

DEVELOPMENT OF COMPETENCIES IN THE SLOVENIAN WOOD-INDUSTRY

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Abstract

Competencies are very important for achieving inter-organizational competitiveness, so organizations strive to enhance these as part of human resources management development. Education and training of employees as a form of organizational learning is the key to ensuring their competencies for the job, which in turn leads to their increased motivation and greater efficiency and quality of work. The Slovenian wood industry is of strategic importance for the preservation of rural areas, and offers wide employment opportunities, but in recent years it has become less competitive, mainly because of the low level of knowledge and / or inadequate competencies of employees. In this study we examined the impact of using a competency model for the wood industry in designing training programs for different profiles of employees in order to raise their competencies. The results showed the positive effects of such training in enhancing the level of professional, job-specific and general competencies of employees, as well as reducing the related deficits. The results showed significant progress for almost all of the 91 competencies in the wood industry competency model, in which the overall proportion of deficits (grades 1 and 2) decreased by 58%. Such training can thus ensure the greater competitiveness of the Slovenian wood industry, and the greater flexibility and efficiency of the related companies.

Keywords: *competency, competency model, organizational learning, wood-industry sector*

1. INTRODUCTION

Technological and organizational changes, as well as other business challenges, are forcing companies to maintain and develop the skills and knowledge of their employees. Moreover, recent years have witnessed dramatic changes in the types of skills that employees require to succeed in the workplace. Individuals can now access and distribute specialized information quickly and easily (e.g. via the internet), and thus the demand for skills associated with the storage and retrieval of detailed

technical information (e.g., memorization and classification for archival purposes) has reduced. In contrast, the ability to source, process, manage, communicate and apply knowledge across diverse contexts has come to be seen as critical for success at work (Young and Chapman, 2010).

Employee competencies are very important for obtaining inter-organizational competitiveness, and thus organizations strive to enhance these as part of organizational human resources development (Overby and Suvanujasiri, 2012). The training and education of employees is very important in ensuring

that they have the competencies needed to do their work, which in turn leads to increased motivation, greater efficiency and higher quality of work. Learning can be defined as a process through which new knowledge is generated while existing knowledge is renovated, combined and updated (Schiuma, 2013). Individual learning must be used and shared by the organization if it is to be effective (Weldy, 2009). The main activity or process of learning in organizations is organizational learning, which is a two-way process of knowledge transfer among individuals, groups and the organization (Örtenblad, 2001; Easterby-Smith et al., 1999; Schiuma, 2013). The primary aim of organizational learning is the continuous development of new knowledge and its efficient and effective management (Schiuma, 2013). Organizational learning is also a process that should help a firm to build its store of competencies (Šebestová and Rylková, 2011; Adams and Lamont, 2003)

The broader and more in-depth knowledge of employees, along with their greater competencies, are key to ensuring innovation in the development of a company (and sector), enabling searches for new and better solutions and thus increasing competitive advantages. As such the reward systems, career tracks, selection systems, and the structures of organizations need to change to focus on competencies, and in today's globally competitive environment the competency-based approach and the capabilities that individuals need to acquire and develop should be a major managerial focus (Lawler, 1994).

The importance of competencies to organizations cannot be overstated, but in order for an organization to succeed in its mission its competencies must match its strategic intent. Moreover, without the needed competencies even well-conceptualized and well-stated strategies cannot be successfully implemented. Indeed, it is competencies that allow the concept of strategic intent to be operationalized (Cardy and Selvarajan, 2006).

Providing agility is often a problem in practice, mainly because of the low level of knowledge and/or inadequate competencies of employees. This is a major obstacle with the Slovenian wood industry, where the level of basic educational achievement among employees is relatively low (Kropivšek et al., 2009).

The Slovenian wood industry is of strategic importance for the preservation of rural areas, and offers wide employment opportunities, but in recent years has become less competitive. The process of globalization and decrease in the competitiveness of woodworking production during the previous economic crisis have caused a significant decline in demand, which is the most important operational issue for companies in this industry. Such firms are aware of the necessity of restructuring, of which an integral part is the development of human resources, and particularly the competencies of employees. For this reason many companies have now adopted the principles of learning organizations in their operations, and thus they systematically implement training and knowledge transfer programs for employees. In this study we examined the impact of using a competency model for the wood industry in designing training programs for different profiles of employees in order to raise their competencies.

The specific objectives of this research were as follows: (1) to assess the level of competencies for different profiles of employees in the Slovenian wood industry, and (2) to determine the effects of systematic training on reducing deficits in these competencies.

2. COMPETENCY AND ORGANISATIONAL LEARNING

2.1 Competency

A competency is understood as the "knowledge, ability, dexterity, know-how, experience and other personal characteristics necessary to successfully perform specific tasks" (Svetlik, 2005). The concept of competency can include traditional characteristics like knowledge, skills, and abilities, but also go beyond these. According to Lustri et al. (2007), the issue of competencies first began to be discussed by US psychologists and administrators with the publication of "Testing for competence rather than intelligence", McClelland (1973), which defines competencies as personal characteristics that can lead to greater performance. These characteristics are aptitudes (natural talent, susceptible to improvement), abilities (the practical application of a talent) and knowledge (the information necessary for task achievement). Specifically, effective performance includes not only

a capability, but also the motivation or desire to perform the related action (Woodruffe, 1993). Kochanski (1996) offers a simple description of competencies as the success factors in an employee's organization and profession. Similarly, Kennedy and Dresser (2005) define competencies as anything employees have or acquire that contributes to organizational success. In sum, employee competencies are the characteristics associated with successful performance (Cardy and Selvarajan, 2006).

Competency development and management are widely regarded as vital tools to enhance the competitiveness of organizations. Furthermore, organizational-level competencies are embedded in employee-level competencies, and these can be further divided into technical and behavioral competencies. The technical competencies are job-related skills and knowledge, while the behavioral competencies refer to personal attributes or characteristics (Yu-Ting, 2010).

Marrelli et al. (2005) define a competency as a measurable human capability that is required for effective performance. A competency may be comprised of knowledge, a single skill or ability, a personal characteristic, or a cluster of two or more of these attributes. Competencies are the building blocks of work performance, and the performance of most tasks requires the simultaneous or sequenced demonstration of multiple competencies (Marrelli et al., 2005), as follows:

- **Knowledge** is awareness, information, or understanding about the facts, rules, principles, guidelines, concepts, theories, or processes needed to

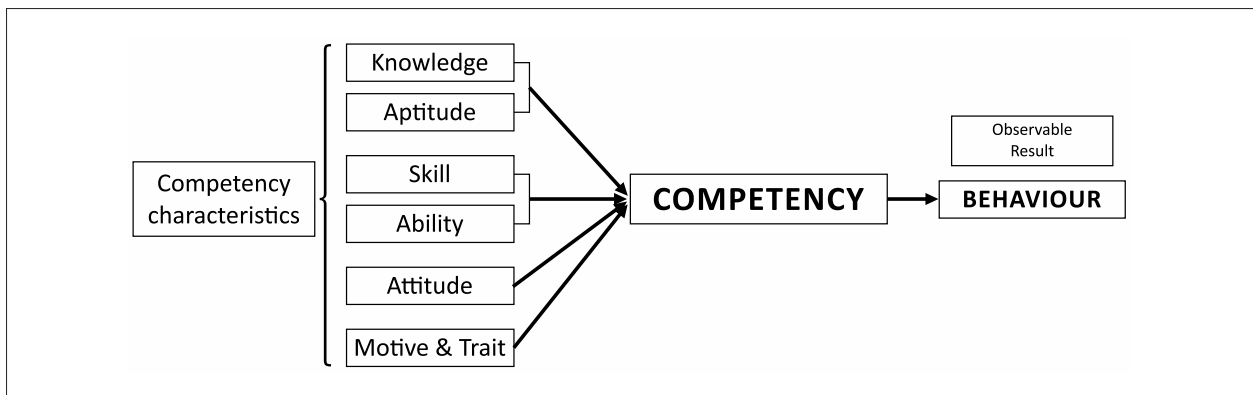
successfully perform a task. Knowledge is acquired through learning and experience.

