Chapter

The Impact of the Strategic Interests and Communicative Actions between the Socially Responsible Entrepreneurial Universities and University - Industry Collaboration Ecosystem

Dorian Aliu and Armando Aliu

Abstract

There is a natural harmony between the organizations' stakeholders and corporate social responsibility (CSR) communication. The roles of socially responsible entrepreneurial universities have become more important among many organizational structures that produce solutions to global social problems and transnational challenges. Recently, the UIC interface structures within the socially responsible entrepreneurial universities have ensured effective communication with stakeholders in the UIC ecosystem due to the strategic collaborative projects. Furthermore, the effective communication they provide strengthens trust and reciprocal understanding among organizations, creates a harmonious collaboration environment, and develops a more efficient understanding of partnership. The purpose of this study is to examine the attributes and operations of the UIC structures functioning in socially responsible entrepreneurial universities and explore the CSR-related projects potentials and project management culture of these structures with their stakeholders. In this context, the CSR-related communications and actions with the companies that are actively working in Technoparks, which are among the UIC interfaces, were examined by taking into account the nexus between the stakeholders, companies, and the UIC interfaces. In this study, case study research and content analysis were applied in terms of methodology.

Keywords: socially responsible entrepreneurial universities, UIC ecosystem, CSR communication, stakeholders, strategic interests, communicative actions

1. Introduction

Since the last two decades, socially responsible entrepreneurial universities have started playing a crucial role in economic and regional developments through the collaborations and partnerships they established with their internal and external stakeholders. Particularly, socially responsible entrepreneurial universities, which adopt a stakeholder approach within the scope of the university-industry collaboration (UIC)

ecosystem, coordinate their internal structures, and try to increase their cooperation with their stakeholders.

In the digital era we live in, it is argued that there are ecosystems where different insights, models, and approaches in the administrative sense are adopted and applied very quickly, conventional and contemporary channels are used together, and thus change and transformation takes place in many areas.

In recent years, universities have started playing important economic roles through their collaborations with their stakeholders. In general, universities mainly benefit from the development of the societies that exist in social and cultural areas. While adopting the stakeholder approach within the scope of the University-Industry Collaboration (UIC), they coordinate their internal structures and increase their cooperation with their stakeholders [1]. It can be stated that the institutions, which are evaluated as research universities, have a leadership role in the fields of R&D, innovation, and scientific research in the national sense, and they are also represented in scientific activities with their international partners in the global sense. It is denoted that distinguished scientists working in research-oriented universities that have their autonomous structure have significant contributions in maintaining targeted achievements in a country's higher education system and affect the increase in institutional prestige and resources [2].

It can be asserted that beside universities, industry and business stakeholders have a significant impact on the processes of change and transformation. In recent years, the most controversial management innovations have been the emergence of organizations such as Start-up and Spin-off, which are characterized as "sprout enterprises" and derived from large-scale companies (through young entrepreneurs) or universities (through entrepreneur academics). At first glance, such innovative approaches have enabled areas that seem opposite, such as the public sector, university, industry, and the business stakeholders to take a more convergent position and pursue various ways of collaboration [3]. In addition, several borderline interactions, including joint research or consultancy projects, have interlinked an enterprise and a university [4]. In this framework, the academic entrepreneurship can be considered as a training area and pioneer of Spin-off activity. The academics, who have seen themselves separate from the business stakeholders before, have so far been perfectly aware of the fact that the managers at the head of research groups are also acknowledged as business entrepreneurs. They see themselves as having the necessary organizational and leadership skills that are adequate to arrange small and even medium-sized businesses [5].

An entrepreneurial university model has emerged to generate socio-economic value in synergy with institutions and industries that open the boundaries of the university to the community of external actors and stakeholders [6]. Entrepreneurial universities aim to increase the wealth and prosperity of their societies by promoting a culture of innovation and competitiveness [7]. There is a symbiotic/complementary relationship between entrepreneurial universities and their regions. Policymakers consider the regional economic effects of universities. Particular attention has been paid to the increasing students' "externships" through industrial participation by the faculty and students, Spin-off company establishment, and "non-traditional" university policy and outreach services [8]. Entrepreneurial universities can foster frugal innovation by providing the necessary skills, supporting entrepreneurship and innovation initiatives, and conducting applied research to meet societal necessities [9].

So far, social entrepreneurship has emerged and spread in many countries, abruptly. Social entrepreneurship is the process of applying business and entrepreneurship principles to social problems. Social initiatives are those that are dedicated to solving social matters. The reason for their existence is not to maximize the

direct returns to shareholders, rather create a positive social impact [10]. Likewise, social enterprises are private organizations that adopt business strategies to achieve socially focused goals [11]. Various interface units such as technology development zones, research centers, and technology transfer offices that are associated with the entrepreneurial universities have also been reconstructed in public universities which have less emphasis on research. Thus, these interface units started to expand the scope of their duties by promoting the first stages of the R&D process with commercial potential and focused on obtaining commercially available findings in the next stages [12]. Yet, both university administration and individuals have become a necessity for the UIC interactions, a top-down and bottom-up approach ought to be used together. In the case of a university has a desire to expand the UIC activities, it is recommended that the university administration should establish long-term strategies and follow a holistic strategy approach [13].

