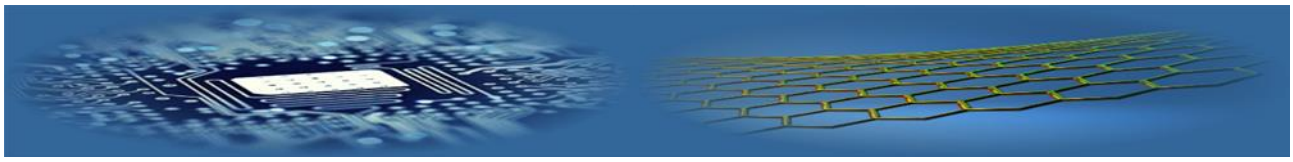

Assesment of competencies for IS specialists

E Valavichius[1*], R Juodagalvyte[2], R Vipartiene[2]

[1]*Vilnius Business College, Kalvarijų 129, LT-08221, Vilnius*

[2]*Vilnius Cooperative College, Konstitucijos 11, LT-09308, Vilnius*

Corresponding author's e-mail: eugenijus.valavicius@leu.lt

Received 1 Aprilr 2016, www.cmnt.lv

Abstract

Vilnius Cooperative College conducts a study program "Information systems implementation and support" (informatics engineering). Before starting the study program a survey was conducted to clarify demand of such specialists and to assess program's competencies (Valavičius, 2012). During program existence IT companies encountered with new challenges: cloud computing, big data, using of smart devices (BYOD) etc. Committee of study program decided to repeat the survey in order to improve the study program. The aims of the survey are to identify new demand and needed skills. This article analyzes results of the survey and makes conclusions.

Keywords:

information systems
skills of IS specialists
new skills for IS study program

1 Introduction

In 2011 Vilnius Cooperative College started to create a study program "Information systems implementation and support". Idea for program arrived from social partners: IT companies "Rivilė", „Stekas", „Labbis", „Informacinės konsultacijos" etc. Working group collected a set of IT competencies for this program and conducted a survey to identify the importance of these competencies. Weights of study program's subjects were selected using the table of importance. Results of this survey identified that the biggest importance have deep knowledge of specific IS implementation and applying it in company's activity and less important are knowledge of programming, computer hardware, computer networks.

During existence of study program IT industry encountered with new challenges. One of most known new areas is cloud computing. As the beginners of cloud computing can be mentioned "Elastic Compute Cloud" service starting 2009 from Amazon and some later Google Docs [Velte, 2010]. IT companies through the whole world start to use virtualization of IT services, to move hardware and software to the "cloud".

Almost at the same time started a tendency to use smart devices (smartphones, tablets) in workplaces. Such possibilities are attractive for many users but there can be a challenge to adapt information to such devices and a risk for data security. This tendency has a name Bring Your Own Device (BYOD) [S.L., 2015]

Automatical collecting of data and powerful data storages allow to keep huge amount of information in each company. But most traditional software (e.g., relational databases, statistics packages) are not suitable to analyze very big amount of data. This is "Big Data" challenge [Rankin, 2015].

Computer systems, computer networks were created thinking only about limited trusted environments. But areas of IT appliances spread very rapidly and users faces data security and privacy problems [Shilling, 2011].

New areas of computing establish new workplaces and demand new competencies and skills. Creators of any IT program have to consult constantly with social partners and to respond to actual trends of security development.

Competencies of IT specialists are analyzed in many articles. V. Denisovas [Denisovas, 2011] states that studies of informatics are influenced by many factors: wide spectrum of evolving new areas, many sources of potential requirements, standards of education etc. K. Figl [Figl, 2010] suggests that the main competence for IS specialists is teamwork ability. The same study mention most important knowledge and skills of IT specialists: data structures and algorithms, sotware testing, ability to choose the most appropriate model of implementation, databases and computer networks, ability to select software development model, ability to apply mechanisms of OS control and security, professional ethics. S. Ivanikovas [Ivanikovas, 2014] states that employers sometimes need more personal competencies (e.g., teamwork, responsibility) than specific IT skills.