- **A skill** is the capacity to perform mental or physical tasks with a specified outcome.
- **An ability** is the demonstrated cognitive or physical capability to successfully perform a task with a wide range of possible outcomes. An ability is often a constellation of several underlying capacities that enable us to learn and perform.
- **Personal characteristics** may be required for or influence effective performance. These characteristics, such as attitudes, values, and traits, often have an emotional or personality component. It is also useful to define these personal characteristics as "enabling behaviors." These include work habits, ways of interacting with others, or manners of conducting oneself that contribute to effective work performance.

A competency is a combination of motives, traits, skills, and aspects of one's self-image or social role. Boyatzis (1982) emphasizes the concept of competency as a personal characteristic, and one that indicates ways of behaving or thinking generalizing across situations and enduring for a reasonably long period of time. The outcome of possessing a competency at a particular level is certain 'behavior', which is observable. Competencies can thus be judged based on the behavior of an individual in specific situations (Sarkar, 2010). Figure 1 shows the relation between competency and performance.

A competency represents the potential for good performance that leads directly to the most

Figure 1: Concept of Competency



Source: Adopted by Sarkar, 2010

efficient accomplishment of organizational goals (Teodorescu, 2006). Gilbert (1996) defines competent people as “those who can create valuable results without excessively costly behavior”.

Competencies are now commonly conceptualized as measurable patterns of knowledge, skills, abilities, behaviors, and other characteristics that differentiate high from average performance (Yu-Ting, 2010). Turner and Crawford (1994) broadly classify competencies as belonging to one of two categories: personal or corporate. Personal competencies are possessed by individuals and include characteristics such as knowledge, skills, abilities, experience, and personality. In contrast, corporate competencies belong to the organization, and are the embedded processes and structures that tend to reside within it even when individuals leave. These two categories are not entirely independent. The collection of personal competencies can form a way of doing things or a culture that becomes embedded in the organization. In addition, corporate characteristics can determine the types of personal competencies that will best work or fit in the organization. However, our focus in this work is on personal, or employee, competencies (Cardy and Selvarajan, 2006).

Competencies are classified into several categories / groups in the literature (Kohont, 2005, Cardy and Selvarajanb, 2006, Thornton and Byham, 1982; Dulewicz, 1989). For the purposes of this research the following groupings are used:

- generic competencies are transferable and not tied to a specific job or task;
- professional competencies are linked to formal education; and
- job-specific competencies are related to business, organizational and technological requirements or restrictions on individual jobs.

If competencies are really to make a difference in how the day-to-day work of the organization is performed, they need to be translated into criteria for assessing and developing employees (Cardy and Selvarajanb, 2006). In practice, this means establishing a so-called learning organization, which encourages and supports the continuous, lifelong learning of all employees. Learning, for both individuals and the entire organization, covers the knowledge gained at different stages of (formal) education and

skills gained through various forms of (informal) training (Možina et al., 2002). Effective implementation of competencies into practice is closely associated with the concept of business agility, which means the ability of the organization to adapt to changes in the environment quickly and effectively. It corresponds to the concept and mentality of agile, adaptable, learning, committed and self-motivated people who are ready to participate, to adopt innovations and look for opportunities as to how they can contribute to the success of the company (Narasimhan, Swink and Kim, 2006).

2.2 Organizational learning

The most common way to distinguish between organizational learning and a learning organization in the literature is that a learning organization is a form of organization, while organizational learning is an activity or process (of learning) that occurs in organizations (Örtenblad, 2001; Easterby-Smith et al., 1999; Schiuma, 2013). More specifically, organizational learning is the process of individual and collective learning that takes place within an organization (Weldy, 2009). Rozman and Kovač (2012) claim that organizational learning is a link between individual learning and the organization, where individual learning is directed by the requirements of the organization. Šebestová and Rylková (2011) define organizational learning as the organizational processes aimed at adding value to the knowledge acquired and communicated throughout the firm. As such, organizational learning processes encompass the acceptance and assimilation of knowledge. Organizational learning is also described as a key strategic capability that can help explain why successful firms surpass their competitors, and thus learning is seen as an important tool that enables organizations to continuously adapt to rapidly changing market requirements, thus achieving a true dynamic capability (Santos-Vijande, López-Sánchez and Trespalcios, 2012).

There is a need for firms to operate as learning organizations where all members work to learn and take action to improve individual and overall performance (Marquardt, 1996). According to Weldy (2009) a learning organization focuses on the methods and tools needed to evaluate and improve the quality of the learning processes that exist within an

organization. This means that a learning organization is more of a culture or ideal for organizations to emulate as they work to improve their learning processes. Learning organizations are characterized by total employee involvement in a process of collaboratively conducted, collectively accountable change directed towards the development and realization of shared values or principles (Watkins and Marsick, 1992), and are skilled at creating, acquiring and transferring knowledge, and modifying organizational behaviors to reflect new knowledge and insights (Schiuma, 2013).

Learning can be defined as a process through which new knowledge is generated and existing knowledge is renovated, combined and updated (Schiuma, 2013). Weldy (2009) states that the biggest barrier keeping firms from moving toward learning organizations is the gap between individual and organizational learning. Individual learning must be used and shared by the organization, and so organizational learning is a two-way process of knowledge transfer among individuals, groups and the organization. According to Santos-Vijande, López-Sánchez and Trespalacios (2012), organizational learning is a process that has four main stages: information acquisition, knowledge dissemination, shared interpretation and organizational memory. Information may originate from both internal and external sources. The distribution and dissemination of knowledge throughout the organization is organized through formal (e.g., departmental meetings, discussions of future needs, and cross-department training) and informal interactions among individuals, and can enable the accuracy and rapid spread of information. It thus allows all members of the organization to expand their knowledge and competencies. The primary aim of organizational learning is the continuous development of new knowledge, as well as the more efficient and effective management of the resulting organizational assets (Schiuma, 2013).

Šebestová and Rylková (2011) claim that organizational learning is a process that should lead to the building of a firm's competencies, and that a valuable learning experience will lead to firm-specific, distinctive competencies. Organizational learning mechanisms have great impact on competencies, as these convert a firm's integrated learning capabilities into core and distinctive competencies, through the learn-

ing process and adoption efforts of employees (Adams and Lamont, 2003; Bhatt, 2000).

3. METHOD

3.1 Assessment of the level of competencies for different profiles of employees

Based on a competency model for the wood-industry sector (Kropivšek et al., 2013) (Table 1), a thorough analysis of the achievement of competencies for different jobs and profiles was performed according to the level of complexity and similarity of the various tasks and duties in the workplace.