The public sector and universities can evaluate new scenarios of successful collaboration with companies in their research assignments. For instance, companies and organizations originating from the cooperation of the three parties actively participate in science and technology parks [14]. It is worth noting that public policies have the potential to increase innovation efficiency developed in science and technology parks by suggesting or encouraging companies to adopt corporate social responsibility (CSR) practices in their strategies [15]. In this context, the CSR is primarily concerned with achieving results from organizational decisions on specific topics and issues that have beneficial effects rather than negative impacts on relevant corporate stakeholders (according to some normative standards) [16]. The social responsibility of the enterprise covers the economic, legal, ethical, and philanthropic expectations that society has from institutions at a certain time [17].

The theoretical framework of this study has been associated with the use of multimedia opportunities used in communicative actions, the collaboration between stakeholders, and the effect of interfaces on interactions between university and industry. "Communication Theory of Action," "Stakeholder Approach and the CSR nexus" and "Triple Helix" approach have significant effects on the formation of collaborations and interactions. The originality of this study is that the Technology Development Zone (TDZ), which is one of the interface structures in the UIC ecosystem and collaboration process. In essence, it highlights the importance of socially responsible entrepreneur universities. The TDZs, which contribute more and more to the innovation and entrepreneurship ecosystem, lead a crucial role that enhances both economic and social life within the scope of national and international projects. Communication and actions of companies actively working in the TDZs were examined by using a case study related to the CSR. The relationships between stakeholders, companies, and the UIC interfaces were analyzed by taking into account the CSR actions and stakeholder theory.

2. Methodology and background

In this study, content analysis, case study, and document review were used within the scope of qualitative research methods. Case study research is an observational study that examines facts, such as when the boundaries between the case and the content are seen and which multiple sources are presented as evidence of real life. A case study is a typical example of qualitative methodology. It is an in-depth and detailed "limited system" discovery of contextual data, and multiple sources over time [18, 19]. The case study research advocates the viewpoints of cross-case studies and descriptive structures. Eisenhardt asserted that the case study process can be established through the selection of appropriate categories that

are similar within the same group or different among groups. Likewise, Eisenhardt suggests that these categories can be selected by the literature review or simply by the investigator(s). In this manner, the main issues discovered through cross-case analysis can be compared with the similar and contradictory literature, and this facilitates achieving and establishing a theoretical consistency.

There are mainly three stages in the design and implementation of the theory-based case study research. In the first stage, the aims, design, and structure of the research are determined, respectively. In the second stage, each case study is carried out under the design. In the third stage, the researcher draws on the findings of the case study and evaluates the contributions of the case study analysis applied to achieve the ultimate objective of the research [20]. The case study approach is considered as the intensive operation or scrutiny of a small number of units or a single unit to design a large class with similar units. The design of the case study has its strengths and weaknesses according to its main research objectives. These are whether the study is for hypothesis testing, whether internal and external validity is a priority, whether the understanding of causal mechanisms or causal effects is more valuable, and whether the scope of causal inference is in-depth or broadwise. These also depend on the structure of the empirical universe of several impact factors. These factors are whether the population of the case study is heterogeneous or homogeneous, whether the causal interest relationship is strong or weak, whether the beneficial variation in key parameters in the population is rare or widespread, and whether the existing data are dense or distributed [21].

The TDZs operating in Turkey were taken into account in the scope of the selection criteria of case study research. The members of the Technology Development Zones Association that are actively operating in Turkey were selected as the UIC interfaces due to the regional limitations and performances of scientific and technological activities. Thus, the data were gathered from the member of these TDZs. It is possible to explain the Triple Helix model in a broadwise sense covering many diversified institutions and organizations operating as the public-university-industry collaboration (PUIC) interfaces in Turkey, such as the TDZs, TTOs, R&D and design centers, application and research centers or institutes, organized industrial zones, chambers of commerce, chambers of industry and so on. In general, there are 67 TDZs operating in Turkey. The total sales reached in the TDZs until today is approximately 84.8 billion TL, and the total exports are approximately 4.4 billion USD. In this context, the statistical indicators regarding the TDZs' performances are included in **Table 1** [22].

According to **Table 1**, the total number of the TDZs that were announced in Turkey is 85, and 67 of them have started their operations actively. It is seen that a total of 56,689 personnel are employed in 5506 enterprises operating in the TDZs, and 46,108 of them are comprised of personnel working in the field of R&D. Furthermore, it is stated that the Intellectual and Industrial Property Rights registered in the TDZs as of the end of December 2019 are 1653 and 2861 are in the application phase [22].

It was highlighted that the TDZs' management ought to organize activities, such as social associations, meetings, and bring employees from different institutions together for the synergy effect arising from the meeting of academic, industrial, and financial structures on the same platform in the TDZs, which is one of the most crucial public-university-industry collaboration interface organizations. Thus, it was stated that some creative situations, such as the emergence of new innovative ideas, the meeting of project owners and possible financiers, and the exchange of information of employees can only be achieved by providing productive environments [23].

Statement	Numerical value
TDZ Declared	85
Number of TDZ in Operation	67
Number of Firms	5.506
Total Staff Number	56.689
R&D Staff Number	46.108
Project Number (Completed + Ongoing)	43.917
IPR (Registered)	1.653
IPR (on application)	2.861
Written Copyright (Received)	288

Source: [22].

Table 1.
The TDZs' statistical indicators in Turkey.

It was observed that the internet-based platforms, such as "Teknoportal" and "Argeportal" are used in the communication with the internal/external stakeholders of the TDZs, effectively. It is widely acknowledged that many of the TDZs contribute to a certain extent to different CSR projects for the development of their environment as well as their commercial activities. In the analysis of the CSR projects of the selected TDZs, the websites of these relevant organizations were subjected to the content analysis.

