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ANALYSING THE CHARACTERISTICS OF STUDENT-EMPLOYER INTERACTION - THE CASE STUDY FROM CROATIA

Abstract

The main objective of the paper is to examine a specialized mechanism for encouraging cooperation between entrepreneurs and students in Zagreb, the capital city of Croatia. By using a specialized mechanism, the students could have the opportunity to complete their internships and work on student jobs within their chosen fields, which means they will be able to apply their knowledge and skillsets on appropriate tasks. At the same time, perspective employers could assess potential employees more effectively and easily define appropriate tasks for them. We argue that the mechanism is suitable for application on a regional (subnational) level in Croatia, as a dimension of the Regional innovation system (Edquist, 2004). Presence of appropriate institutions as well as the availability of adequate skills aimed at facilitating employment of personnel for appropriate job positions is a prerequisite for the functionalizing of mechanism. Regarding the results of analysis of the interaction between students and employers, we conclude that both groups recognize the importance of the students' proactive behavior in seeking jobs, internships and apprenticeships.

Key words: cooperation model, students and entrepreneurs, regional innovation system

1.   INTRODUCTION

The student-employer interaction offers both parties significant benefits (e.g. Gault et al., 2010). However, there are challenges within this area that are currently present in Croatia. Since students must complete their internships as part of their formal education most of them acquire internships without regard for their selected fields of study, which means they do not get the opportunity to test their knowledge and skills gathered during their formal education. By doing so, the students' potential often goes unnoticed by their employers who often give them mundane and low priority tasks to fulfill (i.e. filing, clerical work, answering calls in call centers, data entry, etc.).

Perspective employers have doubts regarding student internships and employment. Most of the students are still in the process of attending universities, which means they cannot be employed full-time but rather balance their academic duties while simultaneously fulfilling their internship and work assignments. Another cause for concern from the viewpoint of perspective employers is the fact that students, who attend their internship or work as students in the employers' company, are not required to remain in the company upon the completion of internship or job. This is a reason why they are reluctant to spend time and resources on someone who may or may not become a full-time employee.

Despite the fact that both entrepreneurs and students are satisfied with currently available mechanisms, they considered it necessary to introduce a specialized mechanism / system to encourage cooperation between entrepreneurs and students. Employers believe that, through close cooperation, they would have a better candidate pool from which to choose students as potential full-time employees. On the other hand, the academic community would get insight into the current job market needs, which would enable it to make timely changes in the educational curriculum, about the required knowledge and skillsets, to ensure the employability of its students upon graduation (e.g. Dacre Pool, Sewel, 2007).

Thus, relation between employers and students, as well as challenges, which appear in the relation among them, can be considered as a part of the discussion about skill mismatch, where students' knowledge and skills gathered during formal education are not adequate for their future jobs. In this context, Adalet McGowan and Andrews (2015), point out that a potentially significant gain to labor productivity can be achieved by a more efficient matching of workers to jobs. It seems that the main benefits of the mechanism, for the local community (where present), may be a higher level of human capital and skills and a foundation of improved innovation performance within a specific location. For this reason, the National innovation system can be used as theoretical framework for analysis of the employer-student interaction. This interaction might be considered as a dimension of the National innovation system (e.g. Nelson, 1993), where an expected output of this interaction should be improvement in innovation performance of a specific location, in our case the city of Zagreb. Higher skill

levels, which students possess, do not automatically translate into higher prosperity and sustained growth in an analyzed economy (c.f. OECD, 2012). A well-designed policy framework definitely facilitates the relation between employers and students.

The following section of this paper provides an overview of available literature and outlines the research of the National innovation system with respect to entrepreneurship and appropriate skills for cooperation between employers and students in Croatia. The section also provides an explanation of the research methodology used in designing the case study. Concluding remarks are presented in the last section.

2.   THE THEORETICAL FRAMEWORK

The national innovation system (NIS) is defined as a network of private and national institutions, which, through close interaction, develop, import, modify and distribute innovations (Freeman, 1987). This system provides the necessary innovation policy framework on a national scale and defines research and development as well as technical policies for the entire country. It also encourages the formation of close ties between the three crucial components: science-industry-government (also referred to as the science-industry-government triangle). NIS is comprised of four crucial components (Švarc, 2001):

1. public research and development centers,
2. companies' research and development components,
3. educational institutions and
4. government institutions.

The first component, public research and development centers, refers to academic and public institutes which are usually financed by the government or non-profit organizations. The second component, companies' research and development components, encompasses research and development resources of specific companies, i.e. research and development laboratories and facilities as well as specific knowledge used in the research and development process. The third, educational institutions and public research organization, comprises all institutions which have the task of creating a qualified workforce as well as create an adequate knowledge aiming at the increase of competiveness in specific area and specific organizations/institutions. The last component, government institutions, is critical as it ensures the functioning of all the other components through designing a stable innovation policy framework, which include public programs, legislation and administrative measures, (Švarc, 2001)[1].

It is interesting to note that traditional literature, which explains National innovation systems (NIS), neglects the issues of entrepreneurship (e.g. Freeman,

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[1] These institutions should support technological and innovation development by encouraging close cooperation between scientific and educational institutions, and industry.

1987). The dominance of person centric research in entrepreneurship was not compatible with Innovation system research where contextual and system level variables exist. However, Radosevic and Yoruk (2013) recently demonstrated the analytical and statistical robustness of this approach.

