DEVELOPMENT IN B&H BASED ON SME'S DEVELOPMENT

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ABSTRACT
The post war economic recovery and development of Bosnia and Herzegovina (B&H), one of the most industrialised republics of former Yugoslavia, are not progressing as desired. Even through a number of foreign experts are involved in the economic recovery process, it still does not show the expected results in the field. As the product development and production process become more complex, and due to the expressed demand for more efficiency, greater flexibility, lower production quality and lower price of final products, the nature of the industry praxis has changed. As one of the possible problem solutions, which the UNZE project team develops and intends to implement, is a project of clustering for three production sectors with a unique technology centres (so called centres for transfer and technology development).
Keywords: economic, recovery, PLM, technology transfer, cluster

1. INTRODUCTION
The post war economic recovery and development of Bosnia and Herzegovina (B&H), one of the most industrialised republics of former Yugoslavia, are not progressing as desired. Even though a number of foreign experts are involved in the economic recovery process, it still does not show the expected results in the field. In relation to the small FDI in the production sector, being the strongest B&H sector, the primary argument by the foreigners is that B&H has instable political situation, complicated state structure, etc. However, this argument is easy to refute when we look at some other data reached by the authors of this article through their research. Contemporary engineering-economic knowledge needed for SMEs but also for the big production companies of the 21st century is demonstrated through CAD-CAP-CAM (CIM) concept. The key problem is that the economy lags behind when it comes to creation of products with greater value added, but also when it is necessary to react quickly to the market demands.
Through the project of establishing the B&H Cluster of Plastic Producers and Tool Makers, project of establishing the Cluster of Wood Processing Companies for the Region of Central B&H and through the development of the Business zone PC 96 Vitez, the project team in Zenica was able to observe more closely the HRM situation in the companies which enter these clusters, on the one side, and to follow and create trends in the higher education, relevant to this field, on the other side. In all the companies there is a visible lack of engineers with the knowledge of CAD-CAP-CAM technologies on the basic level, and especially on the higher levels of PDL technologies and knowledge.

2. PRECONDITIONS FOR MODERN PRODUCTION COMPANIES

2.1 Change of nature of the industry praxis

As the product development and production process become more complex, and due to the expressed demand for more efficiency, greater flexibility, lower production quality and lower price of final products, the nature of the industry praxis has changed. One of the key competitive advantages for modern production companies is to be flexible in quick reaction to the market demands and buyers' requests. In order to achieve this, the distribution of information to the right place and in the right time, as well as the coordination and harmonisation of work by all stakeholders in the chain of command, is becoming essential for successful business. Furthermore, all of the necessary preconditions can be achieved by introducing the Digital Lifecycle Management which entails Digital Product Development and Digital Manufacturing, i.e. by introducing PLM technologies (CAD/CAE/CAM and PDMS technologies), as it is shown on the picture 1.

Picture 1. PLM Mission – Digital Transformation of the Product Lifecycle (with permission from Siemens PLM)

2.2 Questions and challenges of technological restructuring of production companies in Bosnia and Herzegovina

When it comes to the implementation of technological restructuring of production companies in Bosnia and Herzegovina, there are a number of questions and challenges on the way towards its successful implementation. The main such questions are:

- **How to successfully implement modern PLM technologies?**

and some sub questions:

  - How to choose and purchase necessary PLM software, in order to achieve the desired goal?
  - How to provide a quality installation and implementation of PLM software?
  - How to provide the necessary staff?
  - How to provide the initial education requirements of the selected staff?

- **How to successfully follow up the new PLM technologies?**

Modern technologies change quicker than the education and market demands, whereas the design engineers or development engineers must follow the quick pace of the technology changes.
Development and selection of future management staff is especially important.

- **How to provide a continuous staff education?**

The main statement to this point is that without constant investment in education there is no competitive advantage!
According to the recently published report of the European Commission about company investment in continuous staff education, 62% of companies in the EU member countries invest in education, most of which are in Scandinavian countries. An additional important fact is that life long learning is a mean of reaching economic and social goals for the majority of European population (80%).

- **How to keep educated staff?**

Special problem in B&H is an expressed turnover of staff and impossibility of "engaging" the staff for a longer period of time at one work place. Not even contractual obligation, for the purpose of secure investment in the staff education, did not bring satisfactory results, because the mechanisms for

fulfilling the contract obligations are not efficient enough, considering the current situation in the judiciary system of B&H. Consequently, there is a greater need for a continuous support mechanism for staff education in production companies in B&H.