Table 1: Key competencies for different profiles of employees

Profiles of employees	Key competencies for the profile*
Profile 1 - Production workers on simple and less demanding jobs in the woodworking industry	2, 5, 7, 9, 10, 11, 12, 13, 14, 16, 23
Profile 2 - Joiners and operators of complex woodworking machinery and technological lines	2, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 30, 31, 35, 42, 50, 55, 60
Profile 3 - Leaders of organizational units and groups in woodworking production	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16, 19, 22, 23, 24, 27, 28, 29, 30, 32, 33, 37, 40, 42, 43, 47, 50, 51, 55, 63, 73, 90
Profile 4 - Technologists, designers and constructors of wood products and furniture	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 23, 24, 27, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 55, 56, 68, 69, 71, 73, 77, 78, 90
Profile 5 - Purchase and sales specialists of wood products and furniture	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16, 19, 21, 24, 38, 39, 40, 41, 42, 43, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 67, 70, 71, 73, 79, 80, 90
Profile 6 - Middle and top managers and professionals in other fields	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 23, 24, 27, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 88, 90, 91

* For explanations of the numbers please see Appendix 1: A list of competencies from a competency model for the wood-industry
Source: Kropivšek et al., 2013

The assessment of the competencies in the profiles was done using the method of personal evaluation and an evaluation sheet / questionnaire, which was implemented in MS Excel using macros in order to manage the complexity of the model effectively and make the subsequent data analysis easier. The evaluation sheet was designed to investigate the level of achievement of the competencies of each employee. In the evaluation phase, the evaluators assessed the level of development of individual competencies graded from 1 to 4, as follows:

- **Grade 1 - Competency not reached**
To perform tasks in the workplace correctly this employee requires constant assistance or the guidance and supervision of an authority.
- **Grade 2 - Competency partially reached**
The employee performs work tasks independently, but often needs assistance or the guidance and supervision of an authority.
- **Grade 3 – Competency mainly reached**
The employee performs the work tasks mostly independently and at good quality.
- **Grade 4 - Competency reached in full-range**
The employee performs the work tasks independently, at good quality and meeting expectations.

The evaluation process was conducted by the HR manager with the participation of at least one co-worker (in most cases, a supervisor of the evaluated employee).

In the analysis, and as a criterion for determining the achievement of competencies, the relative proportions of individual assessments of all assessments were used, as shown in the following formula:

$$\% \text{ of grade } X = \frac{\text{number of grades } X}{\text{total of all grades}} \cdot 100$$

In this:

- % of grade X is the relative share of individual grades (from 1 to 4) of all grades for competency
- number of grades X is the number of individual grades (from 1 to 4) for the evaluated competency
- total of all grades is the total number of grades for the evaluated competency:
% of grade 1 + % of grade 2 + % of grade 3 + % of grade 4 = 100%

3.2 Evaluation of the effects of systematic training on the improvement of competencies

Based on the deficits of competencies identified in each profile, a detailed training plan was prepared, which should reduce or eliminate these weaknesses. Emphasis was also placed on the inter- and intra-organizational knowledge transfers needed to enhance the related competencies (i.e. organizational learning). Within the duration of this study (2013-2015), 1,172 people were involved in the training, which was more than half of all the employees in the studied companies. Four hundred and sixty-one courses, 12 of which were internal, were taken a total of 3,149 times. The internal courses in particular had a very good effect on the connections among companies, which have thus realized the impacts of the synergies that can be achieved in this way on the development of their businesses and the sector as a whole.

Evaluation of whether the employees' competencies improved was conducted with a questionnaire that was sent to 18 wood-industry companies of different sizes, in which 613 employees from all profiles were analyzed. All these employees took part in the related training. The deficits in competencies for each profile were measured before and after training by calculating the relative shares of grades 1 and 2, which are grouped together because both represent a deficit or strong non-achievement of the expected level of competence. For each competency within each profile, the index of the improvement that was attained (Index_{IK}) was calculated according to the following formula:

$$Index_{IK} = \frac{\% \text{ of grade 1\&2 before} - \% \text{ of grade 1\&2 after}}{\% \text{ of grade 1\&2 after}} \cdot 100$$

- % of grade 1&2 before is the relative share of grades 1 and 2 of all grades for the competency before training
- % of grade 1&2 after is the relative share of grades 1 and 2 of all grades for the competency after training

Comparative analysis was used to compare the values of the indexes of different competencies and thus to assess the effectiveness of training and education, and/or employee involvement in this. For es-

timization of the total change in value of the index, we first calculated the descriptive statistics of the shares of grades 1 and 2 before and after training, and then the total for the entire profile. With this we then used gap analysis, which by definition involves the comparison of actual performance with the potential or desired performance. This gives a solution of what steps should be taken to successfully meet a certain requirement, with a gap referring to the space between "where we are" (the present state) and "where we want to be" (the target state). A competency gap analysis assesses the differences between the competencies that are necessary for executing the task at hand and the competencies a user possesses, and so indicates which competencies should be addressed to fill the gaps that are found (Ley et al., 2008).

4. RESULTS AND DISCUSSION

4.1 Level of competencies before training

The achievement levels of all 91 competencies within the three different sets were assessed in the analysis. The results showed that the share of grades 1 and 2, which represent a deficit or strong non-achievement of the expected level of a competency, was the highest on average in the generic competencies (37.2%), while the highest value of grades 1 and 2 with regard to a single competency was within the set of professional competencies. This was the set that had the highest number of different competencies, and its median also had the highest value.

With regard to content, within the set of generic competencies the biggest deficits were in foreign languages, health protection and safety at work, and the (team) work management and organization. Within the set of professional competencies it was the marketing and sales competencies, competencies associated with the use of specialized software tools, project management and business process management that had the greatest deficits. In the case of job-specific competencies, the largest deficit was found in competencies related to the evaluation of energy efficient products and the restoring of wooden cultural heritage.

With the decline of large-scale production, companies in the Slovenian wood-industry have needed to change their internal structures to

achieve greater agility. This is most obvious among the blue-collar workers (Profiles 1 and 2), who have been pushed to develop a wide range of competencies to perform tasks in different jobs, so-called multitasking competency. A large part of these competencies is related to technical and computer skills. Due to the circulation of production workers between different jobs, the need for the acquisition of competencies from the fields of ecology, health protection and safety at work has also increased.

Leaders of organizational units and groups (Profile 3), in addition to technical and technological competencies, must also have competencies concerning leadership and organization. Due to the increasingly fragmented nature of production, as a result of requirements for an increased range of products and smaller production lots, competencies related to operational (i.e. resource-related) planning of production, technological optimization and complex technological problem-solving are very important. It was found that the employees classified in Profile 3 had a particular lack of competencies in the areas of leadership and organization, business process management, the use of specialized computer skills, legislation and standardization. The analysis thus shows the need for additional training for CNC technology management and the performance of complex manufacturing activities.

Profile 4 represents a very heterogeneous group of professional staff, therefore the set of competencies that were evaluated for this profile is also very wide. Since working on projects is now more common in this sector, it is not surprising that the results of this analysis indicate the need to develop competencies for project work, in terms of its management implementation and monitoring. Linked to such project work, which is often carried out abroad, the results also show a need for better language skills among employees with this profile. There is also a requirement to develop the skills needed to work in a team, and this is understandable since the development of both products and technologies is typically organized through teamwork. The need to develop competencies in the field of safety at work is related to the fact that technologists and developers are tightly involved in the technological development of the production process, and knowledge of risk management at

work is crucial for ensuring the safety of production workers in this context.

As expected, and noted above, the results for Profile 5 show the need to improve language and communication skills. Another important finding is the lack of knowledge in the field of online marketing (i.e. e-commerce management, development and maintenance of websites), the use of special computer software tools, and information and communication technologies (ICT) and services. Especially in smaller companies, the role of sales staff is often associated with the field of technology and production, so that employees from this profile should also have some competencies related to this. The results for Profile 5 also show a need to develop skills in leadership, organization and planning, teamwork, ecology, health protection and safety at work.

Profile 6 combines the most diverse professions, as it includes middle and senior managers and professionals from other fields (finance, accounting, HRM, informatics, quality and so on). The competencies assessed for this profile are thus very heterogeneous. The largest deficits were observed in the competencies of planning, leadership and organization, teamwork and language skills. The need to develop competencies in the areas of environmental protection and evaluation of opportunities

for reducing environmental impacts should be understood as necessary to enable employees to become more engaged in sustainable practices at work.

