

The Emergence of Technoparks as a New Organizational Form: A Study from the Perspective of Coevolution*

Handan Deniz BÖYÜKASLAN¹ , Belkıs ÖZKARA² 

ABSTRACT

This study aims to reveal the emergence of technoparks as a new organizational form, the conditions, and actors effective in this process from the perspective of coevolution. Following the exploratory nature of the research, we preferred a qualitative method and collected the data through document analysis and semi-structured interviews. The findings showed that the technopark form emerged in a coevolutionary process. Moreover, the transition to a free-market economy on January 24 in 1980 is the event that initiated the coevolution process. Then, conditions such as ensuring university-industry collaboration triggered the interaction between the actors in the emergence process of technoparks. Also, we revealed that Technology Development Center was the catalyst that accelerated the process, and METU Technopark, which was established before the law, was a proto form. Based on coevolution, our study contributes to the literature by revealing the environmental conditions that triggered the emergence of a new organizational form, the actors involved in dynamic process, the interactions between the actors, and the step-by-step emergence process of the form.

Keywords: New Organizational Forms, Coevolution Perspective, Technoparks, Turkey, Coevolution Theory.

JEL Classification Codes: M1, M10, M19.

INTRODUCTION

The emergence of new organizational forms has been studied in population ecology and institutional theory for many years. Population ecology studies have focused on density dependence in explaining the emergence of the form (Amburgey & Rao, 1996; Divarçı Çakmaklı, Boone & Van Wittelosstujin, 2020; McKendrick & Carroll, 2001) have accumulated an impressive set of quantitative evidence on the establishment of forms (Bogaert et al., 2016). Institutional theory studies, on the other hand, have explained the emergence of a form how it spreads over time and gains legitimacy by associating it with institutional change and institutional logics (Jha & Beckman, 2017; Mutch, 2021; Riaz & Quereshi, 2017) But these theories do not clearly explain the process of emergence, although they indicate the emergence of an organizational form. We argue that the perspective of coevolution is more appropriate to explain the process leading up to the appearance of a new form, the interactions of actors in this process, the dynamics and mechanisms.

The coevolution theory suggests that organizations and their environments affect each other in a two-way over time

and that there is an interaction between organizations and their environments (Baum & Singh, 1994; Garcia-Cabrera & Duran-Herrera, 2016; Karhu, 2020; Lewin & Volberda, 1999; Lewin, Long & Carroll, 1999). The coevolution theory assumes that new organizational forms will be shaped by the mutual interaction of organizations and their environment (Lewin & Volberda, 1999; Lewin et al., 1999).

Few studies that act together from the point of view of coevolution have studied how new organizational forms emerge. Lewin et al. (1999) stated that as the rate of environmental change increases, organizations develop new organizational forms to adapt to their environment. Dijksterhuis, Den Bosch & Volberda (1999) stated that changing environmental factors trigger new organizational forms and that these new organizational forms form the basis of changes in their environment. Djelic & Ainamo (1999) point out that environmental changes and organizational transformations in the luxury fashion industry feed each other over time, and this process reveals new organizational forms.

On the other hand, we still know less about how environmental changes and conditions trigger interactions

¹ Phd., Afyon Kocatepe University, Faculty Member of Afyon Kocatepe University, Business Administration Department, yumusakipek@aku.edu.tr

² Prof., Dr., Afyon Kocatepe University, Faculty Member of Afyon Kocatepe University, Business Administration Department, bozkara@aku.edu.tr

*This study is based on the first author's doctoral dissertation.

between specific organizations or actors in an institutional environment and how the results of the interaction process between actors reveal a new organizational form. The actors involved in the process from the initial idea stage to the final realization of the birth of a new organizational form, the interactions between the actors, and their learning abilities have been overlooked. In addition, issues such as actors who take the initiative and take action in this process, actors that accelerate or slow down the process, trial-and-error mechanisms, form types tried before the final form emerges, or pre-form applications have been ignored. Therefore, studies are needed that focus on the process of the emergence of the form.

This study aims to examine the emergence of technoparks as a new organizational form in Turkey the conditions and actors that are effective in this process from the perspective of coevolution. Changes in Turkey's institutional environment and triggering conditions have created the interaction between universities and government agencies. Technoparks have emerged as a result of the interaction of these actors.

Our study contributes to the theory by revealing the conditions that triggered the emergence of a new organizational form, the actors involved in this process, and the interactions between these actors, catalyst and proto form that accelerate the process, and the step-by-step emergence process of the form.