- **How to solve problems around development of new products and day to day business in production?**

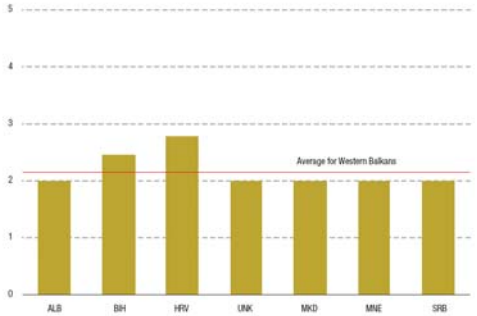
It is an almost regular phenomenon that the management staff at production companies in B&H does not have vision or strategy for their company development, and they also do not have a sense of general interest and creation of stronger ties with universities in B&H. Facing the growing market demands for the development of new products and having to solve various problems in the production process, management staff tends to improvise and seek ad hoc measures.

3. ENTREPRENEURIAL EDUCATION

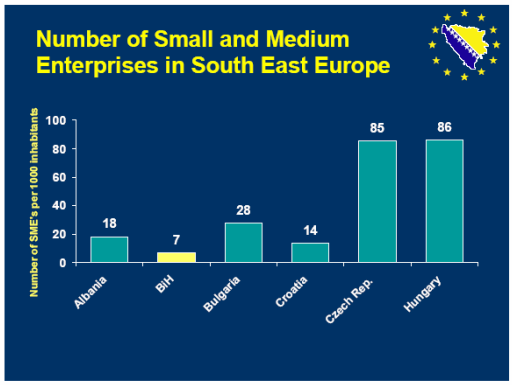
Unfortunately, entrepreneurial education or education for entrepreneurs cannot be obtained at any B&H engineering faculty. Many will say that this is not necessary, but that instead, one should work on development of essential subjects and knowledge in engineering, metallurgy and wood processing, while the practical work would give enough room for development of those skills, knowledge and competencies. Unfortunately, the examples from every day practice show different situation. Many trainings on entrepreneurship are being initiated through the programmes of the EU, such as the CBI school for Export in the EU, the EU TAC training programme, trainings by the WIFI Institute in Vienna (Austria) and the Chamber of Trade etc. The majority of participants who join the training are older employed persons. Taking into consideration the age and the status of these training participants, we can conclude that the offered trainings may influence the transfer of knowledge in the already existing companies, and that they do not contribute very much to the creation of new values and the establishment of new companies.

Through a series of educational seminars for obtaining business skills, implemented by the Business Start up Centre at the UNZE (BSC), a total of 640 students attended the courses, out of which 68% were the participants from the University of Zenica. It is important to say that the participants were only students of economy and law, and that there were no participants from the engineering faculties, which confirms the fact of a very low level of a business way of thinking among the engineering student population. 89% of student participants of the trainings said that they decided to attend the trainings only for the reason of achieving additional education and for a better future status at the job market. Only 11% of participants expressed the wish to establish their own company or to advance their existing family enterprise. In those cases the participants of the trainings recognise the training experience as a chance for their own professional advancement.

The best way to illustrate the current situation is through the number of established SMEs per 1000 inhabitants, according to which Bosnia and Herzegovina is at the last place in the Southeast Europe, with an average of only 6,8 established companies. Within its programme Business Start-up Centre Zenica organises, amongst other things, trainings in writing business plans. The final outcome of these trainings is a plan to establish 20 companies per year. Direct support is visible through reimbursement of costs for registration, issuing of vouchers with a total value of 2,500 Euro per participant and for a start-up company owner a favourable micro credit up to 10,000 Euro to start the business activity, and a four year contract for the use of incubator and free of charge incubation costs.



Picture 2. „Average grades of voluntary education on entrepreneurship and SMEs", EU Charta on SMEs in Western Balkans, 2007



Picture 3. Number of established SMEs per 1000 inhabitants

4. POSSIBLE PROBLEM SOLUTION

As one of the possible problem solutions, which the UNZE project team develops and intends to implement, is a project of clustering for three production sectors with a unique technology centres (so called centres for transfer and technology development). In these technology centres it is needed to gather young and professional staff who will, together with older and more experienced engineers, work on transfer of production conventional knowledge, which already exists in B&H through knowledge sector of 21th century (CIM technologies). Only in this way the economy of B&H will be able to keep its generations of experienced engineers and their knowledge, who obtained their education under other working conditions; additionally there is a very small population of new professionals who obtained other type of knowledge needed under the new circumstances of global market. Only through this concept it is possible to overcome the obvious lack of work force and the problem of HRM, and create teams capable for PDM, PDL and other modern production concepts. Therefore, the cluster system generates, on the one hand, a number of synergy effects, and, on the other side, facilitates a stronger presentation. This is the only possible long term solution.

5. CONCLUDING REMARKS

Through these models economy of B&H will be able to keep its generations of experienced engineers and their knowledge, who obtained their education under other working conditions; additionally there is a very small population of new professionals who obtained other type of knowledge needed under the new circumstances of global market. Through this concept it is possible to overcome the obvious lack of work force and the problem of HRM, and create teams capable for PDM, PDL and other modern production concepts. Therefore, the cluster system generates, on the one hand, a number of synergy effects, and, on the other side, facilitates a stronger presentation.

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