2 Survey characteristics

Survey tool: questionaire placed in internet-based system www.apklausa.lt. 4 point scale (Very important, Not so much, Not important, Completely irrelevant) was used to assess importancy of study results. Invitation to participate in survey with links to questionnaire were sent to college partners and some other IT enterprises – about 100 companies. Only less than 1/3 of them (30 companies) answered questions. Characteristics of respondents are presented in Table 1.

TABLE 1 Distribution of respondents by enterprise profiles

Characteristic	Number of respondents	%
Area of activities		
Service company	24	80
Trade	4	13,3
Production	2	6,7
Status		
Closed JSC	25	83,3
JSC	3	10
State enterprise	2	6,7
Size		
1 – 49 employee	21	70
50 – 249	4	13,3
250 and more	5	16,6
Total	30	100

The majority of respondents belong to small (about 70%) closed joint stock capital (>80%) companies. Remaining part of respondents work in big joint stock companies or state enterprises. Figure 1 represents relations of companies with information systems.

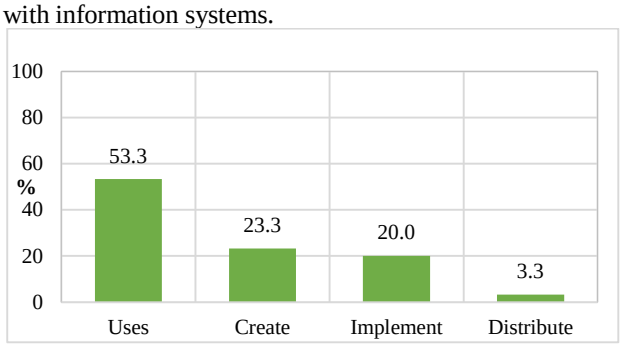

FIGURE 1 Relations of companies with information systems

More than half (53%) of respondents are users of information systems, other companies create, implement, distribute them.3 Importance of different competencies.

This study program has 5 main aims. Each aim generates 3-5 study results. In this article will be commented only study results with maximum (≥80% respondents answer „Very important“) and minimum (≤40% respondents answer „Very important“) importance.

3 study results were graded with 80% or more answers „Very important“. But only 1 of them („to try functioning of IS, to prepare it for operation...“) belongs directly to informatics study field. One result („to consult users“, the most important - >86%) is located near the middle of informatics and general competencies, the remaining important result („to comply with the principles of cooperation and ethics“) belongs to general competencies group. 2 of mentioned results had no negative answers. These results show the importance of general (personal) competences.

The next diagram (Figure 3) show results with minimum importance – 40% or less respondents choosed an answer „Very important“.

