

MARKET SURVEY AND IDENTIFICATION OF HIGH IMPACT ICTs IN BH WOOD PROCESSING INDUSTRY

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ABSTRACT

During February 2009, the author developed a draft market survey instrument with the objective to develop a questionnaire that is short, concise and easy to complete but captures the critical data for the market survey. Two major considerations were taken into account during the development of the questionnaire, one of them being the fact that the level of education of the company representatives varies significantly from one company to the other. Secondly, many of the targeted companies had previously completed many questionnaires and could be hesitant to assist in the process.

In this article a summary of the key factors related to the competitiveness of the wood products sector in Bosnia and Herzegovina is presented. The author used those key factors as a basis to identify potential high impact information and communications technology (ICT) applications that could become core offerings of the ARTECO Wood Technology Center that was established for the wood sector. Through the market analysis, the author gained a more in-depth understanding of the market opportunities for ARTECO that would offer services based on the high impact ICT applications. This article identifies the high impact ICT applications that could be used to provide the core offerings of ARTECO and presents a concise analysis of the market factors within BiH and internationally that would affect BiH SME demand for and use of the Wood Technology Center services. It is important to note that this article is not intended to provide a detailed market analysis of the wood industry; rather, it distills the industry conditions in order to determine which ICT applications could help to significantly improve the competitiveness of the sector's small and medium enterprises (SMEs).

The core ICT services which are identified through the market survey are grouped into following five major categories: Education; Marketing and consulting service; Furniture design & prototyping; High impact machines services and Testing and laboratory service.

Key words: market survey, information and communications technology (ICT), wood processing industry, Bosnia and Herzegovina.

1. INTRODUCTION

This article identifies the high impact ICT applications that could be used to provide the core offerings of ARTECO and presents a concise analysis of the market factors within BiH and internationally that would affect BiH SME demand for and use of the Wood Technology Center services. It is important to note that this article is not intended to provide a detailed market analysis of the wood industry; rather, it distills the industry conditions in order to determine which ICT applications could help to significantly improve the competitiveness of the sector's small and medium enterprises (SMEs).

2. MARKET SURVEY DEVELOPMENT AND PROCESS

During February 2009, the author developed a draft market survey instrument with the objective to develop a questionnaire that is short, concise and easy to complete but captures the critical data for the

market survey. Two major considerations were taken into account during the development of the questionnaire, one of them being the fact that the level of education of the company representatives varies significantly from one company to the other. Secondly, many of the targeted companies had previously completed many questionnaires and could be hesitant to assist in the process.

To meet those requirements, the author completed three sessions of consultations with Prof. Stautmeister from GTZ who provided valuable information derived from the GTZ experience with questionnaires, which had been developed by GTZ to analyze the BiH wood industry [1]. To finalize the market analysis instrument, the author took in consideration GTZ's previous questionnaires, as well as one questionnaire that had been obtained from the Swiss Import Promotion Programme (SIPPO). The final questionnaire focused on following six areas of interest: Basic company data; Domestic market data and export data; Identification of company needs through the associative table; Some services that could be offered through the Center that were divided into technical assistance, training, and manufacturing; Design and prototyping and Technologies and software table.

The author decided to conduct the survey through a series of one-on-one interviews in order to ensure that the right person from each firm was being interviewed (preferably the owner) and that the interviews produced the critical information, comments and leads the author sought from the firms/individual being interviewed. Furthermore, the author also wanted to eliminate the possibility of receiving incomplete forms or having to wait for the completed forms, which regularly occurs when projects rely on interviewees to complete and mail back survey forms. On-site interviews were completed during the two week period from January 6th to January 30th 2009. All interviews were carried out by the author. The existing analysis and research from various sources (USAID CCA,GTZ, REZ, PRISM, UNDP, etc.) support the claim that the BiH wood processing industry is not adding sufficient value to very good quality and readily available raw materials; almost 40% of all wood based exports are still in lumber and low value added furniture elements (basic processing with low quality finishing). Therefore, taking into consideration the situation in the industry and the export markets where the local SME's in the wood sector aspire to penetrate with their products, the author concluded that existing furniture producers are the target segment that needed support. In addition, the author decided to concentrate on those wood processing companies that are in solid wood processing. This decision was made because of the availability of the local supply of wood and foreign demand for quality raw material, and because of the fact that no particle board, MDF, or veneer production facility exists in BiH. The following criterion were used to identify and select the companies that were requested to complete the questionnaires:

