

“Towards Using Information Systems for Enhancing the Efficiency of Entrepreneurship”

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Abstract:

Information systems (IS) have a great impact on the field of entrepreneurship via several applications, Therefore lack of IS skills reduces the benefit from entrepreneurship and may stand against starting new ventures, hence improving the level of IS skills became urgent need for the potential entrepreneurs of students as well as their teachers who support them by the new entrepreneurial techniques. Crowdsourcing is a novel example of using information systems to support entrepreneurship; we hence propose an application for crowdsourcing illustrate its support for entrepreneurship.

Keywords: Entrepreneurship, E- entrepreneurship, Information systems,

Crowdsourcing.

Introduction:

Till short time there was a limitation in the researches that focus on the role of information technology (IT) in entrepreneurship, (Albashrawi and Alashoor, 2017) argued that there is only research examined the role of the information technology in the entrepreneurship filed but recently many researches have been dedicated to investigate this role as according to (Steininger, 2018) after a recent call for papers that links (IS) with entrepreneurship, 292 have been reviewed and based on the review of these papers, it has been concluded that IT has four important roles in entrepreneurship; facilitator, mediator, outcome and ubiquity.

In this research we shedding light on the importance of enrolling IS in the entrepreneurship field and enhancing the IS skills for the potential entrepreneurs, on the hand we try to investigate the impact of entrepreneurship study on the curriculum of IS and how it can be benefit for the potential IT entrepreneurs. Then challenges that face IS in entrepreneurship are illustrated. After generally illustrating the role of information systems in the field of entrepreneurship, one specific branch of (IS) is identified; which is crowdsourcing and is explained in more details with an example about its application in entrepreneurship filed. As a result, to the investigation of the role of (IS) in entrepreneurship and vice versa, some recommendations worth to be mentioned to best support the entrepreneurship via involving (IS).

Literature Review:

According to (Albashrawi and Alashoor, 2017) there is a limitation in the literature that focusing on the (IT) emotional and cognitive factors which enable individuals to be entrepreneurs, so they proposed a theoretical model integrating between the technological role and the entrepreneurial models by adding two factors (IT emotional and cognitive factors) to the theory of planned behavior (TPB), Concerning (TPB); it is a theory proposed by (Ajzen, 1991) which suppose that three factors; (attitudes toward the behavior, subjective norms, and perceived behavioral control) lead to prediction with high accuracy to behavioral intention. The first factor (attitudes toward the behavior) represents the person's evaluation to the behavior whether it's positive or negative. While the second factor (social pressure) points to the social pressure that force person to perform the behavior or avoid it. The third one is the (perceived behavioral control) points to how it is easy or difficult to perform a specific behavior and the related experiences and problems. These three factors have been extended to five factors by (Albashrawi and Alashoor, 2017), the two added factors are cognitive factor and emotional factor; the cognitive factor is represented by (general computer self-efficacy) while the emotional factor is represented by (computer anxiety), as (Albashrawi and Alashoor, 2017) believe that general computer self-efficacy has impact on the individual's attitude towards the intention for being entrepreneur, as the person who is familiar with information technology and can perform common computer processes supposed to have more self-confidence enables him/her to start his/her own business and meanwhile general computer self-efficacy is argued to affect directly on the entrepreneurial intention. Concerning the other added factor in the same study (computer anxiety), it has been referred that it has negative impact on the individual's intention to start private business.

(Abbas 2018) shed light on the importance of the entrepreneurship business which related to the information technology filed as he concluded from the results of his study that has been performed using a questionnaire targeted bachelors students specialized in the fields of entrepreneurship and computer sciences that entrepreneurial (IT) projects are a necessary for economic growth, and he recommended to enhancing the using of information technology in the daily purchasing transaction in order to increase the customer interest in (IT), hence this may lead to more interest in the IT entrepreneurship business.

(Mukhamadeev et al 2019) conducted a study on education system and internet banking in Azerbaijan as an example to the developing countries in order to examine the role that is played by the information systems in entrepreneurship education in developing countries. The mentioned study used an online questioner and the results of this questioner are analyzed to show the importance of using IS as it has been indicated that the performance of faculties' students is increased by 5% where more than 50% of IT is implemented.

