# HUMAN RESOURCES AS A FACTOR OF SUCCESS OF BUSINESS CLUSTERS IN SERBIA

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*Abstract:* Small and medium companies can significantly increase their competitiveness by interconnecting into business clusters, business incubators or technology parks. This interconnection contributes to the growth and development of not only cluster members, but has a regional and a national dimension. Without it, there can be no significant penetration into international markets. Due to all these factors, the issue of encouraging cluster connectivity must be given much greater attention in Serbia. In addition to a simulative economic policy, the process of development of clusters must be based on adequate human potentials where the key place belongs to the management of companies in a cluster and the management of the entire cluster.

Keywords: clusters, management, employees, small and medium enterprises, SMEs, the real sector

# LJUDSKI RESURSI KAO FAKTOR USPEŠNOSTI KLASTERSKOG POVEZIVANJA

*Abstract:* Mala i srednja preduzeća mogu značajno podići svoj nivo konkurentnosti poslovnim povezivanjem preko klastera, poslovnih inkubatora i tehnoloških parkova. Ovo povezivanje doprinosi rastu i razvoju ne samo članica klastera, već ima i regionalnu i nacionalnu dimenziju. Bez njega nema značajnijeg prodora na međunarodna tržišta. Zbog svega toga pitanju podsticanja klasterskog povezivanja u Srbiji se mora posvetiti znatno veća pažnja. Osim podsticajne ekonomske politike proces razvoja klastera se mora zasnivati na adekvatnim kadrovskim potencijalima u kojima ključno mestu pripada menadžmentu članica i celog klastera.

Ključne reči: klasteri, menadžment, zaposleni, mala i srednja preduzeća, realni sektor

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#### **1 INTRODUCTION**

Technical progress and adequate staff profiling are two essential conditions for the development of forces of production, in one company and one country alike. Therefore, countries are the most responsible for the creation of a good business climate in their territory (Savić, 2010). Developed countries achieved prosperity owing to the favourable conditions in which companies could improve their productivity. In small and medium enterprises (SMEs) innovation is given priority over productivity. Association of SMEs into clusters can achieve increased productivity. This type of association allows the members of a cluster to find their way to business success by sharing experience and mutually streamlining their business operations. By interconnecting into clusters, SMEs alleviate the asymmetry of power that they face in relation to large multinational companies. Successful implementation of management operations implies that a company must rely on the loyalty and expertise of its staff, but also on the target market.

The comparative advantage of SMEs grouped into clusters is based on three aspects. These aspects are: specialization, cooperation and flexibility. Specialism of companies is most important for the success of a cluster, because in this fashion small companies focus their resources (which are usually extremely limited) to what they do best. Specialized firms usually have no problems with quality control, as they deal in only one business activity, but it this activity they need to give their full contribution so as to meet the set standards. Cluster development is accompanied by an increase of specialized technical and market capabilities of local human resources. Local workers, technicians, managers and consultants often move from one company to another and thus the advantage of specialization is shared by the local business system, not just one company. By this fact, the local infrastructure and the training institutions become specialized in the activity of the local cluster. Trust and interpersonal relationships are highly developed, which furnishes the cluster with a high level of social capital (Mesić, 2009).

Bearing all this in mind, the domain of management of a cluster, as a new form of business, requires special attention. From this starting point, this paper considers aspects related to human resources and management of companies linked in clusters. The key points considered are: staff qualifications and the training level of the workforce, productivity and innovation, collaboration with universities and research institutions, use of consulting services and adopted standards of quality. The importance of management in all these aspects is particularly emphasized. The paper also provides appropriate comparisons between the management of individual SMEs and the management of clustered SMEs.

After the introduction and the methodological concept given in the first, theoretical part of the paper, further discussed are the entrepreneurial and managerial practices in SMEs and clusters in Europe. Subsequently, we deal with human resource management in SMEs and improvements that association into clusters brings in Serbia. As part of the survey, we studied the real sector clusters that are part of the Serbian economy. Based on the analysis and the summary of the results of the survey, we report the implications that ensue from the results.