1. Export oriented; over 40% of the entire production is exported; in some cases, if it is determined that a company is gradually increasing their exports, this could be lower but not less than 25%.
2. High level of product finalization; companies that do production of furniture elements and furniture was the second criteria.
3. Companies that are using advanced technology for wood manufacturing, such as CAD/CAM/CIM and integrated systems and have invested in purchasing advance technologies.
4. Companies that have a need for solid wood elements; selected firms should be outsourcing services and/or production of more complex and hard-to-make elements.
5. Companies, which are outsourcing testing; most of the wood industry is outsourcing this service and the aim was to identify a couple of firms that are forced to pay shipping and testing and quantify those services in terms of time and money.

Twenty three companies that met the requirements are located all over BiH and employ over 3400 full time workers. According to the data from FBIH and RS statistical offices, the BiH wood industry employs approximately 20000 workers, which means that the interviewed firms employ more than 10% of the workforce in the wood industry [2].

3. MARKET SURVEY FINDINGS

The core ICT offerings for the ARTECO Center identified through the market survey can be grouped into following five major categories: Education; Marketing and consulting services; Furniture design & prototyping; High impact machines services and Testing and laboratory service.

Education was identified as a major obstacle to general improvement of the wood industry in the Market survey. The proposed high impact ICT applications in the educational category can be categorized into: 3D CAD modeling and design education; CNC machine operations training;

Operations of machines for wood drying and painting; Education for various quality standards like Chain of custody-FSC, optimization of wood cutting, etc. and; Education in using and implementing expert literature and technical documentations. The market analysis clearly showed that almost all of the surveyed companies agreed that education as listed above is needed. The surveyed companies also indicated that they often acquire such education from machine vendors or international partners, which is often expensive and not readily available.

The research indicates that the market for such services is growing. For instance, in the next three years, companies would like to increase the number of CNC operators by 53% [3]. The surveyed companies realize that in order to compete in such a competitive market they need to invest in people and train them. Moreover, some 60% said they have high demand and 40% moderate demand for increasing the technical knowledge of their workforce. Interviewed companies indicated that after they purchase very expensive machines they realize that they need to invest in training operators as well. Almost all of them answered that they will increase the workforce by some 20% over the next three years. On the management level, the situation is slightly different. Only 7% of managers stated that they have low demand for management training, whereas another 56% stated that they have high demand for such services. Overall, there is an apparent change in the way SMEs think in terms of training and the investment associated with such training. Managers apparently have started to value such investments. The downfall of this service is that international organizations like GTZ (www.gtz.ba) and RDA's in BIH like REZ (www.rez.ba) offer this service for free or subsidized by government ministries. Consequently, there may be some resistance from the SMEs to pay a commercial price for these services. Also, the interview with the Wood Technology Association in Zadar and some organizations in BIH showed that companies cannot gain obtain substantial profit margins from education and training. Trainers report that often training ends with a slightly positive cash balance. Another downfall of this service is that it cannot be repeated frequently. Wood industry tools and technologies, even ICTs once, do not change every year. The primary research indicates that in the best case scenario training can be repeated periodically when sufficient interest is accumulated.

