STAFFING OF ENTERPRISES IN THE IT-SECTOR IN BULGARIA

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Abstract	The study of changes in the labor market and, in particular, the problem of staffing provision, is becoming increasingly important in view of the specific activities in enterprises in the field of information technology. Sustainable and effective development in the information technology sector (IT-sector) is possible only if they have sufficient quantity and with the required level of knowledge, skills and competencies of human resources. One of the serious problems facing the development of enterprises in the IT-sector is the shortage of staff, both in quantitative and qualitative terms. The purpose of this research is to study, analyze and evaluate the problem of staffing businesses in the IT-sector in Bulgaria. The state of the labor market in IT-sector is characterized Based on statistics and specialized sources. The summarized results of a survey designed to investigate staffing problems within IT-sector businesses in Bulgaria are presented. There are also summarized conclusions provided arising from the study results.

Introduction

The study of changes in the labor market and, in particular, the problem of staffing provision is gaining in importance in view of the specific activities in the enterprises in the information technology (IT) field. This specificity is determined by the fact that in the era of digital technology and automation of business processes, human resources with their intellectual potential are those which generate innovative ideas and become a major factor

for the development of enterprises and enhance their competitiveness. Sustainable and effective development in the IT-sector is possible only if they have sufficient quantity and with the required level of knowledge, skills and competencies of human resources.

In this context, the aim of this study is to study, analyze and evaluate the problem of staffing businesses in the enterprises in the information technology sector in Bulgaria.

Literature review

Achieving a permanent competitive advantage is achieved by the people. They should be considered valuable assets in which to invest and thereby to increase their intrinsic value (Harizanova, 2006). Namely the human resources and the formation of a management system that meets the conditions and factors of the external and internal environment are becoming increasingly important prerequisites for achieving the overall business strategy of the enterprise. The analysis of the management of the human resources is primarily a practical tool for the effective functioning of these systems (Shopov, 2007).

Crucial element of making management decisions related to human resources is to identify quantitatively and to assess qualitatively the existing problems. The work of the managers at all levels is to reflect and resolve the emerging problems (Philipova, 2008).

The staffing with the necessary quantity and with appropriate quality of the employees is one of the most important aspects of the human resources management of the enterprise. In this sense the state and the prospects of development of the IT-sector in Bulgaria are an essential factor that influences the needs of businesses in the sector of the human resources. Bulgaria as part of a global European family, follows the general directions of development of the information society. The IT-sector can be defined as a priority for the country (HRDOP, 2015). According to Eurostat data, the share of IT-sector in GDP of Bulgaria for the period 2000–2015 was about 5% (*Percentage*..., 2015). For the period 2010–2014, the IT services export from Bulgaria increased twice as a result of entering outsourcing companies and the efforts of local businesses (*Embracing*…., 2016). Bulgarian outsourcing industry is expected to reach more than EUR 2.7 bln and contribute over 6.0% of the country's GDP by 2020 (*Embracing*…., 2016). The comparative data about the share of IT-sector in GDP of EU countries shows the importance of the sector for Bulgarian economy. In 2014, for example, in Bulgaria this share was 4.9% (*Percentage*..., 2015). The share of the IT-sector in GDP was higher only in Hungary (5.69%), Malta (7.2%), Sweden (6.41%), United Kingdom (5.79%), and in Estonia is practically the same (4.91%).

The dynamic development of the market of goods and services in the IT-sector leads to substantial transformations in the labor market in the sector. Several studies and analyses have shown that the rapid development of the IT-industry, the labor market in the sector is characterized by a serious shortage of qualified specialists both in quantitative and qualitative terms. Since 2008, the employment in the sectors of the information technologies and the professional activities including outsourcing has increased by 8% in total for the country, as 1.71% of all the employees in Bulgaria have jobs in outsourcing companies (*Embracing*..., 2016). The employed in the software business at the end of 2014 were about 17 thousand people, as their number has been increasing by 6–10% on an annual basis, only in the software industry in 2015 1,250 new jobs were created (Annual..., 2015). The unemployment among graduates from such disciplines as "Informatics" and "Computer Science" is within friction – 2.52%, and the expected increase in demand for staff by employers was 51.75% for 2016 (Рейтингова..., 2015).

It has been found that an obstacle to the growth of the industry is precisely the limited amount of qualified personnel on the labor market. Language proficiency and IT skills remain crucial and outsourcing companies may need to hire foreigners to cover the shortage on the local labour market (*Embracing*..., 2016). The data on the recruitment agencies show that among the most sought after professions are developers of mobile applications and games, specialists in quality control, UX (user experience) designers and so on (Секторен..., 2013). The IT-specialists rank fourth in terms of the indicator for most sought after professionals in the country and ranked ninth on the global level (Работодателите..., 2015). Starting from 2016, the lack of specialists for support of horizontally scalable architectures will hinder the development of 80% of big companies (Krusteva, 2014). For a long time now, the demand for highly qualified IT professionals has been repeatedly exceeding the supply (300 млади, 2015). According to a survey of Bulgarian Association of Information Technologies (BAIT) and Bulgarian Association of Software Companies (BASSCOM) (Стратегически..., 2012), the acute shortages of staff is the most serious obstacle to the growth of the IT-industry and in particular of the software industry. According to their projections, till 2015, over 20,000 new software professionals were required, and the year 2015 is a pinnacle in terms of the shortage of staff, while 55% of organizations in the IT-sector finds insufficient availability of human resources. According to the Human Resources specialists from different companies for recruitment in Bulgaria on the subject "Which are the most sought – after skills by the employers", there are the following results – specialists in oriented programming, Java, NET, PHP, C ++, most – sought are economists, IT specialists etc. (Ivanova, 2015).