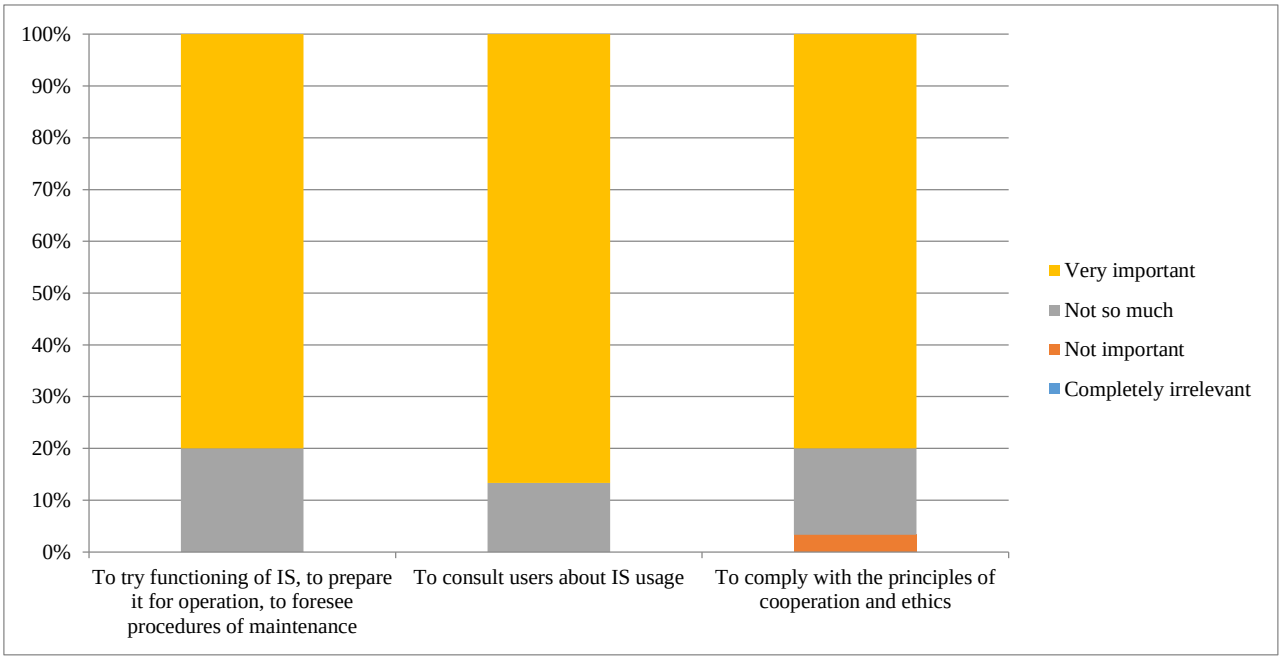

FIGURE 2 The most important competencies

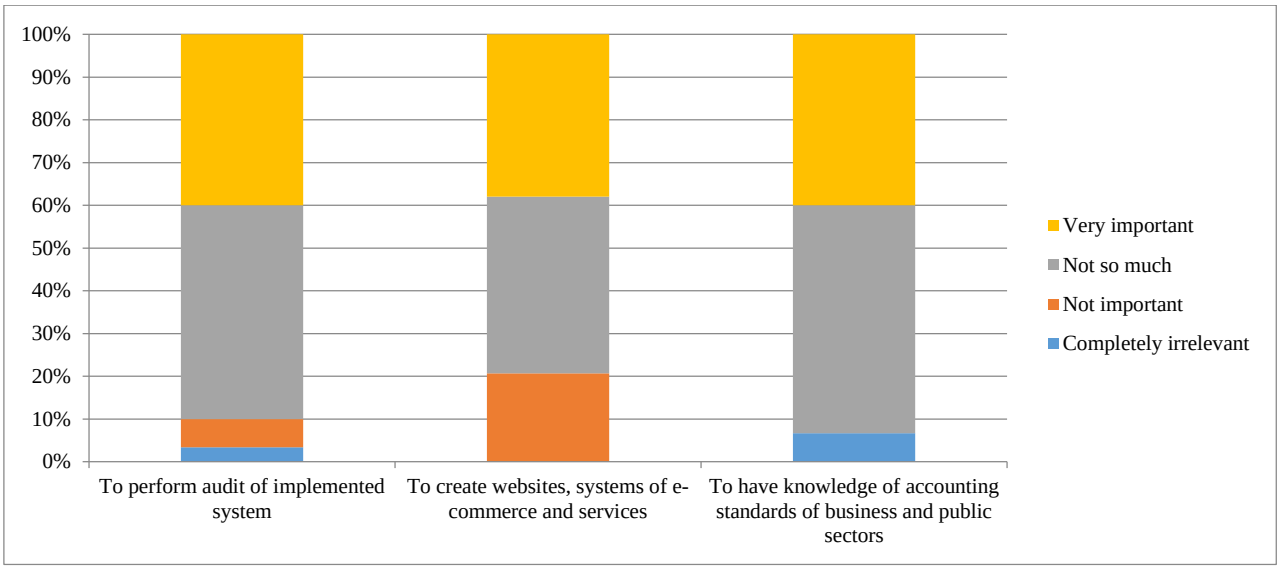

FIGURE 3 Study results with minimum importance

One result with minimum importance („To create websites, ...“, about 36% answers „Very important“ and >10% answers „Not important“) belong to informatics field, one answer („To perform audit of implemented system“, 40% answers „Very important“) is near the middle between informatics and business subjects, one result („To have knowledge of accounting standards...“, 40% answers „Very important“) belongs to business subjects. At least 2 of 30 respondents mentioned this answer as „irrelevant“.

