

The potential of ICT-enabled social innovation

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Abstract - Although social innovation is an old paradigm, social innovation courses appeared in the curricula in the approximately last ten years. By doing so educational institutions acknowledged the existence of new approaches to obstacles that the world is facing. The courses regarding the social innovations give the students valuable knowledge and skills related to solving different social problems, increasing the motivation for being active in the society, and raising awareness about specific topics that need attention. An important role in implementing social innovation have ICT technologies. The role of the ICT is multiple: (1) administrative (members of the certain social initiative collaborate on the project through different ICT tools that enable communication and information organization), (2) disseminative and educational (the topic of the social initiative is disseminated through different tools and social media), and sometimes (3) topical (if the topic of social innovation project is directly connected to specific ICT technology). Based on the roles that the ICT takes upon in the process of social innovation implementation, the authors present ICT solutions that could be included in the realization of a social innovation course for business students at the graduate level.

Keywords - social, innovation, ICT, education

I. INTRODUCTION

In times of increasing overlapping of public, private and civil sector, the term social innovation became one of the gladly used buzzwords reflecting the processes that are emerging throughout the world. As an important part of the local entrepreneurial eco-system Faculty of Organization and Informatics in Varaždin is ready to provide its students with hands-on experiences and bring awareness to the social problems and the potential of social innovation. The first step in that direction was the introduction of a course Social Entrepreneurship to the undergraduate program Economics of Entrepreneurship which is now being executed for the third year. In the anonymous survey 70% of students who finished the course Social Entrepreneurship expressed a desire to broaden the knowledge and gain more practical experience in that area. The next step in the same direction would be to introduce the elective course Social Innovation to the graduate program Economics of Entrepreneurship.

The aim of this paper is to explore how the ICT can be of assistance in development and implementation of social innovations and further on which ICT skills should be encompassed in a social innovation course at the graduate level of business education. In order to answer these questions, the second part of the paper describes the meaning of social innovation and the complementary concept of social entrepreneurship. The third part of the

paper presents the literature review of the competencies that should be acquired through a social innovation course. The fifth section identifies the importance of the ICT technologies for social innovations and gives recommendations for the inclusion of ICT in the social innovation courses. The final section concludes the paper.

II. SOCIAL INNOVATION AND SOCIAL ENTREPRENEURSHIP

Different authors give us different perspectives on social innovations and social entrepreneurship. However, with time and efforts made by researchers and policymakers, the concept of social entrepreneurship became more structured in comparison to the term social innovation, especially in the EU context. According to the Commission [1], the term “social enterprise” encompasses two types of businesses:

1. “Businesses providing social services and/or goods and services to vulnerable persons (access to housing, health care, assistance for elderly or disabled persons, the inclusion of vulnerable groups, child care, access to employment and training, dependency management, etc.); and/or
2. Businesses with a method of production of goods or services with a social objective (social and professional integration via access to employment for people disadvantaged in particular by insufficient qualifications or social or professional problems leading to exclusion and marginalization) but whose activity may be outside the realm of the provision of social goods or services.”

According to [2] referenced in [3], social innovation is the development and implementation of new ideas realized through products, services and models in order to meet social needs. This approach is broad and could encompass a variety of innovations that would be considered only as very useful innovations before the era of the buzzword social innovation. On the other hand, Mumford [4] states that social innovation refers to the development and implementation of new ideas about how people should organize interpersonal activities, or social interactions, to meet one or more common goals.

Christensen, Baumann, Ruggles, & Sadtler [5] introduced the term catalytic innovations that refers to a fundamentally new approach to social problems that creates system-changing solutions, and in order to be system-changing they have to be durable and have a broad impact. Following that line of thought, Westley and Antadze [6] defined social innovation as a complex process of

introducing new products, processes or programs that profoundly change the basic routines, resource and authority flows, or beliefs of the social system in which the innovation occurs. Thus, in order to determine whether something was a social innovation, it can only be done post hoc, when the process proves that it is sustainable and scalable. Thus, the social innovation definition is more encompassing when it states that social innovations represent novel solutions to social problems which have potentially transformative effects.

Social entrepreneurship innovations must not only be new and cost-effective, but the social value has to be delivered in a way that is financially and in other ways accessible to its intended beneficiaries [7]. Even though social innovation sometimes includes technological or scientific solutions, many social problems could be solved with more social versions of social innovation such as gathering the stakeholders on the same page or by creative use of existing resources [5].