The aim of this paper is to gain insight into the actual status of the SMEs associated in clusters from the human resource point of view, and to point out the underestimated importance of clustering in Serbia. The concept of clustering does not only contribute to the strengthening of the competitive position of just its members, but also of the entire economy. Increase of exports and access to new markets, cheaper and more efficient use of inputs, technology transfers, sharing of know-how are just some of the advantages that business clustering induces. Therefore, it is necessary to generate initiatives at all levels in order to promote performance increases of clusters.

#### **2 METHODOLOGY**

The survey for the purposes of this paper was performed in the period between April and September 2011. It covered 74 respondents from small and medium enterprises of Serbia's real sector, associated in the following nine clusters: Automobile cluster – Belgrade, VOJPLAST (plastics) – Subotica, Netwood (furniture) – Kragujevac, Asstex (textile) – Novi Pazar, Agency for wood – Belgrade, Galenit – Belgrade, MEMOS – Indija, Agro cluster – Obrenovac.

The structure of respondents according to the number of employees in their enterprises is: up to 10 employees - 41.89 %, from 10 to 50 employees - 33.79 %, and more than 50 employees - 24.32 % of enterprises.

The respondents had prevailingly managerial competences. They also represented a combination of managers and founders, or managers and owners, or co-owners.

The following hypotheses were set:

1. The structure of employees in the SMEs associated into clusters is favourable from the standpoint of training, qualifications, experience and tradition

2. The management is an important factor of growth and development of SMEs associated into clusters

3. Clustering leads to improved employee performance, increased productivity and faster adoption of quality standards as necessary elements for the increase of competitiveness of the cluster members.

Data collected by questionnaire, which had a form of closed-end questions, were analysed for the most part using the chi-square test (<sup>2</sup>). This method is applied in the processing of categorical variables, and is used to calculate the statistical significance of differences in the frequency of respondents by variable category in relation to the frequency that is expected based on the null hypothesis. The chi-square test can also be used for the processing of contingency tables, i.e. when two or more variables are crossreferenced in a table.

### 3 ENTREPRENEURIAL AND MANAGERIAL PRACTICES IN SMES AND CLUSTERS IN EUROPE

The first and very important question that has different implications for the entrepreneurial and managerial practices relates to the diversity of human resources that are employed. It is an expression of increased complexity and dynamism, of both the environment and the enterprises themselves in the contemporary world economy. The cyclic movements in the world economy, which are characterized by a prevailing trend, tended, at one time, to create different multinational companies, which emerged through globalization. By contrast, in recent years, one could say decades, affirmation of SMEs takes place again.

In the European Union, classification of enterprises by number of employees: micro (up to 10 employees), small (up to 50 employees), medium (up to 250 employees) and large (over 250 employees) is just one of the methods of classification. The total annual income and average value of property of enterprises are also indicators of their size. It should be noted here that the decisive criteria can also be the amount of engaged capital, production volume, level of innovation, market orientation, etc. However, for the purposes of this study only the number of employees was taken as a criterion for classification of enterprises.

In developed countries, small and medium enterprises make up to 99.8% of the total number of businesses: employing 60% to 80% of the total engaged labour force and making a significant contribution to achieving high gross domestic product (GDP). This is also shown by European trends, because already since the beginning of this century, small businesses employed 66% of the total number of employees in the European Union, in the following manner: Italy – 79%, France – 63%, Germany – 60%, UK – 61.5% of the total number of employees (Burns, 2001).

By contrast, in underdeveloped countries with significantly lower GDP, the sector of small and medium enterprises has been neglected and underdeveloped. Efforts increase to the competitiveness of individual enterprises in the undeveloped environment cannot make a significant impact. Hence the adoption of the Lisbon Treaty, which is all about the management of transition, based on the economy of knowledge, represents a challenge for the European Union.