The questionnaire also had a question about desired number of such specialists to have an internship or to work. Answer to this question was rather upsetting (Figure 4).

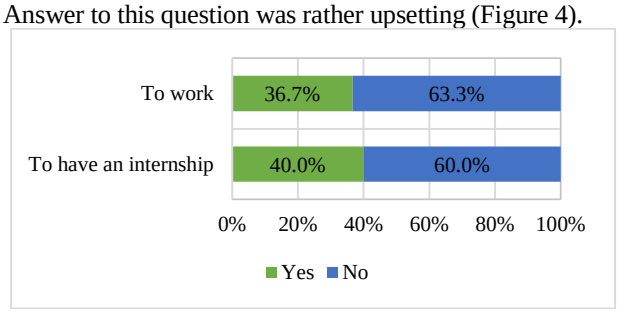

FIGURE 4 Demand of IS specialists

4 Conclusions

Only about 40% of companies need such specialists for internship of work. Authors of this survey tried to find reasons of such answers. One of reason can be an economic situation in the world which is near stagnation. During phone interview some companies mentioned they are not planning expansion in the nearest future and even more – big companies plan to cut a number of workplaces. But the summary number of desired specialists are about 40 workplaces and average number of graduates in Vilnius Cooperative College is some more than 20 students. It shows that analyzed study program is reasoned enough.

Information systems specialists need competences from IT area but personal competences have the same of even higher importance.There are not so much possibilities that graduates of this study program will remain unemployed. The demand of specialists only from social partners is higher than a number of graduates.

This study program has to reconsider workload dedicated to learn accounting and website creating competences and to strenthen personal competences.

References

[1] Denisovas V 2011 *Bendrosios ir dalykinės kompetencijos informatikos studijų kryptyje, jų nustatymas ir ugdymas* http://www4066.vu.lt/Files/File/Vitalijus%20Denisovas0427.pdf.
[2] Valavičius E, Vipartienė R, Juodagalvytė R 2012 IS specialistų kompetencijų ir poreikio tyrimas *Studijos šiuolaikinėje visuomenėje* **3**
[3] 2010 Information Systems Education *Journal for Information Systems Education* **21**(3)
[4] Figl K *A Systematic Review of Developing Team Competencies in*
[5] Ivanikovas S, Valavičius E 2014 Studentų, absolventų ir darbdavių požiūrio į informatikos krypties studijų programas analizė *Vadyba* **1**(24)
[6] Rankin J G, Johnson M, Randall D 2015 *Research on Implementing Big Data: Technology, People, & Processes*
[7] S. L. 2015 Tech Trend: Re-thinking BYOD *Black Enterprise* **46**(4)
[8] Shilling C G 2011 Privacy and data security: new challenges of the digital age *New Hampshire Bar Journal* **52(**2)
[9] Velte T, Velte A, Elsenpeter R 2010 Cloud Computing *A Practical Approach*

AUTHORS

Eugenijus Valavichius, Lithuania

Current position, grades: Vilnius Business College, lecturer
University studies: Vilnius University
Scientific interest: Information technologies, computer networks
Publications: 20
Experience: IT, computer networks, algorithms

Rasa Juodagalvytė, Lithuania

Current position, grades: Vilnius Cooperative College, lecturer
University studies: Vilnius University
Scientific interest: Information technologies
Publications: 5
Experience: IT, information systems

Rita Vipartienė, Lithuania

Current position, grades: Vilnius Cooperative College, docent
University studies: Vilnius University
Scientific interest: Information technologies
Publications: 6
Experience: IT, information systems