The study of (Matlay and Westhead 2005) has been dedicated to show the impact of using the phenomena of virtual team on the success of entrepreneurial ventures in Europe. The study has been done on sample of 15 case studies of ventures in the field of Tourism and Hospitality, the study explained the advantages and disadvantages of virtual teams in Electronic entrepreneurship (e- entrepreneurship); starting by the advantages which concluded in ten points; 1- Several types of data and information are available 2- Information is reliable 3- Obtaining and processing data are cost saving 4- Financial, knowledge and human resources are pooled 5- The possibility of reaching several Team-wide resources 6- The Linguistic and Technical Support is Continuous 7- Constant customer base for Europe 8- Benefits of multinational market. 9- Interconnection with the virtual community 10- Virtual trust is high. While the disadvantages are concluded in eight points; 1- Ownership status is characterized by limitation 2- Individual business is restricted 3- Freedom in taking business action is very limited 4- Interactions between team members being complex 5- Virtual team structure being rigid 6- Some entrepreneurs are dissatisfied with structure of the virtual teams and the decision-making process 7-Working hours are extended 8- The Mechanisms of conflict resolution are limited.

Roles of IS/IT in Entrepreneurship:

According to (Steininger 2018) IT plays four main roles in entrepreneurship; **Facilitating**; main activates of entrepreneurship like service and operation can performed better and easier using IT. **Mediating**; IT has the capability to link between the start-up infrastructure of the venture and the clients via network. **Outcoming**; IT is considered as outcome to several entrepreneurial ventures where the ventures' products being software, hardware, or related services. **Ubiquity**; the existence of IT is very common in all business model pillars value proposition/product, infrastructure management and customer interface. While (Nambisan 2016) shed the light of role digital infrastructure in **Innovating**; product ideas can be formed, modified, and implemented quickly. **Elicitation**; it can be concluded from (Nambisan 2016) that the new IT technologies strongly support in recognizing human behavior that benefits entrepreneurs in making opportunities.

The Importance of Enhancing IS/IT Skills of Entrepreneurs:

(Matlay and Westhead 2005) argued that owner-managers miss to the important information and communication technology skills and the online trading experience. e (Low and MacMillan1988) considered lacking of technical skills as one of the typical problems that can cause in entrepreneurship failure while (Solesvik 2013) considered lacking of knowledge and skills as one of the reasons that prevent potential entrepreneurs of students from achieving their targets by having their own business. However, the hypothesis of (Johannesson and Jorgensen 2017) which predicted that employees' education level in the small and medium entrepreneurial ventures effects positively on the relationship between sales growth and entrepreneurial orientation has been rejected by results of analyzed data, another hypothesis in the same study has been confirmed which predicted that employees' skills and professionalism in the small and medium entrepreneurial ventures effects positively on the relationship between sales growth and entrepreneurial orientation hence it can be indicated that enhancing the IS/IT of the entrepreneurs has positive impact on sales growth which represents success to the venture.

The Significance of Enrolling Entrepreneurship Courses in IS/IT Curriculum:

New IT can offer novel IT opportunities to the entrepreneurs (Ojala 2016). (Jones and Liu 2017) refereed to the importance of involving the entrepreneurship courses in the IS curriculum to focus on the characteristics of software and IT services which are neglected in the general entrepreneurship courses which leads to succeed in IT ventures. (Zott, and Amit 2007) believe that entrepreneurs are supposed to think in innovative way to meet the new technological interconnection of the world to gain new business opportunities.

The expression of Technical Entrepreneurship is referring to the combination between the principles of business entrepreneurship and advanced technological knowledge. In the future there will be a need for those who studied technical entrepreneurship where both of computational thinking and entrepreneurial thinking are combined (Daimi and Rayess 2008).

Challenges of Using IS/IT in Entrepreneurship:

(Ojala 2016) raised an important question about the possibility of developing entrepreneurial business model in IT filed under the continuous changing in technologies and markets. That question has been answered by conducting a study on small software firm through case study in cloud computing markets. The study illustrated how the challenges of continues changing in the information technologies can be faced through continuous evolution to the business model through reassessment and development phases according to the surrounding changes.

According to (Chesbrough 2010) companies use business models to trade novel ideas and technologies. However, there is big focus on that ideas and technologies, there is an observed shortage in innovation business models which supposed to pass them that because achieving innovation business models is very difficult, so (Chesbrough 2010) study encourage companies to pay more attention to business model experimentation even when expecting failure in sometimes as long as failure cause in minor loss but good understanding and following new approach.