4.2 The impact of training on the improvement of competencies

Profile 1 represents production workers with simple and less demanding jobs in the woodworking industry. Most of the inclusions in this profile are in the areas of environmental protection and safety at work. The results show a need to develop expertise in particular areas, especially with regard to self-control and interphase control, where the largest deficit was found before training. For Profile 1, the key competencies are No. 2, 5, 7, 9, 10, 11, 12, 13, 14, 16 and 23, and for all these some progress was found after the training. The improvements were greatest for competencies No. 5, 9, 11, 13 and 23. On average, the share of grades 1 and 2, which represent a deficit or strong non-achievement of the expected level of competency, decreased by 51%, as shown in Figure 2.

Joiners and operators of complex woodworking machinery and technological lines were included in Profile 2. Based on the introductory evaluation,

Figure 2: Share of grades 1 and 2 before and after training for Profile 1 (n=34)

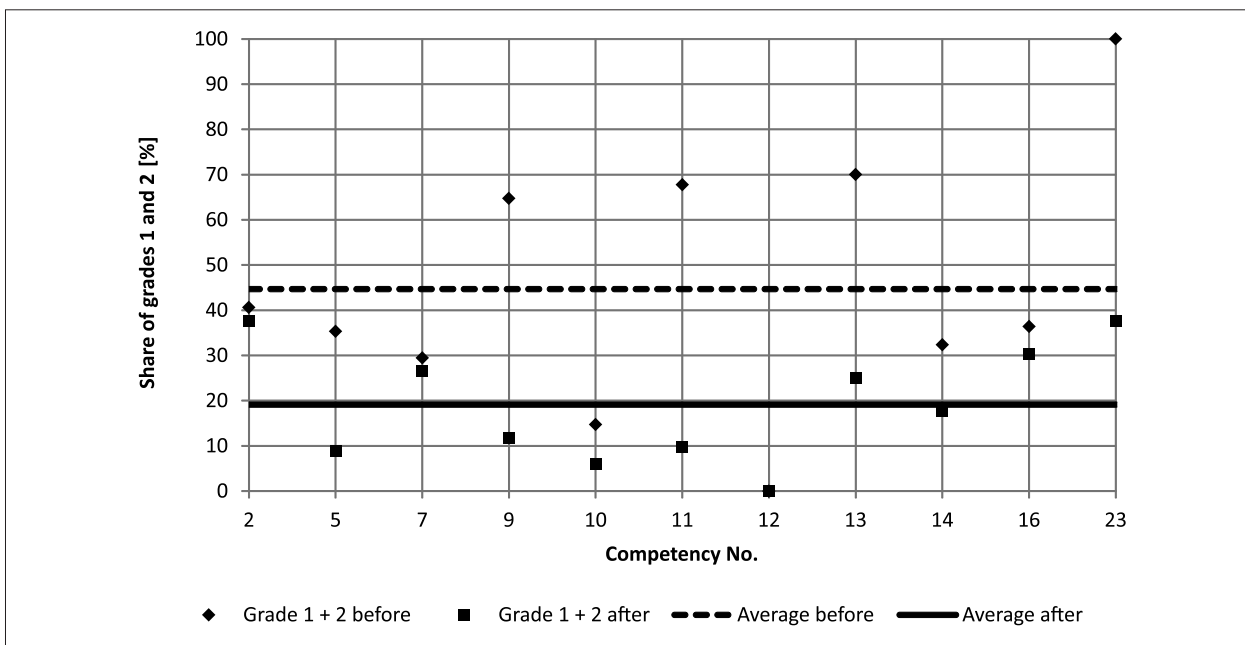
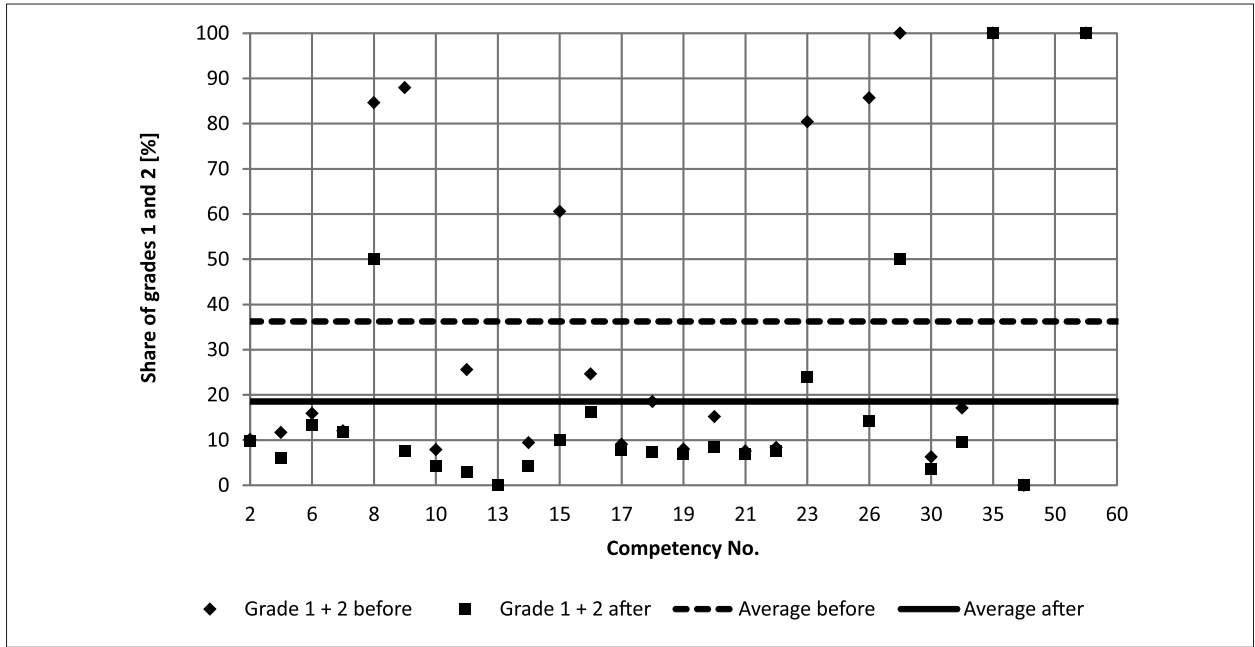