The connectivity of variables that describe the system emphasizes the importance of an individual in the analytical framework especially in small countries such as Croatia[2]. On average small countries (up to 10 million inhabitants) have a smaller number of companies, which make up individual sector as opposed to larger countries with greater numbers of companies within specific sectors. Therefore, polices which facilitate entrepreneurial activity should target these companies (Račić, et al. 2008) since they contribute to the future development of perspective economic activities[3].

The Croatian National Innovation System was formed in the early 1990s, with 3 goals in mind (Švarc, Perković and Lažnjak, 2011):

1. to revitalize the sector of industrial research,
2. to improve science-economy cooperation and
3. to encourage the process of commercialization of research findings of scientific institutions.

Although a noteworthy goal, the innovation system failed to reach its potential due to the lack of well-defined key performance indicators, which failed to measure the efficiency of the proposed innovation policies (Švarc, 2010). Another problem for the established innovation system was an uneven regional development, which made the proposed goals unattainable for less developed regions, which, for the most part, lacked the necessary research and development centers, educational and support institutions, and had a limited amount of mid to high-tech companies.

2.1.   Employers-students relation and Regional innovation system

Due to the inefficiency of the Croatian National Innovation System and the uneven regional development, a better solution would be to establish a regional innovation system (RIS). The regional innovation system (Edquist, 2004; Asheim and Gertler, 2004) is a decentralized solution for defining regional innovation policy which employs the *bottom-up* approach (as opposed to the *top-down* approach used by the national innovation system). Regional and local communities are given the authority do define their own policies based on the available support and education institutions, the level of development of companies and the availability of necessary resources in the specific region. This is in line with Localised Knowledge Spillovers (LKS) concept (see Nelson, 1959, Arrow 1962). Breschi and Lissoni (2001) defined LKS as knowledge externalities

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[2] Croatia has 4.2 million inhabitants.
[3] At the same time, targeting these companies should not disturb market competitiveness where these companies operate.

bounded in space, which allows companies operating nearby important knowledge source to introduce innovations at a faster rate than rival firms located elsewhere.

Croatia does not have a defined regional innovation system; however, such a system could be implemented in the regions with technologically developed agglomerations. If such a system were defined the proposed regions and their agglomerations would be (Bačić and Aralica, 2016):

1. North-west Croatia (agglomerations of cities Zagreb and Varaždin),
2. Adriatic Croatia (cities of Rijeka, Split and Zadar) and
3. Central-east Croatia (city of Osijek).

The empirical research was conducted in the city of Zagreb. The city's agglomeration is the leading region in Croatia. The agglomeration has the largest percentage of entrepreneurs and companies in the entire country and has the best economic results which comprise nearly 50% of the country's GDP. From the industry standpoint it contains around 20% of low-technology intensive industries, 20% medium intensive technology industries, 2% high-technology intensive industries, 23% low-knowledge intensive service industries and around 17% knowledge-intensive service industries.

Zagreb also has the highest number of higher-level educational institutions, which enable the formation of highly specialized and diversified workforce (Bačić and Aralica, 2016). However, like all other Croatian regions, it still faces the problem of mismatching, formal and informal, skills and skillsets needed in the job market, which adds further burden on the countries already problematic unemployment rate. By establishing a means for better formation of student-employer and academic sector ties, the skills mismatch and the problem of high unemployment rate can be addressed.

Therefore, a region that wants to stimulate innovation performance must do so in parallel with factors such as:

1) A sound business environment that encourages investment in technology and in knowledge-based capital (KBC)[4],

2) A strong and efficient system for knowledge creation and diffusion and

3) Policies that encourage firms to engage in innovation and entrepreneurial activity; proactive policy towards development of skills is required (OECD, 2016).

This policy approach has to encourage the development of skills in technology oriented fields and should, primarily, be aimed at Science, technology, engineering and mathematic (STEM) graduate levels. However, it is important not to neglect other fields since they possess skills and knowledge

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[4] That enables innovative firms to experiment with new ideas, technologies and business models; and that helps them to grow, increase their market share and reach scale

relevant for improving innovation performance in the analyzed area. In this context, it is also important to have an international mobility scheme, which has a role of recognizing emerging skill needs and supports knowledge creation and transfer in the analyzed area.

The development of knowledge intensive economy and society depends largely on the strength of the university in analysed areas (Charles, 2006), where users of their services are various sectors firms, government and ordinary citizens. On their traditional role ensuring adequate staff, in the last twenty years their activities include ensuring adequate information and knowledge for their environment. Change in activities implies change in a way of communicating between University and various types of beneficiaries in terms of their services. Thus, the use of technology could be analysed as an educational tool or educational means of communication with its environment (Wenglinsky, 1998). Regardless of various technological options, the communication between a University and its environment becomes more and more personal. This could be explained by the following characteristics of knowledge, tacit and contextual (part of institutional and organization practices). This implies challenges in its codification and transfer of this knowledge to various groups by means of learning.

Regarding empirical literature, the results about cooperation between employers and students and effectiveness of their cooperation (via internships of students within firms) could be beneficial from educational and employer standpoint. In this context, the analysis of appropriate skills for internships is a starting point (Gault et al. 2010: 79). In case of educational institutions (e.g. Rothman and Sisman 2016), filling important modern need for experimental and vocational learning can be considered as a benefit, whereas in terms of employers hiring (e.g. Sawani, 2016) an intern for a full-time position after the assignment can be considered as a direct benefit result of internship (e.g. Maertz et al. 2014). However, some studies report about dissatisfaction in the employer/student relation during internships (e.g. Holyoak, 2013).