A step further was the adoption of the Small Business Act (SBA) in June 2008. Ten principles of this document are based on the SME sector, entrepreneurship and entrepreneurs, who become the barrier to global processes of domination of transnational corporations.

In underdeveloped countries or regions, SMEs cannot cope with the dominance of large companies alone. SMEs may be torchbearers of development only if they are interconnected and if this connection does create a synergistic effect. One of the aspects of this interconnectivity is clustering of businesses.

combine local and Clusters may global perspectives (Bardalen, 2009). On the one hand, this type of network association enables businesses to be successful in terms of increasing global competition (Möhring, 2005). On the other hand, interconnection of SMEs represents another way to look at the existing relationships in the local economy (Lynch, 2010). The largest number of successful clusters emerged spontaneously, economically motivated by interconnection of already existing businesses, but there are clusters that have emerged from completely new enterprises (UNCTAD Conference Secretariat, 2003). Hence the need to involve local and regional institutions in the development of clusters is larger than in some other developmental ventures, due to the fact that alongside infrastructure building, a large number of start-up companies emerge at the same time (Grandov et al, 2011). Similarly, apart from regulating the topic, it is necessary to maintain transparency and a certain degree of freedom that individual companies, as integral parts of clusters, and clusters in general, have, because entrepreneurs often complain about the red lines that limit their fields of activity (Möhring, 2005).

Apart from the fact that clusters generally achieve the economy of scale and reduce transaction costs, the specific benefit of this form of interconnection can be felt in the industrial sector. According to Lynch (2010), clusters in this sector play a fundamental role in the local economy.

Clusters are labelled as the most relevant macroeconomic factors that affect the development of regions, while economic growth in the EU regions is related to the level of strength of their clusters. Approximately 38% of employees in the EU work for the companies that are members of a cluster, which makes clusters an indispensable part of economic reality in the EU (Commission of the European Communities – CEC, 2008).

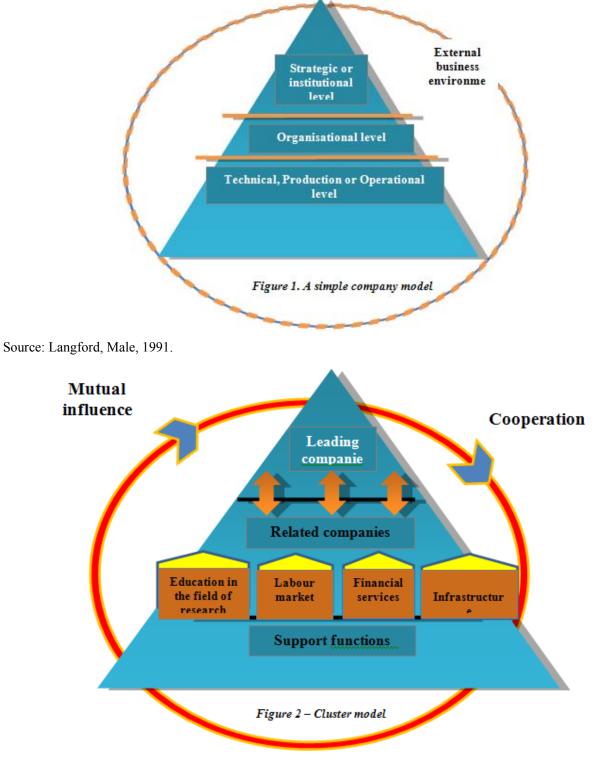
Generally, a new business formula imposes itself on the management structures, which associates competitive success with better performance of a greater number of tasks with fewer resources. More pronounced are competence strategies, strategies of openness, interconnectivity and cooperation with others, which are indeed present in clustering as such. In addition to strengthening of mutual influences, clustering also causes an increase of innovative capabilities, and attracts customers, investors and experts. According to Bardalen (2009), strengthening of the international focus through cluster expansion is yet another additional beneficial factor that this type of connection entails.