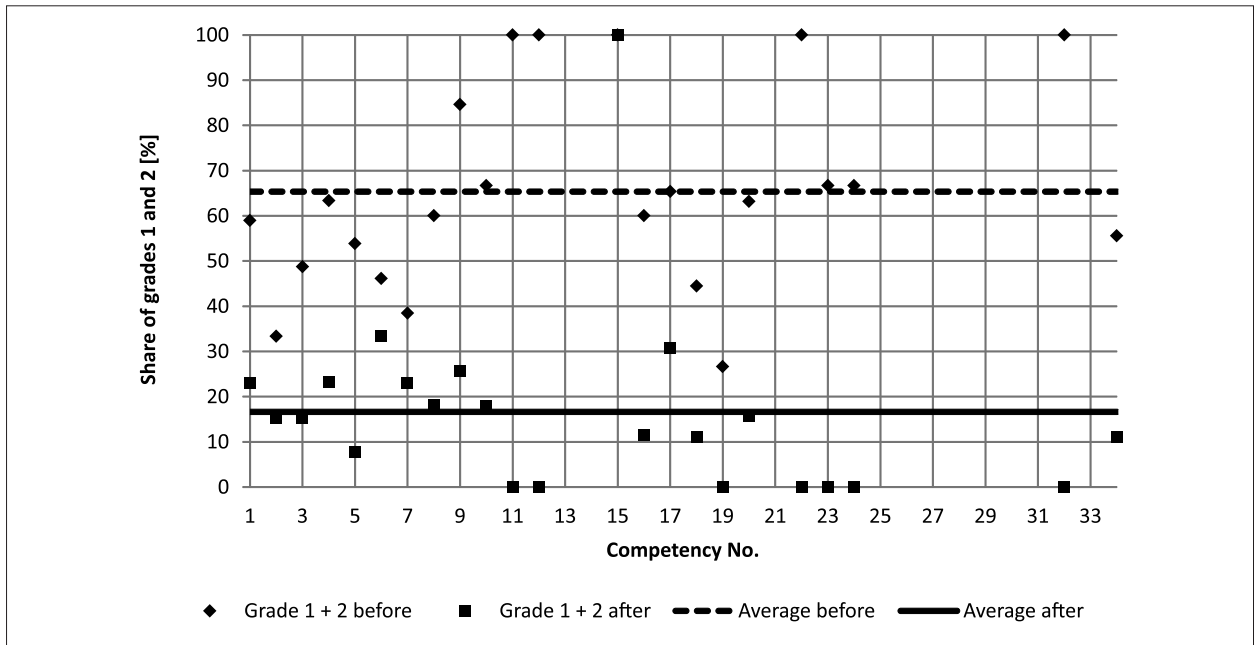
Figure 3: Share of grades 1 and 2 before and after training for Profile 2 (n=266)



needs were identified with regard to training in the fields of health and safety at work, fire safety and environmental protection, and professional training, in particular in the areas of quality assurance and special professional knowledge and skills, and the management of complex machines and lines. For this profile, the key competencies are No. 2, 5, 6, 7,

8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 30, 31, 35, 42, 50, 55 and 60. Progress was found for all the competencies after the training, and was the greatest for competencies No. 9, 11, 15, 23 and 26. On average, the share of grades 1 and 2, representing deficits in the related competencies, decreased by 40%, as shown in Figure 3.

Figure 4: Share of grades 1 and 2 before and after training for Profile 3 (n=39)



Leaders of organizational units and groups in woodworking production were classified in Profile 3. In the preliminary assessment training needs were identified in the following areas: to increase productivity, optimize production times, production planning, control and self-control, excellence and quality management, modern technology and materials, complaint resolution, project management, innovation management, technology and design documentation management, internal logistics, work analysis, restoration of wooden products, lean organization, process optimization, computer skills, basic use of CAD tools, language training, soft skills, group management, teamwork, communication, conflict resolution, motivation, safety at work, ecology and fire safety. The key competencies for this profile are No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16, 19, 22, 23, 24, 27, 28, 29, 30, 32, 33, 37, 40, 42, 43, 47, 50, 51, 55, 63, 73 and 90. After the training, significant progress was found for all these competencies, and especially for No. 11, 15, 28, 32, 33, 37 and 63. On average, the share of the grades 1 and 2 decreased by 73%, as shown in Figure 4.

Profile 4 includes technologists, designers and constructors of wood products and furniture. In the preliminary assessment training needs were identified in the following areas: new approaches in prod-

uct development, management of technological and design documentation, modern technology and materials, production planning, project management, inventory management, planning needs for materials, preparation of investment documentation, studies, work and time analysis, worktime management, cultural and technical heritage of wooden products, use of advanced CAD tools and systems, programming of CNC machines, use of specialized software, safety at work, ecology and fire safety. For this profile the key competencies are No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 23, 24, 27, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 55, 56, 68, 69, 71, 73, 77, 78 and 90. Significant progress was observed for all these competencies after the training, with the greatest progress found for No. 16, 41, 56 and 78. On average, the share of the grades 1 and 2 fell by 48%, as shown in Figure 5.

Purchase and sales specialists of wood products and furniture were placed in Profile 5. At the preliminary assessment the following areas were identified as in need of training: modern marketing methods, brand development, inventory management and planning needs for materials, sales consulting, purchasing process optimization, customs protocols, corporate identity, coordination of external logistics, legislation and regulations novelties, development

Figure 5: Share of grades 1 and 2 before and after training for Profile 4 (n=57)

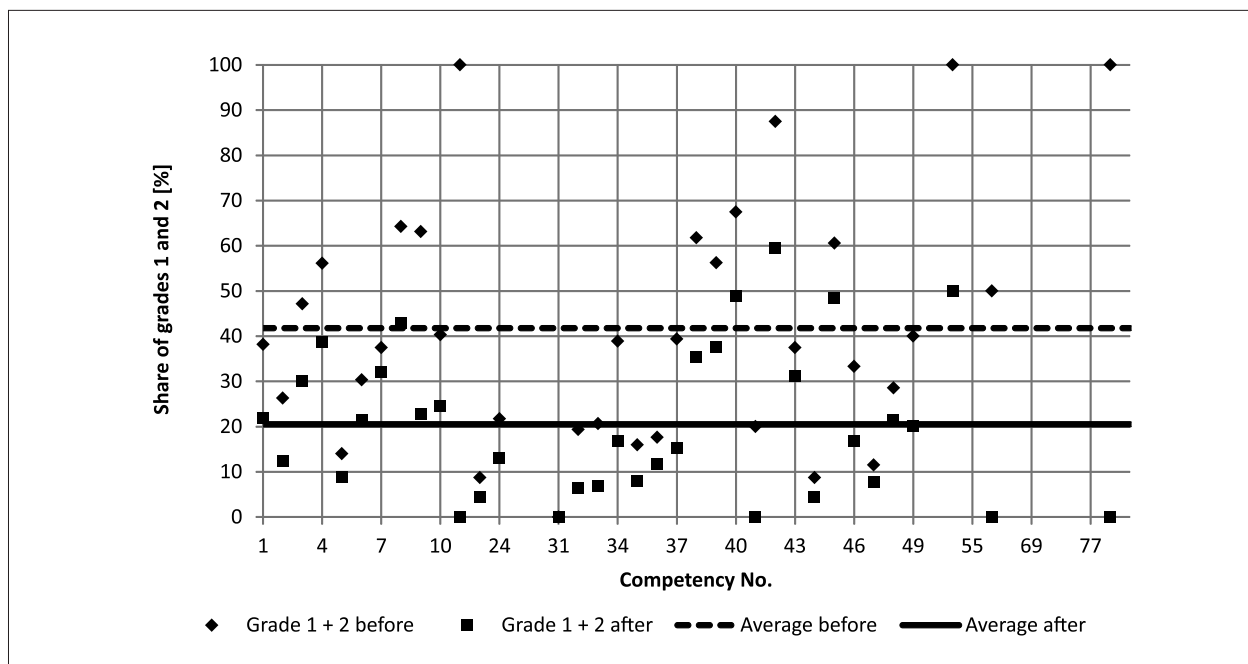
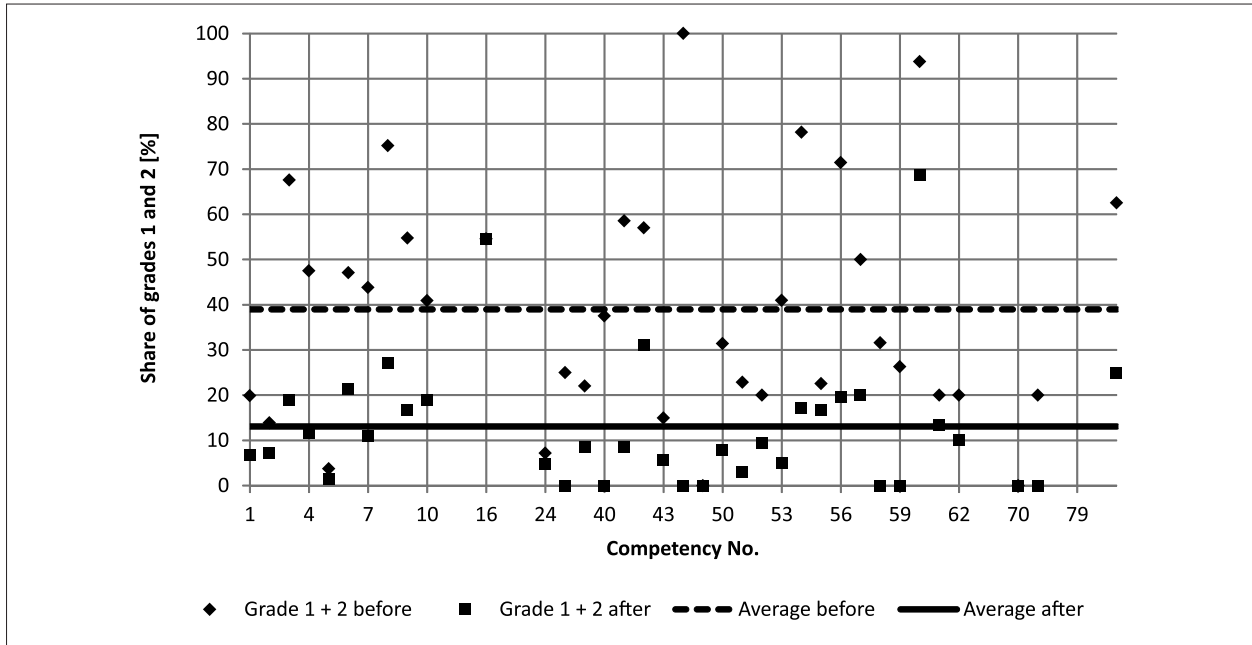