The content analysis method is used to analyze the content of documents that use quantitative measures of how often certain elements appear in a text. As a measure of the importance of certain ideas or meanings in a document, the number of contexts that appear in the text are used to highlight particular items. In the content analysis, the content of a document is analyzed according to the frequency with which certain categories of meaning are used. Therefore, content analysis is a useful and important tool for document analysis, providing objective and powerful methods to explore social meanings [24]. In this framework, documents are seen as communication channels between a writer and a reader and these channels contain meaningful messages. Such messages are usually in writing form, but other formats, such as maps, architectural plans, films, and photographs can also be interacted in the communication channels [25].

The documents can be used in printed copies or on the Internet platforms in different formats. In the classical sense, the "Internet" defines the electronic network that connects computers worldwide. The "Internet" written in lowercase is seen as a shortcut for various capacities, infrastructures, or cultural formations facilitated by digital communication networks [26]. Analyzing the documents on the Internet is a way to transfer document reviews to the virtual space [27].

The corporates' documents shared on the official websites owned by the TDZs were used within the scope of this study. Likewise, a context has been established between the environment and quality policies shared institutionally and the CSR understanding of the TDZs. **Table 2** illustrates that there are important CSR project areas that take place in some sample TDZs.

Among the CSR projects included in **Table 2**, financial and physical opportunities (laboratory, office, and computer) are provided to young entrepreneurs who want to realize their innovative projects and establish their companies to take part in the "ITU Ari Cekirdek: Innovation Workshop" project. In addition to the ITU

TDZs	Project title	CSR project issue
ITU Ari Technopark	"ITU Ari Cekirdek: Innovation Workshop"	Contributions to education
Yildiz Technopark	"Plant Life for the Future" "Yemekaskisi.com"	Ecology (concern for the environment) Contributions to education
METU Technopark, Bilkent Cyberpark, Baskent University Ekin Incubation Center, Konya Innopark, Konya Technopark	"METU Teknopark Festival" "Common Sense toward the Covid-19"	Social activities Innovation and entrepreneurship

Table 2.
The CSR project areas realized in the TDZs.

Ari Technopark, there are stakeholders, such as the Istanbul Development Agency and the Elginkan Foundation among the organizations that support this project [28]. Another CSR project, "Yemekaskisi.com", was realized under the leadership of Yildiz Technopark. The purpose of this project is briefly clarified as follows: The "Yemekaskisi" is a CSR project that aims to support students during the university period and provides free meals to help those in need [29].

Another project carried out to reflect environmental awareness in Yildiz Technopark was entitled "Plant Life for the Future." Through this project, it is aimed to establish effective communication between the TDZ employees and stakeholders. During the plant seedlings, the participants of the project experience a special moment by printing their names on the saplings. This project has also a sustainable dimension that encapsulates a natural relationship between human and plants [30].

The CSR projects carried out jointly with many stakeholders of the TDZs have evolved into different topics by the impact of recent national and international developments. An example of this is the project titled "Common Sense toward the Covid-19." The project was created to seek for an innovative solution and bring life back to normal nationally and globally due to the Covid-19 pandemic. Many studies in different disciplines and sectors are expected to bring disruptive solutions to both the current process and possible future scenarios and changes. For this purpose, the Turkey Covid-19 Common Sense Platform was established by entrepreneurs and it brings together mentors and related institutions. The entrepreneurs aim to accelerate the maturation of ideas, necessary support for the implementation of projects, and establishment of cooperation. The platform's stakeholders include 4 universities, 5 techno-cities, 18 enterprises, 4 associations, and 2 foundations [31, 32]. The enterprises within the TDZs provide fast and dynamic answers to the technology produced in the regions and continue to highlight their potential, quality, and functionality. Similarly, enterprises contribute to their products and ideas. Around 160 enterprises operating in 27 TDZs in Turkey are engaged in socio-economic terms in the fight against the Covid-19 [33].

In the light of the above-mentioned considerations, entrepreneurial universities, which act with social responsibility awareness, increase their activities in the direction of developing the UIC ecosystem through collaborations with the interface structures (e.g., the TDZs, TTOs, research centers, and so on). In particular, the technology development regions brought together universities and other stakeholders based on the projects and their contribution to the strengthening of this cooperation is quite significant. The physical infrastructures created by the TDZs and financial resources attract startups to the innovation and entrepreneurship ecosystem and form a base for the establishments of new startups and spin-off

enterprises. It can also be put forward that the TDZs, where technological developments are intense, have an important role in providing solutions to the necessities arising in different fields (e.g., health, security, employment, social life, etc.).

3. Communicative actions in the context of university-industry collaboration

Habermas argued business, family, media, and language interactions by considering the theory-practice understanding in his theory of communicative action. In this context, Habermas classified social actions as instrumental, symbolic, communicative, and strategic actions. Particular attention was given to the importance of communicative action and strategic action while focusing on the interactions between the stakeholders in the UIC ecosystem. Although it is assumed that the validity of inter-subjective speeches is based on communicative action, it is stated that mutual awareness between actors is related to common compromise and universal validity principles in action. Habermas argued that the compromise in strategic action is lacking in the background and motivational conditions constitute differences. However, the preliminary assumptions of the compromise in communicative action can motivate actors. Therefore, the institutionalization of strategic actions must be established within binding norms between subjects, and thus the motivation of inter-subjective motivational conditions must be guaranteed [34]. The strategic action concentrates on the tendency of the actor to succeed, whereas the communicative action in the inter-subjective interaction tends to reach understanding. Habermas clarified that the communicative action is oriented to observe valid intersubjective norms that connect mutual expectations and awareness [35].