Finally, the discussions about influence of internship on employment as well as on innovativeness of firms and related empirical findings, which can tackle these issues, are at the beginning. In one rare study about influence of internship on employment, Silva et al (2016) found that study programmes that include internships tend to significantly enhance the graduate employment in case of Portugal. Regarding the influence of internships on innovativeness within firms, there are references (e.g. Henard and McFadyen 2006) which suggest that the use of internships, parallel with other 'types of exchanges' such as exchanges of researchers, may increase innovativeness within firms. Finally, further research studies about influence of internships on innovativeness are required.

3.   THE CASE STUDY

The aim of this study was to discover the most common methods used in initializing collaboration between students and the business sector. In this context, the main research questions were which types of the cooperation opportunities[5] were most often offered and which of them students and perspective employers chose, which were most often sought out, and what were the most important criteria used during candidate consideration? It was also interesting to discover whether the students, as well as employers, would be interested in the idea of establishing a specialized mechanism, which would better facilitate student-employer interaction.

3.1.   The survey

For the purpose of empirical research, we use on line survey in analytical tools named Google Form. The questionnaire consists of close-ended and open-ended questions. The close-ended questions were created in a manner of multiple-choice questions, whereas in case of open-ended questions, respondents had an option to fill-in their own comments. Hyperlinks for on line questionnaire were sent by email to student associations, firms that engage students, as well as to business and academic contacts. The questionnaire was open in the period from April to the end of June 2016. In this period, we collected 16 responses from entrepreneurs. The employers mostly small companies. It is interesting there was only one respondent from large firm (more than 250 employees) who completely filled the survey. Regarding the students, we had finally twenty and six respondents within our survey. Among them six students were undergraduate and 20 out 26 students were about to graduate. Finally, regarding fields of study, we had respondents from social and technical studies.

The empirical research was conducted on a sample of 16 companies (perspective employers) in the Zagreb area and 30 students attending the University of Zagreb. Two separate online questionnaires were devised, one for students and one for the perspective employers. The condition for participating in the questionnaire, for both parties, was a prior experience in mutual cooperation (in the form of internships, student jobs or participating in student or inter organizational projects).

The questions in each questionnaire were grouped as follows:

− basic information about the student/employer,
− the key criteria for candidate consideration,
− most frequently used mechanisms for establishing mutual cooperation and

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[5] In the context of the paper the cooperation opportunities are defined by student jobs, practices and internships.

  − thoughts on establishing a specialized mechanism which would better facilitate student-employer interaction and the desired specification of said mechanism.

  The size of companies that participated in the survey is shown in Figure 1 (based on the number of employees):
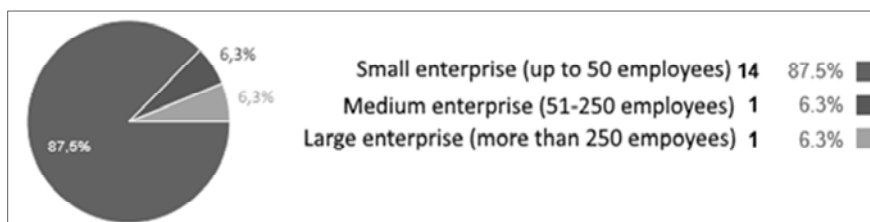

Figure 1. Participating companies grouped by number of employees

Source: authors

  Out of the 16 participating companies (perspective employers), 14 were small enterprises with up to 50 employees, one was a medium sized enterprise with between 51 and 250 employees and one was a large enterprise with more than 250 employees.

  The participating companies conduct their business in the sectors shown in Figure 2 (the classification was based on The Croatian National Business Classification):
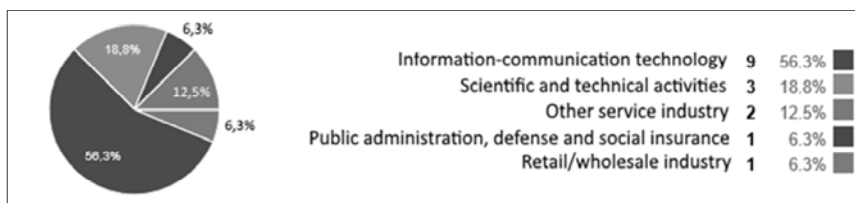

Figure 2. Participating companies grouped by business

Source: authors

  The majority of companies surveyed conduct business within the ICT sector while others conduct business within scientific and technical, service and retail/wholesale industries and public administration, defense and social insurance branch.

  The student sample consisted of 7 undergraduate and 23 graduate students attending various faculties at the University of Zagreb, 60% of which were aged 23-25 and 40% aged 20-22. The respondents mostly attend faculties in the fields of engineering (such as chemical engineering, electrical engineering,

naval engineering, mechanical engineering) and humanities and social sciences (such as economics, political sciences, computer science).