III. SOCIAL INNOVATION COURSES

As it can be seen from the previous section, the literature has struggled with the definition of social innovation, and thus with the belonging description of what social innovators do and what they need to know to actually do it. Following the complexity of social innovation, the learning outcome of the one-semester course Social Innovation simply cannot be that all the students participate in development and implementation of social innovation and thus the course should strive to something more manageable. Since the learning outcome of the course Social Entrepreneurship is not necessarily becoming a social entrepreneur, the analogy applies to the social innovation courses. Due to the time constraint of the course and the fact that social innovation process as any innovation process is not linear in its nature, the courses should use the available time to equip the students with knowledge and skills that would make them more likely to engage in social innovation.

Previous research provides us with the guidelines what these knowledge and skills are for social entrepreneurship courses. Social entrepreneurs face three main challenges [8]: the complexity of accountability since social entrepreneurs are accountable to multiple stakeholders; achieving a double bottom line by balancing social and commercial objectives; management of complex identity since the organization has to be legitimate both in the for-profit and not-for-profit sector. However, social entrepreneurs in Croatia are concerned with issues related to the social context and community rather than with commercial goals such as efficiency and financial independence [9]. Thus, the introduction of social entrepreneurship topics in the business curricula should contribute to the more successful achievement of a double bottom line.

Based on the thorough literature review and the research of their own Miller et al. [7] made a list of competencies required for social entrepreneurs which have to facilitate identification, evaluation and exploration of opportunities: ability to challenge traditional way of thinking, communication skills, creativity, sense of moral imperatives, ability to identify social problems,

management of financial capital, ability to sell, conflict resolution skills, capacity to measure outcomes, cultural awareness, ability to commit to a collective purpose, time management, flexibility, humility, taking responsibility for actions, fundraising and donor cultivation, etc. Among the aforementioned competencies, there was also the management of logistics and technology. Research [7] shows that the five most common competencies taught in social entrepreneurship courses are managing strategy development, managing financial capital, the capacity to measure outcomes, innovativeness and creativity and identification, evaluation and exploitation of opportunities.

Social innovators also face specific challenges [10]: they require a deep understanding of social problems, how they are rooted in existing institutions, values and ideas and social practices. A second is inherently political in nature since social innovators are changing social systems and often lead to the redistribution of privilege. Thus, social innovators often take upon the roles of problem solvers as well as politicians to overcome the resistance to change.

Since the course Social Innovations which we are developing is an elective course that follows the course Social Entrepreneurship, we see it as a continuation of the previous with complementary learning outcomes that are often neglected in the social entrepreneurship courses. Competencies that are rare in the social entrepreneurship courses' syllabi including our course are developing volunteer support, managing administrative work, developing social skills, conflict resolution skills and confidence to succeed at challenging tasks [7]. In addition, the research shows that social entrepreneurship practitioners [7] put more emphasize on marketing and selling, sense of moral imperatives, and challenging traditional ways of thinking in comparison to existing social entrepreneurship courses.

Social innovation, as well as social entrepreneurship, is cross-disciplinary and the courses bearing these names exist across different domains such as business, public affairs, sociology, non-profit management, urban studies, disability studies, etc. The paper aims to explore what role ICT plays in the development and application of social innovation since the transfer of ICT competences is at the core of the Faculty's mission. Additionally, according to the Faculty's strategy, one of the three missions is a contribution to the society which covers different social innovation projects [11].

IV. THE IMPORTANCE OF ICT FOR SOCIAL INNOVATIONS AND SOCIAL INNOVATIONS COURSES

Today it is almost impossible to conduct any project without the Information and Communication Technology (ICT). Social innovations are often implemented as different initiatives and projects which means that ICT has an important role in implementing social innovation. The research team at the Faculty of Organization and Informatics (FOI) which is focused on entrepreneurship and decision making has gained experience in the implementation of socially-innovative projects, mostly funded by the EU funds. The projects are presented in Table 1, together with their belonging social impact and a list of ICT tools that facilitated the realization of the projects.