The main purpose of the communicative action theory is to address the problems of action coordination and social integration by developing an intersubjective theoretical framework that avoids the pitfalls of objectivism and subjectivism. In the theory of communicative action, Habermas attempted to develop a cognitive moral theory in the form of discourse ethics [36]. In the theory of communicative action, an analytical approach that questions "meaning" has been developed and the structure and perception of linguistic expressions have been properly highlighted rather than merely examining the speakers' intentions. Thus, the theory is more concerned with how the actions and communications of different actors tend to be understood within the mechanism that they create "interconnectedness." According to the theory, the meaning of the sentences and the meaning derived from the meaning of the sentences are related to each other. They are also related to the validity of the sentences within the context of the internal structural relationship of the language. In this way, it has been suggested by speakers and listeners that the meaning of sentences can be better understood when it is known under what conditions they are correct and valid [37]. In the light of these explanations, Habermas perfectly argued the distinctions between the communicative action and the strategic action. Of course, his arguments help us better conceiving and examining the interconnectedness between parties and stakeholders in the UIC ecosystem and ensure a more comprehensive and holistic understanding and systematic conceptualization.

4. The nexus between the CSR and stakeholder approach

Most of the research on the concept of stakeholder is divided into four sub-areas. These are listed as such: normative business theories, corporate governance and organization theory, CSR and performance, and strategic management. In terms of

strategic management, the idea of stakeholders, stakeholder management or stakeholder approach is to suggest that managers should formulate and implement all the groups that support the business and processes that satisfy only those groups. The main task in this process is to manage and integrate the relationships and interests of shareholders, employees, customers, suppliers, communities, and other groups to ensure the long-term achievements of enterprises [38].

While most of the attention in the stakeholder approach literature is directed at managing the stakeholders of an enterprise, some researchers have focused on the impact of stakeholders on the strategies of enterprises. Further, some studies have focused on how external stakeholders increase the impact of the strategies of enterprises [39]. The stakeholder approach emphasizes the importance of investing in relationships that include core values or principles. Therefore, the stakeholder approach can allow managers to share their values in the implementation and formulation of strategic planning. A typical example of this is the business strategy concept [40].

The sustainability of an enterprise is one of the primary stakeholders; for example, it depends on the attendance of shareholders, investors, employees, customers, and suppliers. It also depends on public stakeholders (e.g., governments and societies) that will operate to provide infrastructure and legal frameworks. Secondary stakeholders are those that affect or shape an enterprise or are affected or shaped by that enterprise. However, it is the sector that is not exposed to the direct transactions of an enterprise and does not play a key role in maintaining the existence of that enterprise (e.g., press and special interest groups). Although these groups are not required for the direct operation of the enterprise, they can strongly influence how the enterprise is perceived by the public and various government agencies. Therefore, these groups can have a major impact on an enterprise through the interaction of stakeholders [41].

The concept of CSR is defined as a process in which enterprises decide to contribute voluntarily to a better society and a cleaner environment and manage the relationships of enterprises with their stakeholders [42]. The CSR practices express the practices, decisions, behaviors, and impacts of an enterprise that are understood as the environmental, social actions, decisions, behaviors, and impacts [43] that contain, affect, and respond to the demands of stakeholders. Organizations may face some dilemmas when considering the interactions between the CSR and various stakeholders within the context of ethical values. The ethical dimensions are the basis of sensitivity to the environment of organizations [44].

Environmental protection and consumer health issues ought to be questioned by taking into account ethical responsibility, moral awareness, and moral obligations [45, 46]. In the light of the stakeholder approach linking with the CSR, contemporary businesses have adopted environmental and social activities involving the economic interests of the CSR while responding to new social demands of interest groups [44, 47–49]. In this context, it is possible to see that many new generation enterprises operating within the TDZs are sensitive to environmental and social activities.

5. Changing business stakeholder ecosystem and triple helix approach

The ecosystem metaphor has become popular as a tool to identify, explain, and convey ideas, facts, and thoughts about how economic factors interact with the environment in academia, industry, politics, and management [50]. The concept of an ecosystem is defined as "the sum of all relevant environmental conditions and actors acting on the central organization" [51]. In other words, it is a structure

consisting of a variety of different elements working in harmony" [8]. At this point, the most important question is about how an ecosystem is described by economic activities as "innovation ecosystems", actors as "entrepreneurship ecosystems" or boundaries as "national ecosystems." Actors and organizations in the changing business ecosystem are another critical area that need to be addressed as part of necessary behavior and cooperation mechanisms [52]. Different types of enterprises, such as organisms in nature, multinational enterprises, small and medium-sized enterprises, family businesses, and entrepreneurial enterprises coexist and thrive in their ecosystems [50]. Based on biology [53, 54], the ecosystems in the business world were explained as a set of interrelated actors, such as universities, science parks, and the public sector. There are diversified types of enterprises that are developed in a common environment of ecosystems.