According to National Statistical Institute (NSI) data, for the period 2009–2013, the number of students in universities with computer specialties was almost the same, as in 2013/2014 there was a cure rate of 28%, which is insufficient (Krusteva, 2015). In case of an educational reform and more software experts available, the software industry has the potential to double – up to about 3,700 million BGN or 3.8% of GDP, which makes it structural for the Bulgarian economy for a period of 10 years.

In summary, the analysis of the labor market in the IT-sector shows that there is a shortage of staff and it turns to be an actually existing long-term trend. The problems related to the staffing of IT-industry, to a large extent, limit the objectively existing opportunities and the prospects for development of the sector.

Method

In order to achieve the objective of the development a survey was conducted during the period 1.09.2015–30.11.2015. The empirical study has been addressed both to managers and human resources specialists, as well as to the professionals working in the industry. For the purpose of the empirical study, two questionnaires had been prepared in order to study the two respondents' groups. Likert scale was used for the assessment of the answers. All the questionnaires were filled in on-line in a web-based system. The total number of respondents – IT professionals is 240, and the number of managers and specialists from "Human Resources" departments – 110. All of them are employed in enterprises or operate as a freelancer in the field of information and communication technologies in Bulgaria.

For assistance in conducting the survey and data processing an electronic platform with an open source software product LimeSurvey and the MS Excel product were used.

Results

In terms of the most sought after professions in the IT-sector, according to the responses of the employers we found that among the most sought after specialists are the following: programmers (42.55%), followed by Web-developers (38.3%); maintenance professionals (29.79%); marketing specialists (27.66%); System Administrators (25.53%); hardware and electronics specialists (25.53%); business analysts (21.28%). Businesses face the greatest difficulties in the recruitment and selection of good programmers, managers, system administrators and business analysts. It is noteworthy that the need for specialists in engineering is comparable to that of good managers and economists.

The employers stated preferences for hiring employees from younger age groups – 26–35 years (80.85% of the respondents) and 21–25 years (40.43% of the respondents), as none of the employers has indicated willingness to recruit candidates aged over 55. At the same time, the expectations are that this trend in the future will change, because working young professionals after years will pass to higher age groups, however, their experience in the industry will be much higher.

The majority of the employers indicate that they have serious difficulties in finding suitable staff for their enterprises, as only 8.51% of them do without much effort. Personnel deficit is defined as the most serious problem that limits the intentions to expand the business and the development of organizations in the industry. The main reasons for the shortage of the necessary staff, the respondents indicated, first of all, problems in the education system (70.21%); insufficient motivation of the proposing workforce (38.30%); lack of adequate state policy in the IT-sector (36.17%); the increased competition between companies on the labor market in the sector (32%).[1]

However, the biggest group (46%) of respondents is the one of the IT-specialists who state that they manage to find a satisfactory job quickly. This is not surprising, given the situation on the labor market.

The main criticism regarding education from the business point of view is that it does not comply with the qualitative and quantitative requirements of the industry in the preparation of young specialists. The lack of sufficient alternatives leads to the result that almost half of employers (47%) hire employees who do not possess the required competences for tenure. Moreover, 66% of the employers believe that they have already employed unsuitable employees.

Enterprises apply various methods and tools in the process of attracting suitable candidates for vacant jobs. Electronic job fairs (57.45%), word-of-mouth advertising by friends and family (53.19%) and HR-agencies (46.81%) are among the most popular forms of recruitment. A higher share (40.43%) of the companies attract suitable candidates using current employees of the company. It is stated that in recent years this process is promoted through the development and implementation of various incentive programs. Relatively high (27.66%) is the proportion of surveyed employers who use advertising in mass media as a tool for recruiting candidates.

In many countries, especially in the technological sphere the so called "Direct labor supply" practice has been widely accepted, in which those who want to work in a certain enterprise prepare and submit their personal portfolio without having declared vacant positions. As the figures from our study show, a relatively low share (10.64%) of the companies implement similar practices. The survey results show that in this regard the problem here may be looked for more in the potential job applicants themselves who do not know (67.8%) or reject as inappropriate (29.3%) this method as an option for a choice of a desirable employer.

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[1] The sum exceeds 100 because the respondents gave more than one answer.