As a result, to the survey of (Swaramarinda 2018), it has been concluded that many entrepreneurship teachers still lacking to the utilization of using Information Communication Technology (ICT) as well as willing to learn.

E-entrepreneurship and Entrepreneurship:

Influence of information technology in entrepreneurship filed resulted in new business terms links between entrepreneurship and IT like e-entrepreneurship and entrepreneurship. Following the explanations of (Balachandran and Sakthivelan 2013), it can be distinguished between e-entrepreneurship and entrepreneurship terms as; Entrepreneurship: describes the act of establishing new companies specifically in the Net Economy while Entrepreneurship: is the ability to run a business on the Internet. It requires just the Connectivity. (Matlay and Westhead 2005).

Linking Crowdsourcing with Entrepreneurship:

Since traditional innovation costs a lot, companies started to use new open sources of innovation like crowdsourcing (Bozat 2017).

Crowdsourcing is a model enables crowd of people to participate in achieving a specific task or offering goods to gain a common benefit.

(Estellés-Arolas et al. 2015) classified crowdsourcing into five types:

Crowd casting: raising a problem that needs a solution or task that needs to be done to the crowd and reward whoever comes with the fastest or best solution. **Crowd collaboration;** individuals of the crowd are communicated with each other for representing their opinion about a specific task, this type of crowdsourcing is divided to two sub types according to the main goal; Crowd storming and Crowd support; in the first one, individuals post several ideas and other individuals are asked to give their impression about that idea by voting and comments while in the second one customer support other customers by trying to solve their problems. The third type of crowdsourcing is **Crowd content;** from the name of this type it can be concluded that it focuses on the content, it has three sub-types; Crowd production, Crowd searching and Crowd analyzing. At the first one the crowd are asked to create individually content, while in the second one, individuals are asked to search on the internet about contents for a specific purpose, concerning the third one, individuals are asked to search for contents as well but in multimedia documents. The fourth type of crowdsourcing is **Crowdfunding,** the process of collecting money from large number of individuals to fund a project in exchange for a portion of the profits. The fifth and last one is Crowd opinion, getting opinions of large number of individuals instead of opinion of as specialized expert.

A proposed Crowdsourcing Application for Supporting:

As an application for using IS to support entrepreneurship, we decided to propose an application of crowdsourcing where several crowdsourcing types can be applied in order to enhance efficiency of entrepreneurship.

As it is seen in figure 1, we propose an application brings together events' organizers and the clients who want to hold events; the application enables the clients to advertise about their events requirements and getting options from crowd about the upcoming events or feedback about their services, and enable events' organizers to offer their service and justify their experience to the clients. The application also enables halls owners/ hotel representatives and the suppliers of events' materials and any related extra services to coordinate with events' organizers. On other side the model enabling visitors other

than clients and events' organizers to exchange experience, inquires, explanations and videos about events generally.