Surveys with proxy-based behavioral models can enable predicting and evaluating new operational methods. Thus, the "physics" aspect of the ecosystem can help visualize how it can be studied in the future. These models are based on symbolizing the "information exchange" (i.e., the necessary information flow) and the limited capacity (i.e., limited rationality) of actors who will interact and coordinate the system, goods, services, and the flow of funds (i.e., the investment of capital). It can provide a basis for modeling and evaluating human capital procurement, risk sharing, ecosystem governance structure, alternative forms of incentives, and contract agreements. The "chemistry" aspect of the ecosystem affects research areas, conventions, and the rules of the game on various interactions, relational issues, such as self-confidence, willingness to participate, understanding different personalities, different international organizations, and meeting structures. The "biology" aspect of the ecosystem was described as the ability of the system to reproduce itself and adapt to changes in its environment over time [52].

A university, which is considered as the source of knowledge and innovation, has taken an "entrepreneurial" structure by going beyond the interaction with the industry to use its potential much better. On the other side, the industry representatives have increased their scientific field of activity by displaying the functions of the R&D departments as the UIC interfaces. Thus, the UIC ecosystem, which has turned into a different dimension, has sought to use the public resources most effectively. Recognizing such an interaction in many countries, the public institutions have been included in the UIC ecosystem as "stakeholders" to a certain extent with various structural arrangements. This type of public-university-industry collaboration model has been widely adopted as "the Triple Helix Model" [55].

In the multiple actors' involvement in the Triple Helix Model, a university is among both industry and the public as an affected and influencing factor. Research consortia created to develop new technologies that may include the R&D departments of enterprises, research centers of universities, and public laboratories. These innovation developments can be followed in a network format when the innovation activities carried out under certain contacts between these different institutions and are supported by national or multinational funding programs. Therefore, an urgent need for a new layer of "interface experts" and consortium managers located in the non-profit sector arises in this increasingly complex ecosystem [56, 57]. For instance, creating an interface, such as a TTO that regulates communication flows [58] can play an active role in establishing communicative links in the new layer in question. Besides, some horizontal links have emerged as the national professional associations of technology transfer managers in the Association of University Technology Managers (AUTM), Federal Technology Transfer Managers, and Licensing Managers Association in the scope of the Triple Helix Model. Over time, these intermediary groups have increasingly become closer thanks to their membership schemes. These groups also help bring technology transfer experts in university

and state laboratories together with industry representatives to facilitate the technology and knowledge transfer process through regular meetings, annual conferences, workshops, and so on [59].

6. The TDZs in the framework of the UIC ecosystem

A science park is a real estate development ideally located near to a university. The purpose of a science park is to host two types of research-oriented enterprises. These are enterprises that grow within a university and want to maintain close relationships with the institutions and research centers of a university, and enterprises that want to place their R&D unit and even all their laboratories in a semi-academic location. These enterprises often want to achieve many goals, such as establishing closer collaborations with academic investigators and inviting academic entrepreneurs and project experts who conduct promising research projects to work part-time in the enterprises' units [5]. The fact that enterprises combine external information with internal knowledge and strengthen their absorption ability indicate that they are more concentrated on acquiring information assets [60]. Scientists argued that science and technology research parks are considered as "a tool for creating dynamic clusters that accelerate economic growth and international competition" [61]. Many studies suggested that the TDZs are exceptionally successful in linking universities with industrial development and other mechanisms that facilitate R&D actions and performances in the context of the UIC ecosystem [62–65].

The TDZs are considered as a concrete network model with physical proximity among the enterprises that constitute them. They promote collaboration and technology transfer, undertake some of the management tasks, and coordinate among enterprises in the science park as part of the intermediary services they offer. These conditions imply the existence of factors that are outside the internal control of an enterprise and voluntarily participate in the science and technology park for its initial benefits [66].

Units that are controlled, hosted, and largely state-financed in the TDZs and located in or near universities and colleges contain a large number of production, service, and R&D units and these ought to be associated with the public sector, effectively. Those that are largely controlled and financed by the private non-profit sectors should be included in the third sector, as well. Intercompany service providers and other units should be classified with the commercial enterprise sector [67]. Civil organizations such as the TDZs, private sector R&D and Design Centers, UIC Centers, TTOs and clusters, and the University-Industry Collaboration Centers Platform (USIMP) have the potential to bring together and encourage cooperation among many universities. The Triple Helix Model contributes significantly and holistically to the increase of innovative actions, sustainable technological development, and enhancing mutual interests by setting up strong collaborations in the UIC ecosystem [68, 69].

7. Conclusion

Recently, the relationships between the public sector, university, and private sector have been strengthened through different initiatives that create an environment for collaboration. On the one side, universities are interested in the training of young entrepreneurs and researchers, and on the other, they invite the industry to collaborate through the UIC interface structures. The private sector has a special

role in the innovation and entrepreneurship ecosystem by adopting new business models and increasing competition with developing technology and by focusing on academic research. The industry segment that shows such an approach is not alone at the competitive point as it used to be, but it acts with the UIC interfaces (i.e., the TDZs, TTO, research center, R&D center and so on) in the ecosystem. The public authority plays a balancing role in the rapid development of science and technology. It contributes to the development of the UIC interfaces by creating financial support programs.