3.2.   Results

One of the key goals of this research was to discover the most common means of cooperation initialization between students and employers. In both questionnaires, each respondent was given the option of choosing the means they used most frequently to establish contact. The answers are shown in Figure 3.
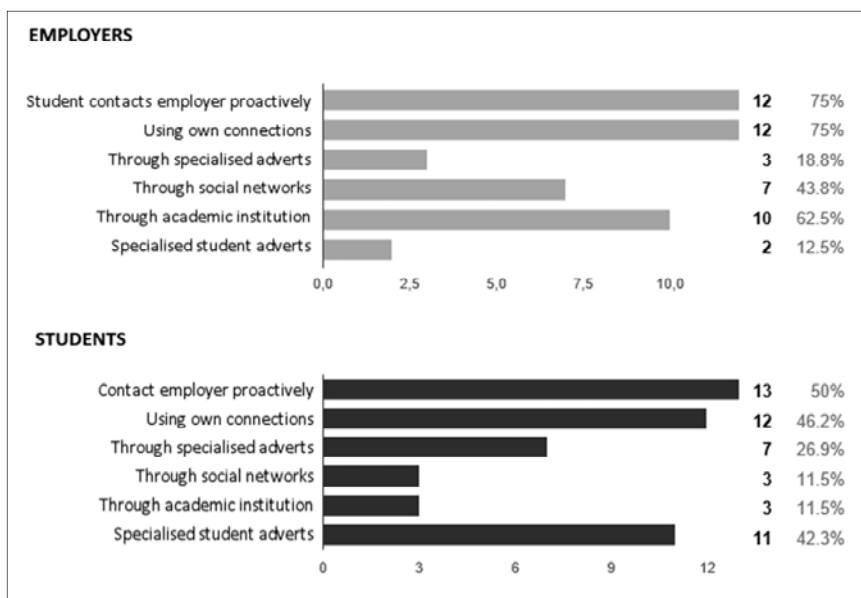

Figure 3. Most commonly used means for establishing cooperation

Source: authors

The most commonly used means for establishing cooperation for both parties is through students' proactive contacting of the perspective employer. Both students and employers also favor using their own personal connections when considering potential cooperation. Employers favor contacting the academic institutions to find suitable candidates, unlike students who do not do it frequently. Contacting candidates through specialized adverts and specialized student adverts is more favored among students than among the employers. When it comes to using social networks for the purposes of finding candidates, employers are more inclined to use them than students.

The purposes of contacting perspective employers and students were also examined and are shown in Figure 4.
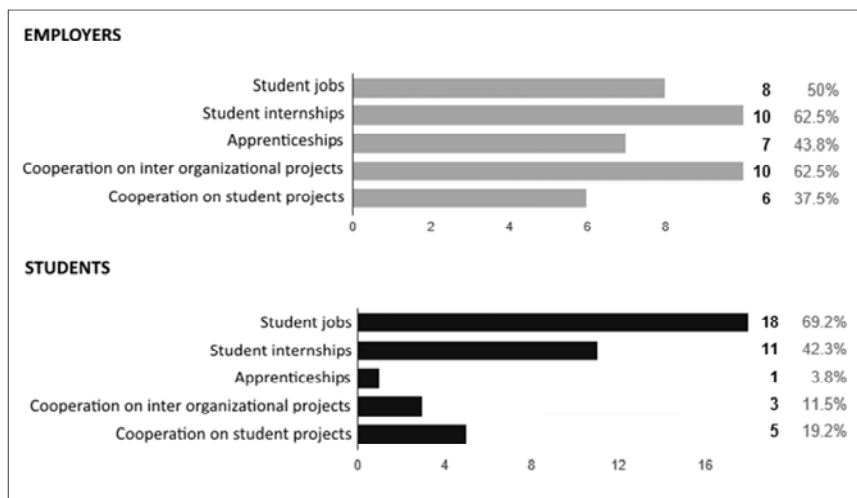
Figure 4. The purpose for contacting perspective candidates

Source: authors

Employers most frequently offer students internships and cooperation on inter organizational projects and, to a lesser degree, offer student jobs, apprenticeships and cooperation on student projects. The students, however, frequently contact the employers for the purposes of finding student jobs and internships and, to a lesser the degree, for the purpose of cooperating on student projects. The minority of student respondents contact the employer for the purpose of cooperation on inter organizational projects and apprenticeships.

This finding is parallel with Aralica and Botrić (2011) finding about innovation cooperation between national and international partners. In their study about evaluation of tax incentives on Research and development they found that innovation cooperation with national partners might be different from innovation cooperation between international partners. They argue that the innovation cooperation with a foreign partner might require concrete deliverables and incur concrete R&D expenses, i.e. the innovation cooperation with a national partner is more informal and may include to a large extent the exchange of information. So the question of determining means of stimulating student participation in inter organizational projects within firms in Croatia seems to be open.

Another goal of this research was to discover the most important criteria for candidate consideration of both parties. The respondents were asked to rate several criteria based on their opinion of their importance. They were given the choice of rating the criteria as:

- important,
- neither important nor unimportant and

    – unimportant.

        The first and second criteria regarded the importance of formal and informal knowledge of students. Formal knowledge refers to the knowledge the student received during formal education at the university and informal refers to the knowledge that the student gathered independently (self-taught). The employers were asked to rate how important the candidate's formal and informal knowledge was during the selection process and the students were asked to rate the importance of using formal knowledge received during formal education and informal knowledge. The results are shown in Figure 5 and Figure 6.
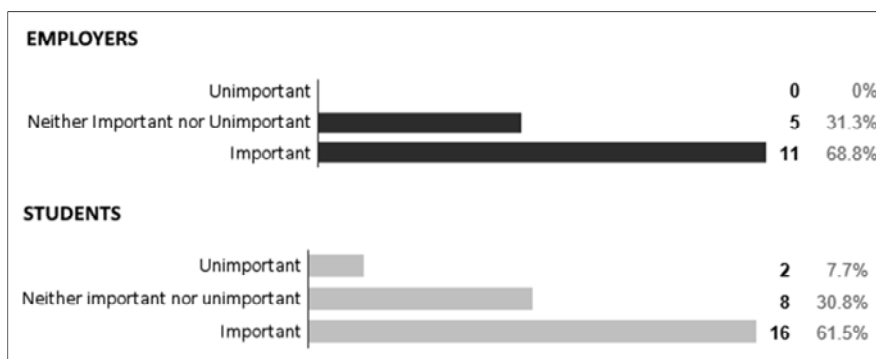

Figure 5. The importance of formal knowledge

Source: authors

        More than two thirds of employers regard formal knowledge as an important factor during the candidate selection and a third stated that it was not a decisive criterion during candidate consideration, whereas two thirds of students expressed that the opportunity to use formal knowledge was important and a third said that this was not necessarily a decisive criterion during the selection process.