TABLE I. SOCIALLY-INNOVATIVE PROJECTS IMPLEMENTED IN COOPERATION WITH FOI RESEARCHERS

Project	Type	Funding	Social impact	ICT tools
Ivanscica for better tomorrow, 2013	National	European Commission: IPA, Youth in action Programme	Finding solution for revitalization and development of different social activities at the top of mountain Ivanscica which is placed between two different cities and counties which makes this process difficult	Learning management system Moodle, Facebook, Messenger, MS Office, Dropbox, Expert Choice, Wordpress
Go, go, NGO!, 2015-2016	International	European Commission: Erasmus+	Increasing the level of structured level in local government units, Increasing the motivation of young people to involve in different social activities (as organizers or participants), Increasing the funds for non-governmental organizations in local government units	Learning management system Moodle, Facebook, Facebook Ads, Messenger, MS Office, Dropbox, Viber, Wordpress, Adobe Connect, MS Publisher
One, two, ... and action!, 2013	International	European Commission: IPA, Youth in action Programme	Motivation of young people to participate in elections for European parliament, Creating the city monograph regarding the 25 th city anniversary, Filming a documentary movie regarding the 25 th city anniversary	Learning management system Moodle, Facebook, Messenger, MS Office, Dropbox, Corel Video Studio Pro X6, Joomla, Gimp, MS Publisher
Being young in EU – how to start?, 2013	International	European Commission: IPA, Youth in action Programme	Project deals with the overall indifference and apathy and wants to serve as a sort of a wake-up call for young people. In the first stage, the problems that young people face were identified. In the second stage, participants made video material representing each of the chosen problems and how they affect people in Zlatar. In stage three, during the partners meeting in Zlatar, workshop participants from Zlatar discussed each theme and generated possible solutions.	Learning management system Moodle, Facebook, Messenger, MS Office, Dropbox, Joomla, Corel Video Studio Pro X4
3P – Plan it, start it, promote it!, 2015-2016	National	European Social Fund	The increase of entrepreneurial aspirations of high school and higher education students, The increase of enterprise culture capacity of high school and higher education educators	Dropbox, Facebook, WordPress, Video Studio Pro X8
Pop-up rural socially-innovative hubs, 2018-2020	National	European Social Fund	Service learning of students in interdisciplinary teams who work as consultants for potential social and commercial entrepreneurs in rural areas	Google Drive, Skype, Viber, Facebook, Teamwork

Based on this experience gained on several social innovation projects such as national projects Ivanscica for better tomorrow [12], [13], 3P– Plan it, start it, promote it! [14], and Pop-up rural socially-innovative hubs [15]; international projects: Go, go, NGO! [16], [17], One, two, ... and action! [18], and Being young in EU – how to start [19], [20]); we propose that the role of the ICT in social innovations is multiple:

- (1) administrative (members of the certain social initiative collaborate on the project through different ICT tools that enable communication and information organization),
- (2) disseminative and educational (the topic of the social initiative is disseminated through different tools and social media), and sometimes,
- (3) topical (it the topic of a social innovation project is directly connected to specific ICT technology).

After discussing the three leading roles of the ICT in implementing the social innovations, we will be able to elaborate the ICT part of the new course, since the course – in a practical way – presents the implementation of different initiatives and projects similar to previously mentioned ones (Figure 1).



Figure 1. From real social innovations projects to course “Social innovations”

A. Administrative role

The most straightforward role of the ICT in social innovations is the administrative role, which can be realized in two ways: communication and information organization. Comparing to simple Plan-Do-Check-Act paradigm (also known as Deming cycle) [21], each social innovation can be considered as project that requires several aspects: (1) detailed analysis of the social problems that are addressed, (2) detailed plan of social innovation implementation (3) implementation of the social innovation and (4) evaluation of the results that are achieved by implementing the social innovation. It is obvious that each of those four phases requires both, good organization and documentation (information organization) and communication between the actors that are planning and implementing social innovation. Those two processes, communication and information organization can be organized the best using the appropriate technologies. There are many technologies that can be helpful:

- for information organization: different platforms such as Google docs, Dropbox and others;
- for communication: emails, instant messages services such as Facebook Messenger, Viber, Skype, WhatsApp, Hangouts and others;
- for both: advanced systems such as Alfresco Share, Learning Management Systems Moodle, Teamwork and others.

B. The disseminative and educational role

The second role of ICT is disseminative and educational. Even if it seems easy, the dissemination of the social innovation project is everything but not that. The success of social innovations often depends solely on the dissemination, especially in case of crowdfunding campaigns. All social innovations are focused on some social problem. Often, society is not familiar (enough) with the problem, or they know something about it, but the knowledge is superficial. Therefore, social innovators have to create appropriate disseminative products in order to spur the public interest and encourage the inclusion of the stakeholders into the project. At the same time, the disseminative products are also educational. There are many ICT platforms that can be helpful in achieving the disseminative role of social innovations. Some of them are:

- webpages – separate webpages for a specific social innovation project or the content that can be incorporated into existing webpages of social innovators (often the more affordable choice);
- social networks (social media) – there is a colloquial statement among active Facebook users, “If it is not on Facebook, it didn’t happen”. Similarly, the statement can be applied to other social networks. The content can be disseminated through a separate social innovation project’s page (profile), or as a part of a page (profile) of the social innovation project’s initiator. Some social networks provide enable the creation of different promotion campaigns (paid posts);
- crowdfunding platforms – they enable both the collection of the finances necessary to implement social innovation as well as serve as a promotional tool of great potential.