The public sector in collaboration with the private sector created "centers of excellence," "model factories" and "thematic laboratories" to reduce economic dependency on foreign sources through joint investments [70]. Beyond purely targeting economic results, entrepreneurial universities have been reorienting their talents toward sustainable social development for the Sustainable Development Goals of the United Nations [9]. The TDZs argued in this study can be considered as successful UIC interfaces. They apply the research projects and collaborate with the units and centers of universities in the framework of the Triple Helix Model, effectively. The TDZs contribute to the social needs and ecological system of the society by contributing to the regional economic development as well as supporting the CSR projects. It was observed that the TDZs, which have reached a certain institutional level, act sensitively to the needs of the society within the context of their mission, vision, environment, and quality policies. However, the spread of sensitivity toward societal issues requires the actions and contributions of all actors in the entire UIC ecosystem. It can be said that the TDZs which carry out important CSR projects should be taken as success stories, more CSR projects ought to be supported, and more stakeholders ought to be included in the innovation and entrepreneurship ecosystem. In the rapidly expanding ecosystem, it has become a natural expectation of changing and transforming lives for the TDZs to communicate with their internal/external stakeholders more effectively. It will also positively influence the usage of resources efficiently and increase the awareness and moral-consciousness levels of social and environmental issues and ethical values.

Author details

Dorian Aliu[1] and Armando Aliu[2,3]*

1 Institute of Social Sciences, Canakkale Onsekiz Mart University, Canakkale, Turkey

2 School of Social Sciences, Cardiff University, Cardiff, UK

3 Centre for the Study of Global Human Movement Institute of Criminology, University of Cambridge, Cambridge, UK

*Address all correspondence to: armando.aliu@alumni.uni-heidelberg.de

References

[1] Aliu D, Özkan Ö, Aliu A. Üniversite-sanayi isbirligi ve paydaslar iliskisinin kurulmasinda örgütsel iletisimin etkisi. In: Proceedings of the 2nd International Congress on Economics and Business: New Economic Trends and Business Opportunities; May 30–June 3, 2016; Sarajevo-Bosnia Herzegovina. International University of Sarajevo; 2016. p. 1060-1071.

[2] Whitley R. Varieties of knowledge and their use in business and management studies: Conditions and institutions. Organization Studies. 2008; 29: 581-609. DOI: 10.1177/0170840607088152

[3] Aliu D. Effectiveness of interfaces in public-university-industry collaboration process: A qualitative assessment (Turkish Title: Kamu-üniversite-sanayi isbirligi sürecinde arayüzlerin etkinligi: nitel bir degerlendirme) [PhD Dissertation]. Canakkale: Canakkale Onsekiz Mart University; 2020.

[4] Gertneer D, Roberts J, Charles D. University-industry collaboration: A CoPs approach to KTPs. Journal of Knowledge Management. 2011; 15: 625-647. DOI: 10.1108/13673271111151992

[5] Etzkowitz H, Zhou C. The Triple Helix: University–Industry–Government Innovation and Entrepreneurship. 2nd ed. Routledge; 2017.

[6] Secundo G, Dumay J, Schiuma G, Passiante G. Managing intellectual capital through a collective intelligence approach: An integrated framework for universities. Journal of Intellectual Capital. 2016; 17: 298-319. DOI: 10.1108/JIC-05-2015-0046

[7] Del Giudice M, Nicotra M, Romano M, Schillaci CE. Entrepreneurial performance of principal investigators and country culture: Relations and influences. The Journal of Technology transfer. 2017; 42: 320-337. DOI: 10.1007/s10961-016-9499-y

[8] Hayter SC, Nelson AJ, Zayed S, O'Connor AC. Conceptualizing academic entrepreneurship ecosystems: A review, analysis, and extension of the literature. The Journal of Technology Transfer. 2018; 43: 1039-1082. DOI: 10.1007/s10961-018-9657-5

[9] Fischer B, Guerrero M, Guimón J, Schaeffer PR. Knowledge transfer for frugal innovation: Where do entrepreneurial universities stand? Journal of Knowledge Management. DOI: /10.1108/JKM-01-2020-0040

[10] Cochran PL. The Evolution of Corporate Social Responsibility. Business Horizons. 2007; 50: 449-454. DOI: 10.1016/j.bushor.2007.06.004

[11] Del Giudice M, Garcia-Perez A, Scuotto V, Orlando B. Are social enterprises technological innovative? A quantitative analysis on social entrepreneurs in emerging countries. Technological Forecasting & Social Change. 2019; 148: 119704. DOI: 10.1016/j.techfore.2019.07.010

[12] Etzkowitz H, Ranga M. The road to recovery: Investing in innovation for knowledge-based growth. In: Ahrweiler P, editor. Innovation in Complex Social Systems, Routledge; 2010. p. 162-173.

[13] Siegel DS, Phan PH. Analyzing the effectiveness of university technology transfer: Implications for entrepreneurship education. In: Libecap GD, editor. University Entrepreneurship and Technology Transfer, Emerald Group Publishing Limited; 2005. p. 1-38.

[14] Carayannis ED, Giudice MD, Peruta MR. Managing the intellectual capital within government-university-industry

R&D partnerships. Journal of Intellectual Capital. 2014; 15: 611-630. DOI: 10.1108/JIC-07-2014-0080

[15] González-Masip J, Martín-de Castro G, Hernández A. Inter-organisational knowledge spillovers: Attracting talent in science and technology parks and corporate social responsibility practices. Journal of Knowledge Management. 2019; 23: 975-997. DOI: 10.1108/JKM-06-2018-0367

[16] Epstein EM. The corporate social policy process: Beyond business ethics, corporate social responsibility, and corporate social responsiveness. California Management Review. 1987; 29: 99-114. DOI: 10.2307/41165254

[17] Carroll AB. A three-dimensional conceptual model of corporate performance. Academy of Management Review. 1979; 4: 497-505. DOI: 10.5465/amr.1979.4498296

[18] Yin RK. Case Study Research: Design and Methods. (3rd ed.) SAGE Publications, 2003.