With this in mind, Cocker (2009) also includes in the indicators of sustainable development of clusters the professional management of clusters. The typical fields of activity in the management of clusters, this author divides into five categories. These are: 1) information and communication, 2) training and qualification, 3) raising the operations on the international level, 4) initiating cooperation, and 5) marketing and public relations. Training and qualification include: analysis of educational needs in a particular industry, activities of providing qualifications for the company employees and regular special events (whether in terms of workshops and seminars or study visits for employees).

The essence of clustering is that exactly because of geographical proximity each can learn from another. developing a unique local knowledge (Möhring, 2005, 21). Introduction of new technologies and transfer of their implementation is also facilitated by clustering. Special efforts should be undertaken to improve employees' skills after graduation in order to attract foreign direct investment (Pyke et al, 2002). Indirectly, the business clustering contributes to this process as well, because highly qualified and specialized workforce overcomes and accepts additional training more easily in this way. The members of a cluster continually build relationships of trust and cooperation. From the aspect of human resource management, particularly emphasized is activity that is manifested in teamwork. Teamwork is also an important feature for SMEs, even when they are looked upon individually.

The introduction and improvement of quality standards and processes within the clusters and the cluster members is another benefit for the SMEs (Mesić, 2009). According to the same author, in addition to relationships between SME members in the cluster, within the cluster they also develop relationships with: the scientific sector, the industrial sector, the central government and accompanying industries.

All this requires cluster management to be *know-how*-oriented. A parallel between managing a company and managing a cluster may be made by comparing Figure 1 with Figure 2.



Source: Bardalen, 2009.

It is noticeable that in the very foundation of a company – the basics are – the production, technical or operational levels. Counterparts to these levels in the cluster are supporting functions. Support of scientific institutions to clusters plays an important role in their development. The intermediate or organizational level of a company is the set of similar enterprises in the cluster. At the top of the organizational pyramid is the company's strategic and institutional level. Top positions in the management of clusters are occupied by leading companies.

There is a necessary reciprocal relationship between the related and leading companies. Hagenauer (2009) points out that good governance is vital to the mobilization of partners for the needs of joint activities. The key tasks of cluster management would be: networking, initiating and monitoring of projects, finding the right subsidies for SMEs, and public relations. According to the same author, the European review of qualifications of cluster managers contains 14 jobs and tasks, which need to be performed with more or less attention so as to successfully manage a cluster. Owing to the specialization in clusters, one does not have to do everything, which brings benefits.

## 4 CLUSTERING IN THE FUNCTION OF IMPROVEMENT OF HUMAN RESOURCES OF SMES IN SERBIA

Available human resources are an important asset of the Serbian economy. Nevertheless, the impact of the economic crisis in Serbia led to the situation that unemployment is not viewed as a temporary state, but as a long-term process. According to the Status Report of the European Commission on the SME sector and entrepreneurship (2011), this sector employed 65 000 workers in 2008 and 2009, which is about 7% and insufficient to achieve prosperity. Correspondingly, institutional support makes progress according to the aforesaid Report from the Commission. Adoption and implementation of best practices, procedures and rules is all the more important as employees in the SME sector account for almost half of total employed workforce (45.4%) in Serbia (according to the National Agency for Regional Development, 2011).

In this context, there are different strategies for the support and the development of entrepreneurship and small and medium enterprises. The social and economic importance of SMEs is reflected in the fact that they represent a generator of economic development, the backbone of employment and help maintain the welfare of regional communities (Gračanac, 2011). The reasons for the incentives are also found in the fact that entrepreneurship leads to increased self-employment. The main features that entrepreneurship has brought to companies in Serbia are private property and alignment with small and medium enterprises (SMEs News, 2004).