Figure 6: Share of grades 1 and 2 before and after training for Profile 5 (n=137)

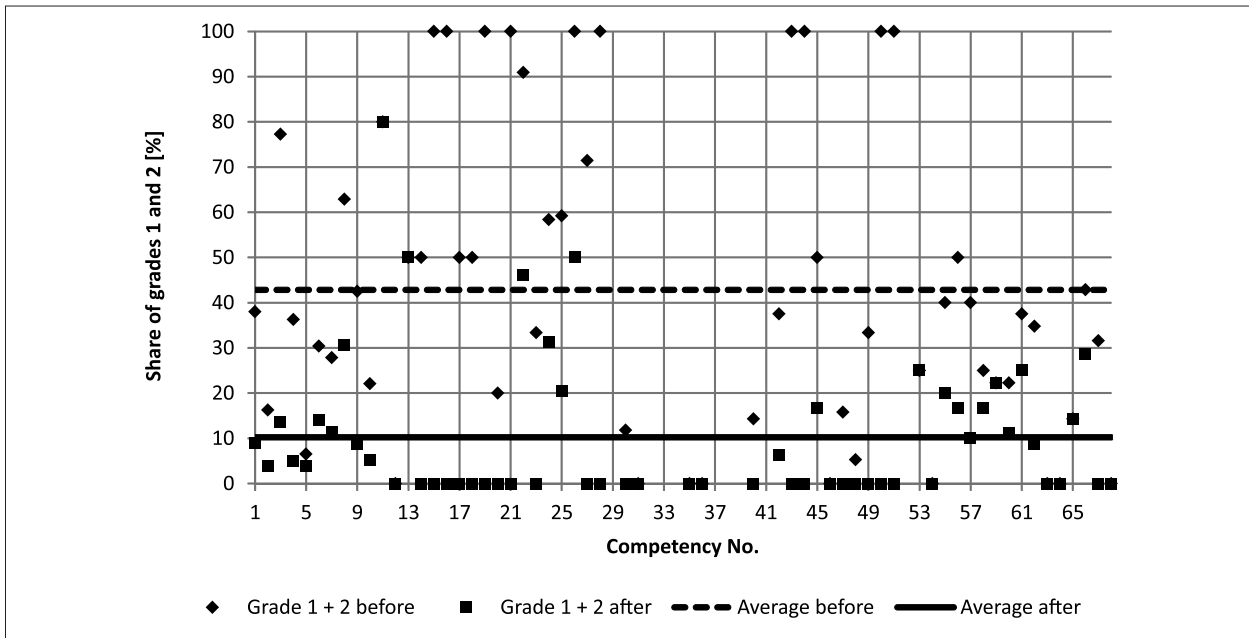


and design of products, the preparation of a fair presentation, resolving complaints, modeling and optimization of business processes, excellence and quality management, advanced use of office computer tools and information systems, advanced information services and technology to support business operations, advanced use of CAD tools and systems, development and maintenance of company websites, software tools for sales promotion, customer management systems, soft skills and foreign languages, negotiation skills, public relations, sales interviews, creative thinking, decision making and conflict resolution, effective meeting management and public performance, ecology, health protection and safety at work, efficient waste management and environmentally-friendly materials and technologies. For Profile 5, the key competencies are No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16, 19, 21, 24, 38, 39, 40, 41, 42, 43, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 67, 70, 71, 73, 79, 80 and 90. After training significant progress was found for all the competencies, and especially for No. 38, 40, 48, 58, 59 and 71. On average, the share of grades 1 and 2 decreased by 66%, as shown in Figure 6.

Middle and senior managers, professionals in finance and accounting, and professionals working in the general field of human resources and other spe-

cific jobs, were classified as Profile 6. Based on the preliminary assessment, training needs were identified in the following areas: new legislation, project management, planning, excellence and quality management, human resource management, introduction of new business models, business process optimization, motivation and reward models, models of creativity and innovation, modern technology and materials, business plan and investment documentation, information systems and their implementation, reorganization and systematization of OM, active risk management, bookkeeping, forklift operator training, maintenance of boiler equipment, maintenance of blades and machine and electrical maintenance, advanced use of office IT tools and systems, development, production and optimization of company websites, electronic archiving, management of business functions, foreign language training, negotiation skills, communication skills, modern managerial approaches, creative thinking, decision making and conflict solving, managing groups and teamwork, effective meetings management and public performance. For this profile the key competencies are No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 23, 24, 27, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 88, 90 and 91. All of these saw

Figure 7: Share of grades 1 and 2 before and after training for Profile 6 (n=80)