        When it comes to the importance of informal knowledge, the following responses were given.
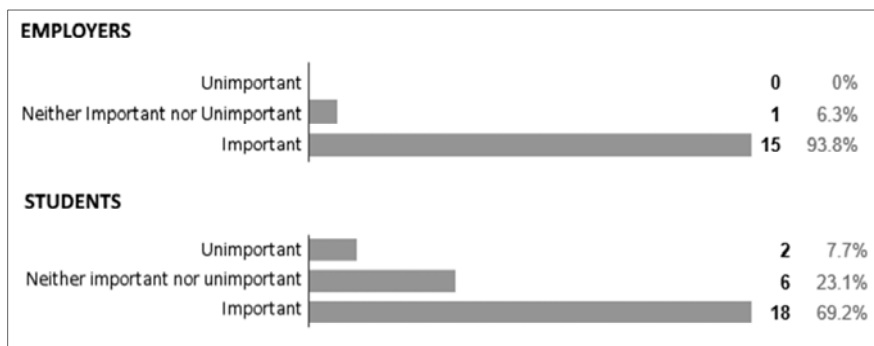
Figure 6. The importance of informal knowledge

Source: authors

The majority of employers regarded informal knowledge as an important factor during the candidate selection, whereas a little over two thirds of students expressed that the opportunity to use informal knowledge was important and the rest stated that this was not necessarily a decisive criterion during the selection process.

The employers were asked to rate the importance of skillsets the students acquired during their formal education as well as the students' self-taught skills. Figures 7 and 8 show the responses.
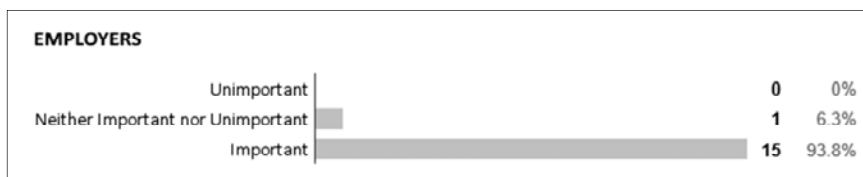

Figure 7. The importance of formally acquired skillsets

Source: authors

Employers regard the students formally acquired skillsets as an important criterion during candidate consideration.

EMPLOYERS

Unimportant	0	0%
Neither Important nor Unimportant	2	12.5%
Important	14	87.5%

Figure 8. The importance of formally acquired skillsets

Source: authors

Virtually identical responses were received when asked about the importance of informally acquired skillsets. It was considered an important criterion during the candidate selection process.

It was also interesting to investigate whether or not the student's personal interests were considered an important criterion by their perspective employers. The results are show in Figure 9.
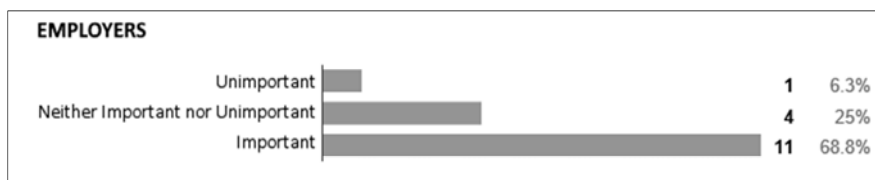
EMPLOYERS

Unimportant	1	6.3%
Neither Important nor Unimportant	4	25%
Important	11	68.8%

Figure 9. The importance of students personal interests

Source: authors

Over two thirds of employers stated that the student's personal interests were important during candidate selection while one third believe it not to be a decisive criterion.

The students were asked to rate the importance of their candidate's job (or other activity) offer be connected to their own personal interests (Figure 10).

STUDENTS

Unimportant	0	0%
Neither important nor unimportant	5	19.2%
Important	21	80.8%

Figure 10. Importance of performing jobs related to student's personal interest

Source: authors

The majority of students believe it important for the jobs they work on be related to their personal interests.

The last criteria for the employers was related to the importance of prior work and volunteer experience. The responses are show in Figures 11 and 12.

EMPLOYERS

Unimportant	3	18.8%
Neither Important nor Unimportant	5	31.3%
Important	8	50%

Figure 11. The importance of prior work experience

Source: authors

Half of the employers stated that prior work experience was important to them, a one third believe it not to be a decisive criterion and the rest regard it as an unimportant criterion for the selection process.

EMPLOYERS

Unimportant	3	18.8%
Neither Important nor Unimportant	6	37.5%
Important	7	43.8%

Figure 12. The importance of prior volunteer experience

Source: authors

Less than half employers find prior volunteer experience important, over a third do not consider it a decisive factor and the rest believe it to be unimportant for candidate selection.