Coincidently, it is also characteristic that in Serbia in recent years there has been an imbalance of supply and demand in the managers' market. No matter which business category they belong, no matter what activities they pursue, even though there is an imbalance between supply and demand for certain profiles, in the environment of high unemployment the companies will still be in a situation in which they make a selection who to recruit among the numerous candidates (Torrington et al, 2004). In the nexus of events are the joint efforts to recruit employees carefully and to, according to improvement programs, exchange them between companies, if such exchanges are prudent. Among other prerequisites for association of SMEs into clusters, there is also the interaction of human resource practices and increase of competitive advantage, which is the ultimate goal. For the management of a cluster, it can be said that also applicable is that which Ikač (2005) states about a modern organization, which has to be directed by modern management, which enjoys authority, and is not imposing, but inspiring.

The upper hand of small companies is their flexibility. At the same time, that which is advantageous may become a disadvantage. On the one hand, the ability to adapt quickly encouraged by a smaller number of employees who may have a better interaction and more direct relationship with the owner contributes to the easier identification of the staff with the company and their greater willingness to put effort into achieving the goals, the vision and the mission of the company. On the other hand, this hypersensitivity makes such companies vulnerable when it comes to, for example, costs. Often, small businesses are in a dependent, almost vassal status in relation to large companies. Their resource capacity is small, and they cannot cover all the business functions with sufficient specialized staff. Such organizations resort to hiring people with general education for the purposes of rationalization. However, such expertise is harder to attract and retain, because large companies often offer faster advancement to such staff, more attractive initial compensation, more motivation and enable their speedier career development. Small, and even medium enterprises, necessitate provision of coordinated and as concrete as possible institutional

support through the education system, the classification of educational profiles and vocations, as well as through subsequent (permanent) education, personnel selection, etc. (Vukotić and Dukić, 2010).

In the overcoming of all these shortcomings in the management of individual SMEs of great benefit are cluster interconnections.

In addition, it is exactly at those places where networks and partnerships are poorly developed the idea of clustering (association) should be pushed so as to raise interest with the managers of small and medium enterprises for such an idea. In this context, there are different strategies for entrepreneurship development and support adopted by the Government of the Republic of Serbia. One of the latest examples of this support is the formation of the Council for Clusters by the Serbian Chamber of Commerce. The best way to ensure participation and support is to showcase to the managers of small and medium enterprises the direct benefits of clustering and the opportunities that they might miss if they do not join them (Strategy for Vojvodina, 2007-2011).

Clusters increase the capacity for innovations, the diffusion of technologies, the concentration of professionals and experienced staff, i.e. increase productivity. Innovation is provided by the fact that the companies within the cluster are often able to more clearly define the needs for innovation, the new needs of customers, to create and implement ideas more rapidly (Mićić, 2010).

However, the analysis of the current status of clusters in Serbia indicates that the level of development of clusters in our country remains minute. A small number of enterprises in Serbia are involved in cluster operations – slightly less than 2% of domestic companies and only 3% of the workforce (Cluster Development Strategy, 2010). For the purposes of comparison, if 45.4% of the total employment is related to the SMEs (NARR, 2011), then we can unambiguously conclude that enterprises in Serbia insufficiently participate in cluster

networking. According to the data from the Global Competitiveness Report, by cluster development Serbia ranked 117<sup>th</sup> in 2009, which is a deterioration of position compared to 2008 (World Economic Forum, 2009).

This type of interconnection has a regional dimension. The cluster may be the one that contributes to the success of other industries, but also preserves its own culture, such as information-technology services or distribution/logistics. It is only necessary that the regions discover their potential (Strategy for Vojvodina, draft version, 2007 - 2011).

Professionalization of management, strengthening of corporate governance, recognizing and facilitating the growth of leadership skills are important factors in transcending the traditional business framework and streamlining with modern business practices in the world. In this context, continuous training programs and active cooperation between the economy and institutions of higher education must take a prominent position in the country's public (Džunić, 2010).

The educational structure of the population is of particular importance in the researches aimed at finding opportunities for the establishment and development of clusters. This is particularly important since in the educational structure of the population aged 15 and over (according to data from 2002), completed high school is the most common level of education with 41.1% of the population, the second most common being primary education – in 23.9% (mostly elderly people). In the total population 6.6% are those with higher education, and 4.5% are those with two or three-year college degrees (Republic Statistical Office – RSO, according to the 2002 census).