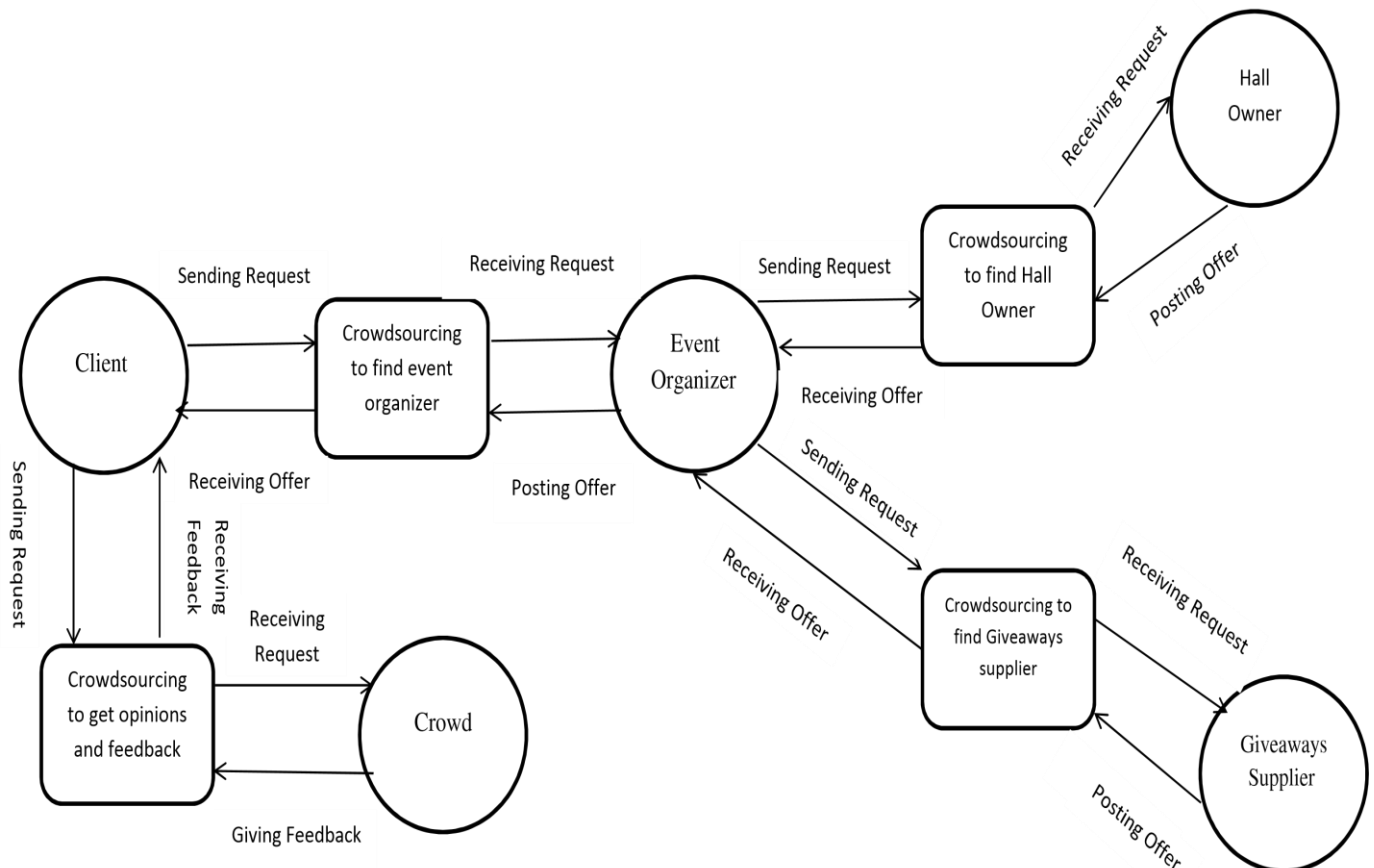


Figure 1 crowdsourcing processes

Some Recommendations used on the Previous Studies:

- Working on enhancing general computer self-efficacy and eliminating computer anxiety for university students and potential entrepreneurs.
- Official consideration for using of information technology including internet activities to encourage individuals who have professional skills in information technology to start new business supporting the government activities.
- Qualifying teachers in schools and universities to use the new technological facilities in teaching in order to strength the concept of using IS in different disciplines, and hence encourage the potential entrepreneurs of students to benefit from using IS in their future ventures.
- Involving teaching IS entrepreneurship in IS curriculum to pave the way for new innovative IS ventures.
- Companies should take constant steps towards developing innovation business models whenever the expected failure is affordable but causing in new understanding and pave the way to follow new innovative approach.
- Considering crowdsourcing as a reliable method for creating new entrepreneurship opportunities, reducing cost, solving technical problems, getting finial funds, getting opinions about products or service, and solving problems.

Conclusion:

New information systems technologies strongly influence the field of entrepreneurship by creating new venture opportunities and facilitate the process of creating and performing several related tasks. Hence, lack of IS skills may Lead to losing entrepreneurial opportunities. So, we focused in this research on the importance of enhancing IS skills for the potential entrepreneurs and involving IS techniques in several sectors to encourage entrepreneurs taking advanced steps towards using these technologies.

As an example, to the added value of using IS in the entrepreneurship filed, we focused on using crowdsourcing, and we proposed an application illustrating the strong role that can be played by crowdsourcing in the entrepreneurship filed. The proposed application supports both of events organizers and the organizations who need to held events to support their work, additionally the model enables suppliers of events materials and giveaways to produce their products and giving the opportunity to the events' organizers to compere between the different offers of materials suppliers, the application also supports halls owners and hotel representatives to post their offers. It also application enables several users to exchange services and information related to events and enables organization that hold the event to get opinions and feedback from the crowd about the events.

List of Abbreviations

- IS: Information Systems.
- IT: Information Technology.
- TPB: Theory of Planned Behavior.
- E- entrepreneurship: Electronic entrepreneurship.
- ICT: Information Communication Technology.

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