The students were also asked to rate how important it was to them to be able to volunteer in the company of the perspective employer (shown in Figure 13).
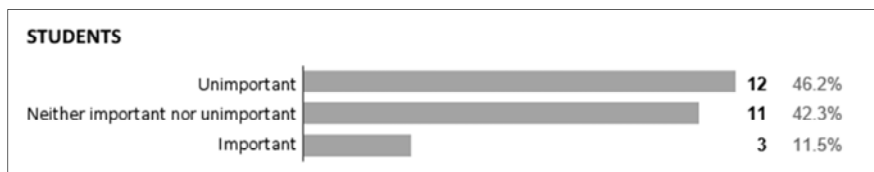

STUDENTS

Unimportant	12	46.2%
Neither important nor unimportant	11	42.3%
Important	3	11.5%

Figure 13. Importance of volunteer opportunity for students

Source: authors

Nearly half of students do not consider the opportunity to volunteer to be an important factor, a significant portion believe it not to necessarily be an important factor while a small fraction considers it important.

The final set of questions for both students and employers were related to the need for establishing a specialized mechanism (system) which would be used exclusively by students and their perspective employers.

Nearly all of the respondents stated that they see a need for the formation of a specialized system for facilitating cooperation between the academic community and the business sector. They also expressed the desire for such a system to be established as an online platform. The follow-up questions concerned the desired characteristics of said system.

The employers would like the system to be able to:

− group the potential candidates by fields of study
− rank the candidates by desired skillsets and knowledge
− group students by personal interests
− send notification upon finding a potential candidate that falls within the specified search criteria
− contain ratings and comments from student's previous employers
− contain verified student data (verified by the appropriate academic institution or lecturer)
− contain the references and contact information of the student's mentor
− group students by their average grade
− offer insight into student's extra-curricular activities

The students would like the system to be able to:

− display the desired qualification for a particular position (which skills and knowledge are required)
− display open positions with accurate descriptions
− contain ratings of for available employers from previous student employees
− send notification upon finding a potential candidate that falls within the specified search criteria

If we consider the above mentioned results in terms of innovation typology, this model fits into the category of "Doing, using and interacting" (DUI) based innovation (e.g. Apanasovich, et al. 2016), which is dominant in Eastern Europe[6]. Moreover, this mechanism definitely stimulates downstream S&T and innovation services links, aimed at problem-solving or product/process

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[6] Jensesn et al (2007) argue that science and technology-based innovation (STI) relies on scientific human capital and innovation infrastructure comprised of public and private R&D organisations and universities, whereas the DUI mode of innovation is based on non-scientific drivers, namely learning-by-doing, learning-by-using and learning-by-interacting

improvement within firms (see Radosevic, 2016). It is important that science-industry cooperation mechanism aimed at problem solving become a dominant type of science-industry cooperation in Eastern European[7]. These additional explanations favor this system.

3.3. Proposing a new mechanism for facilitating student-employer interaction

Using the data gathered through empirical research a model for a specialized system, for facilitating cooperation between students and employers, can be proposed.

The proposed system would function as an online platform similar to today's social networks. Each student and each employer would have a personalized profile stating key information such as:

- basic contact profile information (name, date of birth, unique ID, field of study, company name, etc.)
- information about specific skillsets, knowledge, grades, extra-curricular activities, personal interests, accomplishments (for students)
- verification of student information by lecturers
- job, internship, apprentice descriptions, required skillsets and knowledge (for employers)
- verification of employer information by local governing bodies and institutions

Data for each employer and student would be stored and searchable in the form of tags, to ensure fast and accurate searches as well as an increased system response time. Students and employers would use these tags to narrow their research and would receive information on appropriate candidates in the form of percentage match.

Apart from the students and employers, for whom the system is primarily intended, additional entities would have to be included to ensure that such a system can function properly. These entities are the following:

- academic institutions
- lecturers
- the local governing body
- moderator/administrator

The role of academic institutions should be to encourage the student's proactive use of the system during their formal education to ensure that the students get the opportunity to put their gathered knowledge and skills into practical use. Encouraging the students to use the system could also result in the

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[7] Upstream and research cooperation links appear to a lesser extent in Eastern European.

higher employment rate upon graduation since the students will have had a certain level of practical experience, which is usually a prerequisite for hiring among many employers. Academic intuitions could also benefit from participating in the system by gathering valuable information on the current status of the job market which would enable them to make the necessary curriculum revisions through which they would be able to ensure the quality of their study programs and students upon graduation.

The role of lecturers is more of a safety mechanism in the proposed model. They would be in charge of verifying the students' credentials regarding their proficiency in selected fields of studies. If a student specifies knowledge of a specific topic which is not recognized by any of his current or former lecturers (who have noted the student's proficiency through close mentoring and evaluation) that information would not be endorsed and would be shown as unconfirmed/untrusted data.

The local governing body/bodies are also a vital component of the system. Their role should be to encourage employers to frequently use the system as well as to ensure that the employers within the system adhere to the code of moral and ethical conduct. The local governing body would also have an insight into the current job market needs and could coordinate its effort, to tackle unemployment and form new employment strategies, with the academic institutions.

IT would be in charge of ensuring that the system functions properly, with minimum redundancy and maximum security (by preventing unauthorized access by third parties). It would also have to coordinate its efforts with the academic institutions and local governing bodies.

The schematic of the proposed model is shown in Figure 14.