In 2009, a slight increase in all levels of education is noticeable, except the primary education, which endured a slight decrease in its share out of total. Comparison between 2002 and 2009 by the educational level is given in Table 1.

Table 1 – Educational struc	ture of the	population in	Serbia (age 15 or o	lder – in percentages)

Educational level in %	Year 2002	Year 2009
Primary	23,9	22,32
Secondary	41,1	48,63*
Post-secondary (2 or 3-year degree)	4,5	5,02
Higher (4-year degree)	6,6	7,56

Source: the RSO, the 2002 census and Alliance for Regionalisation of Serbia (ARS), 2009.

\*Note: the percentage signifies the sum of graduates from three-year and four-year secondary schools

Success formulas are found by the cluster management in comparison, or better yet, in imitating the management style of large organisations. On the other hand, Cocker (2009) supports active involvement of cluster managers and comparisons of the cluster management with that of other clusters. Džunić (2010) goes a step further covering not only the managerial and leadership structure, but also the structure of employees. This concept insists on proactivity, as opposed to reactivity.

#### **5 FINDINGS AND IMPLICATIONS**

The survey has shown that the most common level of education in the analysed clusters is congruent with the dominant educational level in Serbia. Most employees have a high school diploma -65.39%. The highest level of education is represented in 15.92% of the surveyed sample. The average percentage of workers with primary education is 18, 68% (Figure 3).

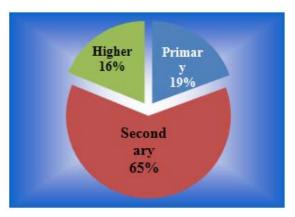


Figure 3 – Structure of qualifications of employees

If we observe the management of companies involved in surveyed clusters, then we see a significant preponderance of highly educated staff, which is the most suitable for managerial positions. This level of qualifications is possessed by managers in the surveyed sample in the area of nearly 60%. With the addition of 18.92% for the post-secondary two-year education, the exact sum of these two categories is 77.02%. Secondary education is possessed by 20.28% of the sample, as depicted in Figure 4.

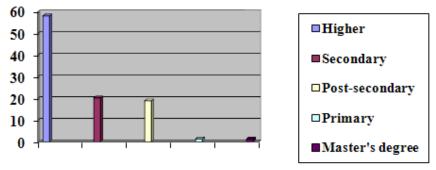


Figure 4 – Educational level of respondents

Similarly, if we analyse the participation of enterprises in the cluster by level of education, the following indicators have been obtained: the majority of employees with primary education is in 6% of the enterprises; with a majority of employees with secondary education there is 50.7%, and with a majority of employees with higher education there is 7.5 % of enterprises. Equal number of employees from all three levels of education figures in 35.8% of companies (hi-k. = 38 851, df = 3, p <= 0.01). Presented survey results, as well as the fact that clusters operate in traditional sectors of the economy of Serbia (metalworking, automotive, wood, textile

and plastics industries) fully confirm the first two hypotheses of this survey.

The views of respondents regarding the impact of clusters on the increase of the level of training and qualifications of employees are affirmative in 62.16% of cases. Within the clusters, scientific and research institutions can be found either as full members, or as support. One such example is the Faculty of Forestry in Belgrade, which is an equal member of the cluster *Agency for Wood*. This implies that in addition to

information exchange within the cluster, there is transfer of knowledge, complementary skills and the overall experiential potential.

When it comes to consulting, over 80% of respondents uses it occasionally or continuously (hi-k.=21.808, df = 2, p <= 0.01). This data indicates that there is understanding of the importance of resources rationalization. Graphically, this can be represented as in Figure 5.