[19] Eisenhardt K. Building theories from case study research. Academy of Management Review. 1989; 14: 532-550. DOI: 10.5465/amr.1989.4308385

[20] George AL, Bennett A. Case Studies and Theory Development in the Social Sciences. Cambridge, MIT Press, 2005.

[21] Gerring J. Case Study Research: Principles and Practices. Cambridge University Press, 2007.

[22] Sanayi ve Teknoloji Bakanligi [Internet]. Teknoloji Gelistirme Bölgeleri, Available from: https://atgm.sanayi.gov.tr/Handlers/DokumanGetHandler.ashx?dokumanId=3e25379d-40be-4080-ac13-23d89b14133e, [Accessed: 09.01.2020]

[23] Yalcintas M. Üniversite-sanayi-devlet isbirliginin ülke ekonomilerine etkileri: Teknopark istanbul örnegi. Finansal Arastirmalar ve Calismalar Dergisi. 2014; 5: 83-106.

[24] Scott J. Content analysis. In: Jupp V, editor. The SAGE Dictionary of Social Research Methods, SAGE Publications, 2011.

[25] Given ML. editor. The SAGE Encyclopedia of Qualitative Research Methods, SAGE Publications, 2008.

[26] Markham AN. Ethnography in the digital internet era: From fields to flows, descriptions to interventions. In: Denzin NK, Lincoln YS, editors. The SAGE Handbook of Qualitative Research. (5th ed.) Thousand Oaks, SAGE Publications; p. 650-668, 2018.

[27] Flick U. An Introduction to Qualitative Research. (4th ed.) SAGE Publications, 2009.

[28] ITÜ Ari Teknokent [Internet]. 2012. Istanbul Teknik Üniversitesi cekirdek proje yarismasi sonuclandi. Available from: http://www.elginkanvakfi.org.tr/tr/icerik /598/2012-itu-cekirdek Accessed: 23.07.2020.

[29] Yildiz Teknopark [Internet]. 2016. Yildiz teknopark'tan yemek askisi projesine destek. Available from: https://www.yildizteknopark.com.tr/tr/duyuru/yildiz-teknoparktan-yemek-askisi-projesine-destek-540.html Accessed: 20.07.2020.

[30] Yildiz Teknopark [Internet]. 2015. Gelecege yasam dik etkinligine herkesi bekleriz. Available from: https://www.yildizteknopark.com.tr/tr/duyuru/gelecege-yasam-dik-etkinligine-herkesi-bekleriz-43.html Accessed: 23.07.2020

[31] ODTÜ Teknokent [Internet]. 2019. Covid19'a karsi ortak akil. Available from: http://odtuteknokent.com.tr/tr/haber/covid19a-karsi-ortak-akil [Accessed: 23.07.2020]

[32] ODTÜ Teknokent [Internet]. 2019. ODTÜ teknokent'ten tomurcuk vakfina destek. Available from: http://odtuteknokent.com.tr/tr/haber/odtu-teknokentten-tomurcuk-vakfina-destek [Accessed: 23.07.2020]

[33] Teknoloji Gelistirme Bölgeleri Dernegi [Internet]. 2020. COVID-19. Available from: https://www.tgbd.org.tr/firma-arsiv Accessed: 23.07.2020

[34] Habermas J. Communication and the Evolution of Society. Heinemann London; 1979.

[35] Habermas J. Moral Consciousness and Communicative Action, Polity Press Cambridge; 1990.

[36] Habermas J. Truth and Justification. The MIT Press Cambridge, MA; 2003.

[37] Habermas J. The Theory of Communicative Action-Vol. 1: Reason and the Rationalization of Society, Beacon Press Boston; 1984.

[38] Freeman RE, McVea J. A stakeholder approach to strategic management. In: Hitt MA, Freeman RE, Harrison JS, editors. The Blackwell Handbook of Strategic Management, Blackwell Publishing; 2006.

[39] Freeman RE, Harrison JS, Wicks CA, Parmar LB, De Colle S. Stakeholder Theory: The State of the Art, Cambridge University Press; 2010.

[40] Freeman RE. The stakeholder approach revisited. Zeitschrift für Wirtschafts-und Unternehmensethik. 2004; 5: 228-241.

[41] Preble FJ. Toward a comprehensive model of stakeholder management. Business and Society Review. 2005; 110: 407-431. DOI: 10.1111/j.0045-3609.2005.00023.x

[42] Albareda L, Lozano, JM, Ysa T. Public policies on corporate social responsibility: The role of governments in Europe. Journal of Business Ethics. 2007; 74: 391-407. DOI: 10.1007/s10551-007-9514-1

[43] Waddock S. Parallel universes: Companies, academics, and the progress of corporate citizenship, Business and Society Review. 2004; 109: 5-42. DOI: 10.1111/j.0045-3609.2004.00002.x

[44] Aliu D, Akatay A, Aliu A, Eroglu U. Public policy influences on academia in the European Union: A snapshot of the convergences among HRM–industrial relations and CSR–stakeholder approach. Sage Open. 2017; 7: 1-15. DOI: 10.1177/2158244017695169

[45] Cragg W. Ethics, enlightened self-interest, and the corporate responsibility to respect human rights: A critical look at the justificatory foundations of the UN framework. Business Ethics Quarterly. 2012; 22: 9-36.