Figure 14. Schematic presentation of the proposed system
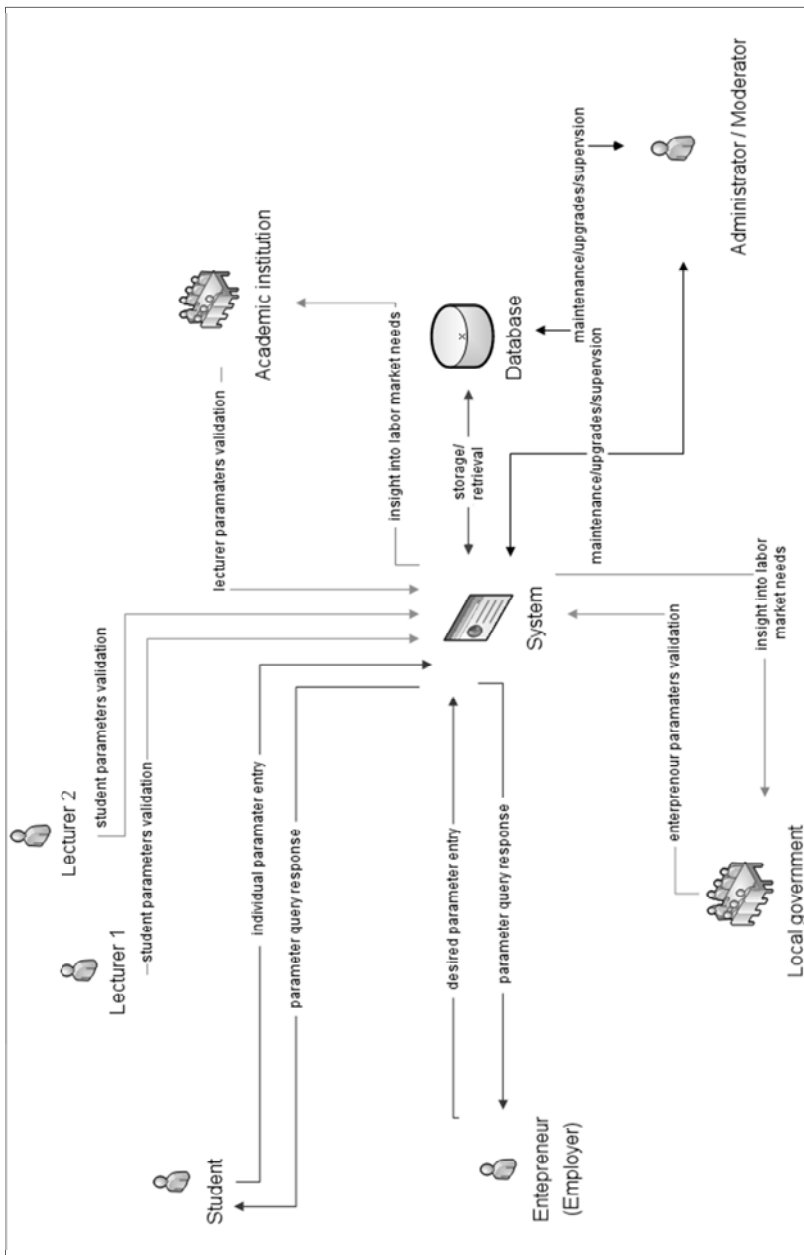
Source: authors

4. CONCLUSIONS

The empirical research, conducted on a sample of employers in the area of Zagreb and students attending the University of Zagreb, has provided important information pertaining to the most common ways of initializing cooperation between students and the business sector. The main finding is that students, as well as employers, rely on the students' proactive behavior in seeking jobs, internships and apprenticeships and both frequently rely on personal contacts in the process of finding perspective candidates. Furthermore, the student sample in this research shows that the students have are mostly interested in procuring student jobs and employers frequently offer those opportunities alongside internships and apprenticeships.

Regarding the criteria used in the process of candidate selection, employers place strong value on student's formal and informal knowledge and skillsets as well as on personal interests. Employers do not consider prior work or volunteer experience to be a decisive factor in the selection process. Students on the other hand prefer positions where they can apply their informal knowledge and where the assigned activities are closely related to their fields of study.

Since both parties expressed an interest in using a specialized system, for facilitating cooperation between the academic community and the business sector, information was gathered on the desired specifications of such a system. Using that information, a model of such a system has been made. The proposed system addresses the desires of both parties and intended serve on a regional level (in accordance with the regional innovation system). Such a system would be able to function on a national scale although the proposition for such a complex system requires more research and a significantly larger population sample.

Due to the limited sample, for purposes of empirical research, the proposed model of this system could not include the cognitive component of the evaluation of potential student candidates. We recommend considering the possibility of introducing standardized online tests of cognitive abilities of students, who will serve as additional criteria in the selection process.

In terms of these topics, further research on the regional level or in the City of Zagreb is required. Additional interviewing and research will ensure the development of the proposed model, taking into account the needs of all stakeholders of the system. Furthermore, it is recommended to conduct research at the national level to identify the needs of students and entrepreneurs of other universities and regions. As for the need for specialized mechanism at the national level, the proposed model can be expanded aiming at the creation a unified national system applicable in the entire Croatia.

REFERENCES

Adalet McGowan, M. and D. Andrews (2015), Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data, *OECD Economics Department Working Papers*, No. 1209, OECD Publishing, Paris. DOI: http://dx.doi.org/ 10.1787/5js1pzx1r2kb-en

Apanasovich, N., Alcalde, H and Parrilli, M.D., 2016. The impact of business innovation modes on SME innovation performance in post-Soviet transition economies: the case of Belarus. *Technovation*, 57-58 (Nov/De), pp. 30-40.

Asheim, B. T. and Gertler, M. S. (2005) The Geography of Innovation: Regional Innovation Systems. In: Fagerberg, J., Mowery, D. & Nelson (eds.) The Oxford Handbook of Innovation. Oxford: Oxford University Press, pp. 291-317.

Aralica, Z., Botrić, V., (2011) Evaluation of the Tax Incentives Aimed at Stimulating R&D Projects in the Business Sector, Project Study, The Institute of Economics.