Besides the shortage of personnel in quantitative terms, the respondents (61.7%) represented by employers and professionals in "Human Resources" field, defined as a significant problem that there is a discrepancy between knowledge, skills and competencies that potential job candidates acquire in the education system and the actual needs and requirements of the IT-business.

A lack of dialogue has been noted between the IT- business and the education system, as only 10.64% of the companies state they were in direct contact with schools as sources of personnel, and 14.89% apply the possibilities of internship programs for recruitment and selection of appropriate specialists.

A consistency has been established in the answers of both groups of respondents to the process of information in searching and offering employment. When looking for job, 82.93% of the applicants require the information about the necessary qualities they should have in advance, and 87% of those offering employment and jobs claim that they always provide such information. Therefore, in this case, transparency of the labor market is relatively high.

When choosing a suitable candidate for filling a vacancy, the process is influenced by various factors evaluated with varying severity. The results show that the greatest weight when assessing job applicants, the employers attach to the level of technical competencies (82.98% of respondents). Second, with an equal share of 55.32%, the organizations evaluate three factors: personal characteristics; behavioral characteristics; professional experience. Only one third attach great importance to education and theoretical knowledge, which is another proof of the undervaluation of education as a factor for successful job performance.

Many employers express willingness to hire an employee with certain key competencies without an existing open procedure set. This is a way to create a personnel reserve in order to secure human resources for future projects.

The dynamics with which professionals in this sector change companies they work for is of great importance when it comes to providing the necessary human resources to enterprises. Based on the processed results of the survey, it has been found that the average length of employment of an employee in the same company of the IT-sector is 4.5 years. This is a very short period, moreover, that the time for adaptation and reaching the desired level of performance of a newly appointed officer, usually takes between 6 months to 2 years. Many of the competitors have managed to "steal" the already trained specialists, mostly by offering higher salaries. In addition, according to 51% of the representatives of the employers, there is a high risk the trained staff to be "stolen" by competitors, i. e. there is a "war" for experienced professionals. The employees, in turn, demonstrate loyalty in their answers and the highest is the percentage (26.83%) of those who are not looking for an alternative to their current employer. However, from this response an unambiguous conclusion can not be made that they would reject better offers from other employers.

Limitations

The limitations of the study are the encountered difficulties associated with completing the questionnaires.

Conclusions

From the analysis of the survey results some basic problems have been found related to the staffing in the IT-sector in Bulgaria.

All the managers and human resources specialists agree that the main problem in the industry at the moment is the shortage of staff which is both quantitative and qualitative – in terms of knowledge, skills and competencies

of available human resources. According to them, the personnel shortage is the main reason for the restriction, respectively, slow growth of the sector and the development of individual enterprises, and not the low consumer interest or any other factors. The number of students in IT-specialties is not sufficient to meet the growing staffing needs of enterprises in the field of information technology. This requires taking immediate measures to sharply targeted quantitative actions for a sharp increase in the number of learners and for a radical improvement of the IT-education quality.

In the selection of candidates for vacancies, technical skills are still the ones that are valued in highest, but many studies, as well as the results of the survey show that they are not sufficient for the labor resources to be transformed into a high customer value. The requirements to the personnel become larger, increasing the demand for separate groups of narrow specialists with unique knowledge and highly skilled and talented managers and marketing specialists. At the same time, an essential part of the IT-specialists do not have sufficient additional skills that would enable them to take better account of the requirements and the needs of its customers, in order to improve the usability and the usefulness of their products and services.

Following the fight for talents and with the aim to create labor reserves, employers recruit staff with competences that are over the required ones for the position, which in the long term, would lead to insufficient satisfaction and premature leaving. Turnover is a major challenge for personnel management in the IT-sector.

For the deficit, the main reason, indicated by the majority of respondents, is problems in the educational system of the country and the content of the curricula. To deal with the problem it is necessary to improve the interaction between business and educational institutions and the responsibility shared in the preparation of staff. Basic knowledge should be formed even in the initial phase of training in schools and universities, then to be upgraded in the form of practical training in a real environment by companies.

The shortage of qualified personnel, caused by the rapid development of the market of the information technology, can not be compensated solely by reforms in the educational system. On the one hand, the period of time during which an educational system prepares such specialists takes several years. On the other hand, the requirements for training of staff in the IT have been changing faster than the possibilities to change the content of the curricula. Some knowledge and skills can not be acquired in the process of classical education, they can be gained from practice and commitments into real practical projects. One of the possible options for the solution to the problem is learning while on the job and creation of internal programs for young professionals, internships, further training and retraining. This calls for concerted efforts and achieving a partnership between business and education.

The forecasts for the development of IT-sector show rapid and sustainable growth and increasing the demand for professionals who bear the essential productive resource. As a result, the fast growing labor market in the IT-sector, undergoes significant quantitative and qualitative changes. This fact forces the employers to review their policies regarding the provision of the enterprises with the necessary quantity and adequate quality human resources. The survey results show that the problems related to the Staffing in the IT-sector are severe and the expectations to be overcome in a short term, would be unrealistic. Company managers in the industry are confronted with serious future challenges, arising from the current situation on the labor market.

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