[46] Mückenberger U, Jastram S. Transnational norm-building networks, and the legitimacy of corporate social responsibility standards. Journal of Business Ethics. 2010; 97: 223-239. DOI: 10.1007/s10551-010-0506-1

[47] Fuentes-García FJ, Núñez-Tabales JM, Veroz-Herradón R. Applicability of corporate social responsibility to human resources management: Perspective from Spain. Journal of Business Ethics. 2008; 82: 27-44. DOI: 10.1007/s10551-007-9560-8

[48] Vuontisjärvi T. The european context for corporate social responsibility and human resource management: An analysis of the largest finnish companies. Business Ethics: A European Review. 2006; 15: 271-291. DOI: 10.1111/j.1467-8608.2006.00449.x

[49] Waring P, Lewer J. The impact of socially responsible investment on human resource

management: A conceptual framework. Journal of Business Ethics. 2004; 52: 99-108. DOI: 10.1023/B:BUSI.0000033110.21900.da

[50] Audretsch DB, Cunningham JA, Kuratko DF, Lehmann EE, Menter M. Entrepreneurial ecosystems: Economic, technological, and societal impacts. The Journal of Technology Transfer. 2019; 44: 313-325. DOI: 10.1007/s10961-018-9690-4

[51] Pennings JM, Goodman PS. Toward a workable framework. In: Goodman PS, Pennings JM. editors, New Perspectives on Organizational Effectiveness, Jossey-Bass; p. 146-184, 1977.

[52] Kuusela M, Hakanen T, Häkkinen K, Kettunen O. Re-configuring ecosystems. In: REBUS-Towards Relational Business Practices: Final report 2/2017, pp. 57-61, 2017.

[53] Moore FJ. Predators and prey: A new ecology of competition. Harvard Business Review. 1993; 71: 75-86.

[54] Nicotra M, Romano M, Del Giudice M, Schillaci CE. The causal relation between entrepreneurial ecosystem and productive entrepreneurship: A measurement framework. The Journal of Technology Transfer. 2018; 43: 640-673. DOI: 10.1007/s10961-017-9628-2

[55] Etzkowitz H, Leydesdorff L. The dynamics of innovation: From national systems and "Mode 2" to a triple helix of university–industry–government relations. Research Policy. 2000a; 29: 109-123. DOI: https://doi.org/10.1016/S0048-7333(99)00055-4

[56] Etzkowitz H, Webster A, Gebhardt C, Terra BRC. The Future of the university and the university of the future: Evolution of ivory tower to entrepreneurial paradigm. Research Policy. 2000b; 29: 313-330. DOI: 10.1016/S0048-7333(99)00069-4

[57] Santoro DM, Chakrabarti AK. Firm size and technology centrality in industry-university interactions. Research Policy. 2002; 31: 1163-1180. DOI: 10.1016/S0048-7333(01)00190-1

[58] Leydesdorff L. A methodological perspective on the evaluation of the promotion of university-industry-government relations. Small Business Economics. 2003; 20: 201-204. DOI: 10.1023/A:1022272201042

[59] Miller K, McAdam M, McAdam R. The changing university business model: A stakeholder perspective. R&D Management. 2014; 44: 265-287. DOI: https://doi.org/10.1111/radm.12064

[60] Scuotto V, Del Giudice M, Bresciani S, Meissner D. Knowledge-driven preferences in informal inbound open innovation modes. An explorative view on small to medium enterprises. Journal of Knowledge Management. 2017; 21: 640-655. DOI: 10.1108/JKM-10-2016-0465

[61] Hobbs KG, Link AN, Scott JT. Science and technology parks: An annotated and analytical literature review. The Journal of Technology Transfer. 2017; 42: 957-976. DOI: 10.1007/s10961-016-9522-3

[62] Lee D, Kim C, Gong B. University-industry collaboration for technology development: The case of university research parks. The Korean Journal of Policy Studies. 2007; 21: 57-73.

[63] Link AN, Siegel DS. Technological Change and Economic Performance. Routledge, London; 2003.

[64] Link AN. Basic research and productivity increase in manufacturing: Additional evidence. American Economic Review. 1981; 71: 1111-1112.

[65] Mansfield E. Basic research and productivity increase in manufacturing.

The American Economic Review. 1980; 70: 863-873.

[66] Agostini L, Filippini R, Nosella A. Management and performance of strategic multipartner SME networks, International Journal of Production Economics. 2015; 169: p. 376-390. DOI: 10.1016/j.ijpe.2015.08.017

[67] Organisation for Economic Co-operation and Development (OECD). Frascati manual 2015: Guidelines for collecting and reporting data on research and experimental development. The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris; 2015. DOI: 10.1787/9789264239012-en

[68] Kaymaz K, Eryigit KY. Determining factors hindering university-industry collaboration: An analysis from the perspective of academicians in the context of entrepreneurial science paradigm. International Journal of Social Inquiry. 2011; 4: 185-213.

[69] Sanayi ve Teknoloji Bakanligi. Ülkemizde Kamu-Üniversite-Sanayi Isbirligi (KÜSI)'nin Gelisimi, Ar-Ge ve Teknoloji Politikaları Dairesi, Yayin No: 1, Ankara, 2018.

[70] Aliu D, Aliu A. Leading organizations in information exchange: University - industry collaboration interfaces, In: Proceedings of the XVIII International Triple Helix Conference, 15-17 June 2020, Tampere, Finland; 2020. p. 203