Bačić, K., Aralica, Z., (2016) Innovation System in Croatian Regions, Društvena istraživanja: časopis za opća društvena pitanja, 25(2), 157-178.

Breschi S., Lissoni, F., (2001) Knowledge Spillovers and Local Innovation System: A Critical Survey, Industrial and corporate change 10 (4), 975-1005

Dacre Pool, L., Sewell, P., (2007) "The key to employability: developing a practical model of graduate employability", Education + Training, Vol. 49 Iss: 4, pp.277 – 289.

Edquist, C. (2004): Systems of Innovation – A Critical Review of The State of the Art, in Fagerberg, J., D. Mowery and R. Nelson, Oxford Handbook of Innovation. Oxford: Oxford University Press.

Freeman, C. (1987). The „National System of Innovation "in historical perspective. *Cambridge Journal of Economics, 1987*(19)*, 5 – 24.*

Gault, J., Leach, E., Duey, M., (2010),"Effects of business internships on job marketability: the employers' perspective", Education + Training, Vol. 52 Iss 1 pp. 76 – 88 http://dx.doi.org/10.1108/00400911011017690

Henard, D., H., and McFadyen, M., A., (2006) R&D knowledge is power, Research-Technology Management 49 (3), 41-47

Holyoak, L., (2013) "Are all internships beneficial learning experiences? An exploratory study", Education + Training, 55 (6), 573 – 583

Jensen M.B., Johnson B., Lorenz E., Lundvall B.A. (2007) Forms of knowledge and modes of innovation, Research Policy, 36 (5) , pp. 680-693.

Maertz, C., P., Stoeberl, P., A., Marks, J., (2014) Building successful internships: Lessons, from the research for interns, schools and employers, Career Development International 19 (1), 123 – 142.

Nelson, R. (ed.) (1993) National Innovation Systems. A Comparative Analysis, Oxford University Press, New York/Oxford.

OECD (2016), *OECD Business and Finance Outlook 2016*, OECD Publishing, Paris.DOI: http://dx.doi.org/10.1787/9789264257573-en

OECD. (2012). Better skills, better jobs, better lives: A strategic approach to skills policies. Paris: OECD.

Račić, D., Aralica, Z., and Redžepagić, D., (2008), "Export strategies as a factor of SME growth in Croatia", *International Journal of Entrepreneurship and Innovation Management (IJEIM)*, 8(3), str. 286-304.

Radosevic S (2016) The role of public research in economic development, Chapter II.1 in EC, Science, Research and Innovation performance of the EU. A contribution to the Open Innovation, Open Science, Open to the World agenda, DG for Research and Innovation, European Commission, pp119-139.

Radosevic, S., and Yoruk, E. (2013) Entrepreneurial propensity of innovation systems:theory, methodology and evidence. Research Policy 42: 1015–1038.

Rothman, M., Sisman, R., (2016) *Internship impact on career consideration among business students*, Education + Training, 58 (9) 1003 – 1013.

Sawani, Y., Abdillah, A., Rahmat, M., Noyem, J., A., Sirat, Z., (2016) Employer's Satisfaction on Accounting Service Performance: A Case of Public University Internship Program, Procedia - Social and Behavioral Sciences 224, 347 – 352

Silva, P., Lopes, B., Costa, M., Melo, A., I., Dias, G., P., Brito, E., Seabra, D., (2016) The million Dolar question, can internships boost employment, Studies in Higher Education, 1-20.

Švarc, J. (2001). Što je nacionalni inovacijski sustav i je li on potreban i moguć u Hrvatskoj?. *Ekonomski pregled, 52*(9-10)*, 1053-1077.

Švarc, J. (2010). Gospodarstvo znanja i lokalni razvoj: Posljedice za inovacijsku politiku. *Radovi Zavoda za znanstvenoistraživački i umjetnički rad u Bjelovaru, 2009*(3), 29-52.

Švarc, J., Perković, J. and Lažnjak, J. (2011). Društvena evaluacija hrvatskog inovacijskog sustava na primjeru TEST programa. *Sociologija i prostor, 49*(2), 209 – 235.

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ANALIZA ZNAČAJKI SURADNJE IZMEĐU POSLODAVACA I STUDENATA – STUDIJA SLUČAJA: HRVATSKA

Sažetak

Glavni cilj ovog rada bio je analizirati mehanizam usmjeren na poticanje suradnje između poduzetnika i studenata u Zagrebu, glavnom gradu Hrvatske. Koristeći se ovim mehanizmom studenti bi imali priliku obaviti praksu i raditi na poslovima koji su u bliskoj vezi s područjem koje studiraju. To znači kako bi bili u stanju primijeniti svoje znanje i razne vještine unutar vlastitih zadataka na poslu. U isto bi vrijeme poduzetnici mogli učinkovitije ocijeniti potencijalne zaposlenike i lakše definirati zadatke za njih. Smatramo kako je predloženi mehanizam pogodan za primjenu na regionalnoj (subnacionalnoj) razini u Hrvatskoj. Odgovarajuća razina institucija, kao i odgovarajuća razina vještina, usmjerena na zapošljavanje kompetentnih osoba na odgovarajuće poslove, preduvjet je funkcioniranja mehanizma. S obzirom na rezultate analize interakcije studenata i poduzetnika, smatramo kako obje skupine uviđaju važnost proaktivnog ponašanja prilikom traženja posla ili drugih oblika privremenog zaposlenja, prakse ili naukovanja.

Ključne riječi: model suradnje, studenti i poduzetnici, regionalni inovacijski sustav

JEL klasifikacija: J21, J24, M51, M54