The market survey confirmed the industry analysis findings as the author identified several companies in the wood industry, such as BH Woodex and Bosnia Beech line, which are successfully offering agent services to other companies. These services are offered predominantly for saw mills and furniture element producers. Other companies offer industry information and consulting services. The market analysis indicates that such service could be easily increased using high impact ICT applications. The proposed services in the category of marketing – agent include: Industry announcements, training calendar, business directory, industry tenders using Internet; Match making service; demand – supply using Internet; Export assistance; Legal advice in wood industry; Environmental, cost and social issues consulting services and; Machine purchasing consulting service and reselling. The market analysis indicated that due to poor knowledge of foreign languages, management skills, market intelligence, pricing strategy, and other related proficiencies, most of the wood industry firms are not able to increase the value of their products since they do not know and understand market demands, they do not get in direct touch with customers, etc. Most of them suggested that they need to know more about trends and new technologies within the industry - better demand and supply information. Almost 60% indicated a moderate demand and some 32% a high demand for an increase in marketing services. A detailed analysis indicates that all the smaller companies indicated a high demand. This is a potential business opportunity for the ARTECO Center since many of the companies in the wood industry are falling in this category.

Research indicates that 74% of the companies have web sites and access to the Internet, which shows that this service can be supplied. Moreover, 80% of surveyed companies place high or moderate demand for an increase in Internet usage in the wood industry. Strik Consulting is offering these types of services via a web portal (www.bhwoodex.com). However, it is still too early to talk about positive or negative results of this service.

The market analysis indicated that only 15% of companies have low or no interest for developing furniture design for their own needs while the other 85% of surveyed companies place high demand for design services of furniture. Companies that have in-house design teams are at a rudimental level and do not use Computer Aided Design (CAD) to its full potential. The potential furniture design ICT service that can be offered in this category includes: Furniture design using CAD; Rapid prototyping of furniture or furniture parts and; CAD and CNC programming. According to the author, the situation

with design development and adoption within the BiH wood industry is unlike that of the technologically developed countries. In addition, with the dissolution of big wood manufacturers such as as Krivaja and Šipad, the BiH wood industry lost its research and development component, because this component was their integral part. The newly formed small and medium enterprises within the wood sector could not invest in this aspect of their business, which resulted in serious development problems and consequently hindered the exports.

The market analysis showed the following:

1. There are more than 78% of companies that declare to have prototyping workshop.
2. Approximately 46% of those interviewed stated that they design and produce their own designs while only 7% is copying from the existing product and 30% is getting the design from their customers.

However, the situation that was observed and recorded during the market survey contradicts the information provided in the questionnaires. The author observed the following:

1. There are only 2 firms that are using prototyping workshops on a higher level; these two firms have the necessary resources to develop the product through all four phases – design, prototype, zero series, and production. Two other firms are proficient in outsourcing their designs or copying from the existing product with sufficient quality. Finally, almost 82% of all observed firms use copying and customers designs.
2. No firm is using testing software to test design and technical problems to confirm the product's functionality; none is performing dynamic and static testing.
3. Everyone is using a trial and error method; 2-3 carpenters that are chosen from the rest conduct a prototype production and assembly.
4. Even though 60% of the surveyed companies are using 2D-CAD application, none of these companies are using its 3D-CAD property that could significantly reduce the adoption time.

Testing and laboratory services have become a very important aspect of the export efforts by the BiH wood industry in past years. Over 70% of surveyed companies export furniture to the EU market, and their products need to fulfill strong export requirements. The EU laws regulate furniture requirements very strictly and demand that furniture pass various test for fire, structural damage and hazardous materials. There is no center in BiH that can perform these tests and issue a valid CE certificate. Consequently, all the tests for BiH furniture are conducted abroad. Currently, companies receive these certificates from international companies. Most of the firms reported using Croatian testing centers in Slavonski Brod and Zagreb. Other companies transfer such liability to exporting partners that perform test and laboratory experiments in their own country. Companies clearly indicated that they purchase this service based on price and certification credibility. Performing the tests in BiH should definitely be cheaper than having it tested abroad.

4. CONCLUSION

The following high impact ICT applications were identified in this article: 3D scanning, rapid prototyping and reverse engineering; Production services for furniture (and other value-added product) manufacturers – brief description; Training and Testing.

5. REFERENCES

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