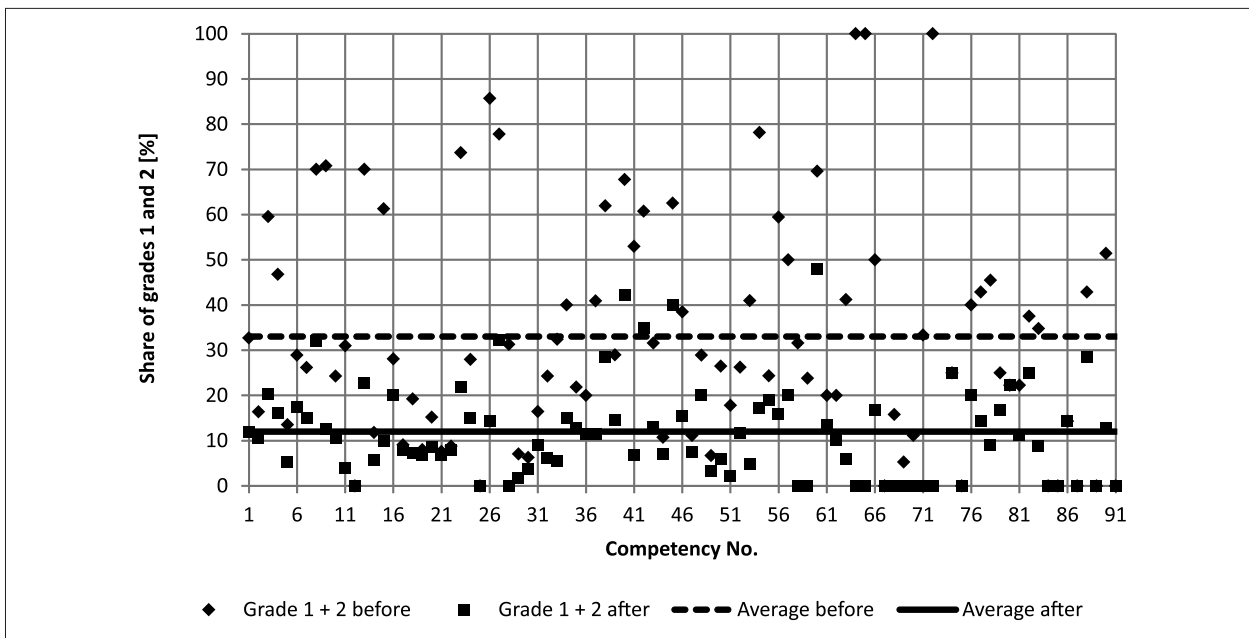


significant progress after the training, and the greatest progress was observed for No. 27, 32, 33, 34, 35, 36, 37, 38, 41, 45, 46, 50, 60, 64, 65, 68, 69, 70, 71, 72 and 90. On average, the share of grades 1 and 2 decreased by 71%, as shown in Figure 7.

Considering all six profiles as a whole, we can conclude that the share of grades 1 and 2, which

represent a deficit or strong non-achievement of the expected level of competency, on average decreased by 58%. With training the share of grades 1 and 2 fell from the initial 33% to around 11%. The greatest progress was made for competencies No. 28, 58, 59, 64, 65, 68, 69, 70, 71 and 72, as shown in Figure 8.

Figure 8: Share of grades 1 and 2 before and after training for all competencies and profiles (n=613)



5. CONCLUSION

Competencies are very important for achieving inter-organizational competitiveness, so organizations strive to enhance their competencies as part of human resource management development. The education and training of employees as a form of organizational learning is the key to ensuring they have the competencies needed to do their jobs, which in turn leads to increased motivation and greater efficiency and quality of work. Broader and more in-depth knowledge among employees, as well as enhanced skills, are also key to ensuring innovation in the development of the company (and industry), as well as the search for new and better solutions, and thus increasing competitive advantages. Overall, greater levels of competencies lead to more agile businesses.

The companies that participated in this study were mostly export-oriented manufacturing firms, who are aware of the fact that their survival in the face of international competition is only possible if their production processes are organized in a way that allows flexibility and rapid responses to market signals. At the same time, such firms have to strive for rationalization and the introduction of elements that characterize so-called lean organizations. The results of the evaluation carried out after the training in this study showed dramatic progress in the achievement of the key competencies, which would certainly affect the efficiency and competitiveness of the focal enterprises. This study divided the employees and their training based on professional industry-specific profiles, and the results showed that this was a good idea, since all industry professional groups were covered at the same time, while this approach also reflected the key segments of the industry and their specific needs for training and competency development. The final results showed that the share of poorly performed competencies (grades 1 and 2) decreased by 58% after the training was provided.

The training that was part of this study involved 34 workers from Profile 1 (production workers on simple and less demanding jobs in the woodworking industry) and 266 employees from Profile 2 (joiners and operators of complex woodworking machinery and technological lines). In both cases these are pro-

duction workers, and therefore it is not surprising that the highest participation among these employees was for the training in health protection and safety at work. The results showed that the share of these employees who were graded 1 or 2 for this competency on average fell by 86%, indicating a very good improvement. Similar results were obtained in the evaluation of competencies related to the preparation of the workplace (87% improvement). We also have to mention the training to improve competencies in the field of quality control, both general as well as self-control and interphase control, which lead to improvements of more than 65%.

Leaders of organizational units and groups in woodworking production were classified to Profile 3 (39 employees), and therefore it is not surprising that the most improved competencies in this group were associated with the preparation of the workplace, the use of production documentation, implementation and management of the production process, technological and technical and operational production planning, technology optimization and solving complex technological problems. All of these competencies were graded at level 3 or higher, which means that these employees can mostly perform their work independently and at good quality.

Technologists, designers and constructors of wood products and furniture were included in Profile 4 (57 employees). Their competencies were already well developed, since the share of grades 1 and 2 was only 42%, and this then fell with the training to 21%.

Similar results were also found for Profiles 5 and 6. Purchase and sales specialists of wood products and furniture (Profile 5, 137 employees, an average of 66% improvement in competencies) improved their communication competencies by 75%. An even greater improvement (100%) was achieved for the competencies of brand management and custody of corporate identity, with this training attended by 19 employees.

Profile 6 (80 employees) represented the middle and top managers and professionals in other fields, who all participated in training covering the areas of decision-making and problem solving, teamwork and communication, with an average im-

provement of 74%. The training covering the areas of implementation, management and monitoring of projects was attended by 19 employees, and the improvement was 100%.

It can be concluded that there was a positive effect of the training on raising the professional levels of both specific and general competencies, and thus the deficits in these were reduced. The results showed significant progress in almost all the 91 competencies defined in the competency model for the wood-industry. On the whole, the share of deficits (graded levels 1 and 2) decreased by 58%, which is an excellent result, and will help ensure greater competitiveness of the industry, as well an increased flexibility and efficiency. It is also a very important contribution to achieving the goals of "Akcijski načrt za povečanje konkurenčnosti gozdnolenske verige v Sloveniji do leta 2020" / "Action plan to increase the competitiveness of the forestry-wood chain in Slovenia in 2020", which was adopted by

the Government of the Republic of Slovenia in June 2012. The findings of this study are also important for the development of defined sectoral or occupational profiles. Indirect effects were also found in the networking of woodworking companies in the processes of learning, human resource development and the flow of knowledge and exchange of good practices. With the systematic measurement of deficits in competencies, development of appropriate training programs and their implementation in the context of a learning organization, companies in the Slovenian wood-industry should be able to perform more agile operations, achieve higher added value, and thus greater success.

Acknowledgments

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EXTENDED SUMMARY / IZVLEČEK

Konkurenčnost podjetij je pogojena predvsem z znanjem, ustvarjalnostjo in kompetencami zaposlenih. Višja raven doseganja kompetenc zaposlenih pomeni večjo motivacijo pri delu ter večjo učinkovitost in kakovost pri izvajanju delovnih nalog. Ker kompetence zaposleni pridobivajo predvsem skozi učenje in usposabljanje, je ključnega pomena, da se v podjetja uvaja načela učeče se organizacije in organizacijskega učenja, ki poudarjata pomen vseživljenjskega učenja in deljenja znanja med zaposlenimi.

Lesna panoga je z nacionalnega vidika strateškega pomena pri ohranjanju poseljenosti podeželja in ponuja široke zaposlitvene možnosti. Zaradi procesa globalizacije in padanja konkurenčnosti lesne proizvodnje je vrsta velikih lesnih podjetij v času ekonomske krize utrpela občuten upad povpraševanja, kar je večini povzročilo precejšnje težave pri poslovanju. Podjetja se zavedajo nujnosti prestrukturiranja, katerega sestavni del je tudi razvoj kadrov, predvsem izboljševanje njihovih kompetenc. Ena izmed ključnih pomanjkljivosti lesne panoge je tudi v razmeroma nizki ravni formalne izobrazbe zaposlenih, pomanjkljivega znanja ter nedoseganja kompetenc. Zato podjetja v svoje poslovanje uvajajo načela učeče se organizacije, prek katerih načrtno izvajajo usposabljanja in tako prenos znanja v podjetje in delitev znanja med zaposlenimi v podjetju.