The content published on those platforms can include text, figures, animations, videos, blogs, vlogs, forums, chatrooms, and others. Additionally, it is important to have a good strategy for publishing the content.

C. Topical role

The last role of ICT in social innovation implementation is topical. This is related to the case when ICT is a big part of the innovation itself, and social innovation could not exist without it. Some of the examples are:

- (1) Pigeon Air Patrol was a project in which the pigeons flew across London with the air quality sensors in their little backpacks. As the birds spread out across the city, people could check the air quality readings relayed from each sensor by

tweeting their location to the Pigeon Air Patrol Twitter account [22],

- (2) System e-citizens (in Croatian e-Gradani) which enables the full range of public administration services for citizens that do not have to be implemented “in the old way” anymore (issuing the personal documents, informing about students grades, checking the medical information and prescriptions ...) [23],
- (3) Transition to the new DVB-T2 and H.265/HEVC TV system.

V. THE ROLE OF ICT IN THE DESIGN OF SOCIAL INNOVATIONS COURSE

Social Innovations would be a one-semester experiential learning course realized through the team-based projects. Experiential learning is the process of accumulating knowledge through direct experience [24], [25]. Research suggests that it is important to include stakeholders in the design of education [26]. Thus, every team would collaborate with a social venture or an NGO. The fieldwork should result in first-hand experiences that cannot be gained in a classroom setting. The course is an elective course at the graduate study program Economics of Entrepreneurship, and the participants are business students. Thus, the students are ICT users who have the necessary knowledge for administrative and disseminative/educational role of the ICT.

However, basic knowledge is not enough in the digital era and the students need to be encouraged to improve their e-competences through Social Innovations course. At the beginning of the course, students will form several teams. The teams will analyze a specific social problem, collaborate with a social entrepreneur or an NGO and through that collaboration design and implement concrete social innovation projects (some of the projects will be also proposed by the educators). Depending on the project, they will get the support for acquiring the ICT competencies which they need.

ICT education will include:

- Using the platforms for information organization and communication with the advantages and disadvantages of each platform and instructions on how to select the appropriate platform for their projects. The messages that they need to take from this experience is the importance of documentation in one place, the importance of simple and understandable documentation organization, documentation availability to the project team members and the importance of back-up,
- Using the platforms for dissemination and education: simple websites (ex. Wordpress and Wix), conducting the Facebook ads,
- Using the crowdfunding platforms – Indiegogo, Kickstarter, GoFundMe, Kiva, Zopa,
- Creating the digital content that will be disseminated – the main accent here will be on creating short and attractive videos which will be

used in social innovation project in terms of dissemination and education,

- For the topical role of the ICT, we can present students with the resources that are available at the Faculty of Organization and Informatics such as 3D printers, and introduce them to the computer science students who can help them in the development of mobile apps etc.

Most of the above-mentioned solutions support both, desktop and mobile devices.

There are many other ICT solutions that can be used in terms of some ICT role regarding social innovations. The list of them increases rapidly [27]. However, the plan is to use the solutions students are familiar with at least at some level considering the type of the students (area of business) and the time available for the course. Additionally, students are already familiar with some other specific software that can be useful for the implementation of social innovation projects – they learned about them on other courses. Some of them are MS Office tools, decision support systems (ex. Superdecisions for making multi-criteria analysis) and different tools for statistical analysis (ex. R-studio).

At last, it is important to find the balance in using the ICT solutions. Otherwise, the risk of using too many solutions might appear. Two main preconditions of using the ICT solutions are: they are really needed (they will contribute to the success of social innovation), and users know how to use them.

VI. CONCLUSION

Teaching materials for courses that deal with social innovations are usually fragmented and organizing the course content is a challenge especially when the course includes project-based learning and students work on different topics. The main aim of this paper was to summarize which ICT tools could be of value to the students working on their social innovation projects. Three roles of ICT were identified in the course Social Innovation: administrative, disseminative and educational, and topical. For each role, the belonging tools are presented. The list is by no means exhaustive, but it gives an indication of the many tools that can be presented to the business students depending on their project needs.

Students often express the desire for more meaningful education which is in accordance with the desire for more meaningful jobs expressed by Millennials. The specific feature of the course Social Innovations is that their e-competences will not be tested isolated from their concrete application. Their e-competencies will be reflected in the results of the whole project which encourages students to acquire life-long learning skills and adapts them to the conditions of the real working environment.

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