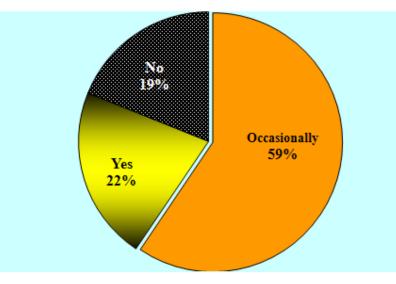


Figure 5 – Frequency of use of consulting services

The next very important aspect is the impact of clusters on the productivity. The positive effect was evaluated to exist by 74.33% of the respondents (hi-k. = 12.162, df = 1, p <= 0.01). When it comes to innovations, then this percentage is somewhat lower. Positive responses were found in 63.52% of the sample, and neutral in 36.48%. The statistical significance of this indicator is: hi-k. = 5.405, df = 1, p <= 0.05.

In terms of the adopted standards of quality, only half of the respondents stated that their companies have adopted quality standards (52.70%). On the other hand, a slightly higher percentage (70.28%) plans to introduce quality systems in the subsequent three years (hi-k. = 13.928, df = 1, p <= 0.01).

Also, among the necessary elements for the development of competitive capacity of enterprises, the respondents ranked at the top positions the following: the use of modern technological solutions and equipment, standardization of the quality of operations and continuous improvement of knowledge and skills of both the management and the employees. This is shown in Figure 6.

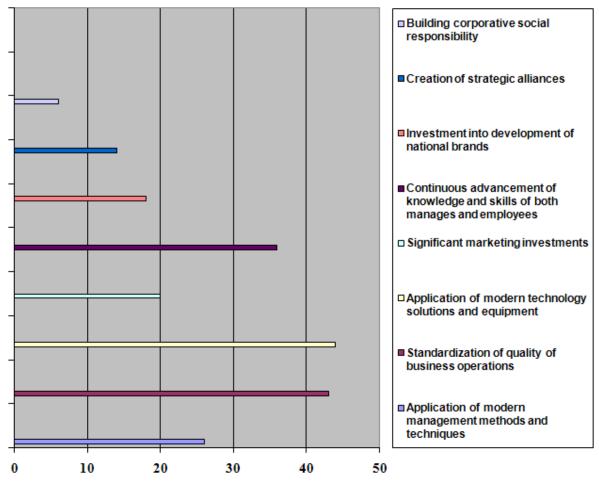


Figure 6 – Necessary elements for the development of competitive capacities of enterprises in a cluster.

Given the fact that the respondents have emphasized the use of modern technology solutions, quality of business operations and continuous improvement of knowledge – of both the leadership and the employees, we can conclude that they have comprehended the importance of orientation to knowhow. A cluster that connects such SMEs makes them organizations of learning, further stressing knowledge, which is an all-out modern trend. The results of our study given above fully confirm our third working hypothesis.

## **5 CONCLUSION**

The cluster policy has to be one of the priority developmental policies of Serbia considering that the experience of developed countries has shown that business clusters are carriers of the prosperity of national economies through increased productivity, stimulation of hi-tech innovations, improvement of systems of quality and raising of the competitiveness level of its members. Consequently, the SME sector should have to be regarded as the solution to the longterm economic growth, and not as part of the problem. Escalation in competitiveness brings a surge in profitability, the volume of investment and employment. The tax policy can also stimulate employment. Clusters also represent an adequate response to globalization and become an effective lever of balanced regional development of a country. Of particular importance is the development and clustering of SMEs that operate in the real sector, which by interconnecting develop their comparative advantages based on specialization, cooperation and flexibility.

In Serbia, apart from the material conditions, there are adequate human resources for the successful implementation of the policy of business clustering. The highly trained and qualified workforce and management structure, along with adequate macroeconomic policy development, are the prerequisites on which the economy can achieve a significant competitive advantage in international markets. Management is nowadays compelled to follow a new business formula that bases competitive success on the enhanced performance of more tasks with fewer resources. Emphasis is given to the strategies of competence, openness, association and cooperation with others, which is exactly what business clustering offers.

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- [33] www.galenit.org.rs

[34] www.klaster-memos.org.rs

[35] www.netwoodcluster.net

[36] www.klasteri.merr.gov.rs (VOJPLAST)