V raziskavi smo preverili, kakšen je bil učinek izvedbe usposabljanj na dvig kompetenc zaposlenih. Usposabljanja so temeljila na modelu kompetenc za lesno industrijo, za različne profile zaposlenih. Cilja raziskave sta bila: (1) ugotoviti stanje kompetenc za različne profile zaposlenih v lesnih podjetjih in (2) ugotoviti vpliv načrtnih usposabljanj na zmanjšanje deficitov kompetenc.

V raziskavi sodelujoča podjetja so večinoma izvozno usmerjena proizvodna podjetja, ki se zavedajo, da je njihov obstanek v mednarodni konkurenci mogoč le pod pogojem, da svoje proizvodne procese organizirajo na način, ki omogoča fleksibilnost in takojšnjo odzivnost na dogajanje na trgu ob hkratni racionalizaciji in uvajanju elementov t.i. vitke organizacije. Preučevanih je bilo 18 lesnih podjetij različnih velikosti. Znotraj teh podjetij je bilo analiziranih 613 zaposlenih različnih profilov.

Vrednotenje manjkov kompetenc je bilo izvedeno s pomočjo vprašalnika, preko katerega smo ugotavljali raven doseganja posameznih kompetenc na posameznem delovnem mestu oz. za vsakega posameznega zaposlenega. Ta vprašalnik sta izpolnjevala kadrovik in vodja / predpostavljene zaposlenega, ki je bil predmet evalvacije. Na osnovi začetne raziskave ugotovljenih manjkov kompetenc po posameznih profilih je bil pripravljen natančen načrt usposabljanj, s pomočjo katerih bi se ti manjki zmanjšali oz. bi jih odpravili. Tako je bilo v sklopu trajanja raziskave (v letih 2013-2015) v usposabljanje vključenih 1172 oseb, kar je več kot polovica vseh zaposlenih v preučevanih podjetjih. Izvedenih je bilo 3149 vključitev v 461 usposabljanj, od katerih je bilo 12 notranjih. Predvsem slednja so imela zelo dober povezovalni učinek med podjetji, ki so na ta način spoznala vpliv sinergij na razvoj podjetij in panoge.

Po izvedenih vseh načrtovanih usposabljanjih in izobraževanjih smo z uporabo prej opisanega vprašalnika izvedli ponovno ocenjevanje doseganja ravni kompetenc za posamezna delovna mesta oz. zaposlene. Za vsako kompetenco smo znotraj posameznega profila izračunali indeks izboljšanja doseganja ravni kompetence (IndexIK). S primerjalno analizo smo primerjali vrednosti indeksov in s tem ocenili uspešnost usposabljanj.

Rezultati ocenjevanja ob zaključku izvedbe načrtovanih usposabljanj so pokazali korenit napredek v doseganju kompetenc, kar posledično zagotovo vpliva na večjo učinkovitost in konkurenčnost podjetij. Ugotovimo lahko pozitiven učinek teh usposabljanj na dvig ravni strokovno specifičnih in splošnih kompetenc oziroma zmanjšanje manjkov. Rezultati so pokazali bistven napredek praktično pri vseh 91 v modelu kompetenc za lesarstvo opredeljenih kompetencah, pri katerih se je delež manjkov, gledano v celoti, zmanjšal za 58%, kar je izvrsten rezultat. S tem bo zagotovljena večja konkurenčnost panoge in večja prilagodljivost ter učinkovitost podjetij. Zelo pomemben je tudi prispevek k uresničevanju »Akcijskega načrta za povečanje konkurenčnosti gozdnosne verige v Sloveniji do leta 2020« (ki ga je junija 2012 sprejela Vlada RS). Ugotovitve te raziskave so pomembne tudi za razvoj definiranih panožnih poklicnih profilov oz. delovnih mest. Posredni učinki so vidni tudi v mrežnem povezovanju lesnih podjetij v panogi v procesih učenja, razvoja kadrov in pretoka znanja ter izmenjavi dobrih praks.

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APPENDICES

Appendix 1: A list of competencies from the competency model for the wood-industry

Com. No.	Competency
1	planning
2	decision making and conflict resolution
3	management and organization
4	teamwork
5	quality control
6	use of information and communication technologies and services
7	communication
8	use of foreign languages
9	health protection and safety at work
10	environmental protection
11	preparation of the workplace
12	performance of basic work in production
13	the performance of less demanding work in production
14	basic maintenance of work equipment
15	use of production documentation
16	implementation of internal transport (e.g. pallet trucks, forklifts, cranes, etc.).
17	operate machinery in primary wood processing (e.g. machines or lines for cutting logs)
18	demanding machine processing of elements, assemblies, materials and products
19	complex composition and installation
20	management of production lines
21	product installation
22	maintenance, renovation and restoration of wooden products
23	quality control in production (self-control, interphase control)
24	quality control at the receipt / distribution stages (input / output control)
25	upholstery of chairs and seats
26	maintenance of upholstery products
27	programming and management of CNC technology

Com. No.	Competency
28	implementation and management of the production process
29	management of production department
30	models and sample production
31	use of special processing techniques
32	technology-engineering production planning
33	operational production planning
34	technology-engineering products planning
35	planning efficient use of wood and other materials
36	preparation of production documentation
37	technology optimization and complex technological problem solving
38	development and design of wooden products and structures with a technical-technological point of view
39	development and design of wooden products and structures (design and structural aspects)
40	creating programs for CNC machines
41	advising clients (customers)
42	the use of specialized computer tools
43	monitoring legislation and / or standardization (related to their field of work)
44	measurements in the field
45	assess the energy efficiency of products (e.g. by thermography, making energy balances)
46	cooperation in restoring cultural and technical heritage made of wood
47	creation of surface treatment processes
48	testing materials and products
49	preparation of graphic design and presentation of company / products
50	stock management
51	materials and services ordering and supply
52	logistics and customs procedures coordination
53	products and services sale to private customers (B2C)

Com. No.	Competency
54	products and services sale to business customers (B2B)
55	resolving complaints
56	management of e-commerce
57	marketing of products and services
58	brand management
59	custody of corporate identity
60	warehouse organization and management
61	implementation of internal logistics
62	coordination of external logistics
63	management of the entire business process
64	planning and process modeling in the supply chain
65	implementation and monitoring of processes in the supply chain
66	process optimization in the supply chain
67	planning projects in accordance with the principles of project management
68	project implementation and management
69	project monitoring
70	creation and management of the quality system
71	management activities in the environmental protection field
72	evaluation and finding opportunities to reduce environmental impacts of manufacturing and technology
73	implementation of activities for health protection and safety at work
74	revision of information technology
75	business informatics planning
76	development of IT infrastructure and systems
77	development and production of specialized software solutions
78	deployment and maintenance of computer equipment and ICT systems
79	development and maintenance of company websites
80	planning and personnel searches
81	systemization and integrated development of human resources
82	development of human resource management

Com. No.	Competency
83	perform accounting-bookkeeping work
84	maintenance of fixed assets
85	the performance of a machine-locksmith work
86	the performance of electro-maintenance work
87	maintenance of buildings and outdoor areas (general maintenance)
88	work in the boiler room
89	maintenance of blades and tools
90	organization, management and supervision of the work in their field
91	fulfilment of working documentation

Source: Kropivšek et al., 2013