As follows, the study is structured. First, we review a theoretical background of the emergence of new organizational forms from the perspective of coevolution and outline technoparks in the context of Turkey. Second, we explain our methodology. Then, we present our findings and explain the conceptual model we developed in this direction. Finally, we present the outcomes of the study and offer concluding remarks.

THEORETICAL BACKGROUND

The Emergence of New Organizational Forms from the Perspective of Coevolution

Research questions such as how organizational forms emerge, develop and change have been of critical importance in organizational theory (Bogaert et al., 2016; Dentoni et al., 2020; Fiol & Romanelli, 2012; Romanelli 1991; Ruef, 2000; Weber et al., 2016; Winter et al., 2019).

Early studies of organizational forms were developed from the population ecology theory. Ecologists conceptualized organizational forms based on the common characteristics of organizations by analogy with the concept of biological species (Carroll & Hannan 1989; Hannan & Freeman, 1977; Hannan & Freeman, 1987; Hannan & Freeman, 1989). Early studies in institutional theory focused on how the institutional environment,

state, and industry norms shape organizational forms and the isomorphism of organizational forms living in the organizational field (DiMaggio & Powell, 1983; Fligstein, 1991; Streeck & Schmitter, 1985). These theories explain the evolution of new organizational forms at the macro level and focus on the determinism of the environment.

In recent studies based on previous studies, Weber et al. (2016) explained the emergence and legitimacy of social networking sites as a new organizational form by associating it with density dependence and recognition by other actors. Liu and Elliott (2016) examined how normative and cultural change elements affect the development of hybrid colleges in China. Jha and Beckman (2017) examined the role of institutional logics and the identities of founding actors in the emergence and legitimation of charter schools in California. Boone et al. (2018) examined the interplay of political and ideological struggles in Turkey's emergence and diffusion of religious high schools and western-centered cosmopolitan high schools. Winter (2019) shows the effect of institutional, sociotechnical, and market factors (regulators, policymakers) on the emergence and legitimacy of APCD, a database that provides data governance in the US healthcare sector, as an organizational form. Soydemir and Erçek (2020) revealed the role of institutional logics in the emergence, diffusion, and demise of Ottoman agricultural credit cooperatives as a hybrid organizational form. Han (2021), on the other hand, examined how the organizational forms of companies privatized by the government's decision changed radically and how this external decision shaped the strategies and performances of the organizations. Recent studies have emphasized the role of environmental, technological, and institutional changes, institutional pressures, institutional logics, or density in the emergence and diffusion of organizational forms. Thus, recent literature fails to show how an organizational form emerges step by step in a dynamic context.

Coevolution, which brings a different perspective to the organization and environment relations, argues that the environment and organization feed each other by interacting over time, so the environment and the organization develop together (Baum & Singh, 1994, Dijksterhuis et al., 1999; Djelic & Animo, 1999; Lewin and Volberda, 1999). From the perspective of coevolution, early studies focused on organizational forms and indicated that organizational forms emerged in response to changes in the environment, changing competitive forces, and increasing complexity (Dijksterhuis et al., 1999; Djelic & Animo, 1999; Lewin & Volberda, 1999).

Recent studies on coevolution theory have focused on the coevolution of the music industry with its environment (Uli, 2015), the coevolution of MNEs and institutions (Garcia-Cabrera & Duran Herrera, 2016), the coevolution of institutions, culture, and industrial establishments in

the Chinese film industry (Xin & Mossig, 2017), the role of family members in the evolution of the Sainsbury firm with its environment (Aluko & Knight, 2017), the role of government and institutional entrepreneurs in the formation and development of microfinance associations (Olsen, 2017), the coevolution of organizational processes in the business practices of a service firm (Uli, 2018), the coevolution of an MNE and its institutional environment in Finland (Karhu, 2020). These studies emphasize the coevolution of an organization and its environment, or a single industry and its environment.

On the other hand, Abatecola, Breslin, and Kask (2020), in their study, in which they critically analyze the coevolution literature, state that there are theoretical inadequacies in explaining the coevolution process and that deeper analyzes are needed. They imply that coevolving entities must be clearly defined, and the relationships between these entities must be transparent, reciprocal, and simultaneous. They point out that coevolution mechanisms are needed to explain the relationships between coevolving entities. In addition, Abatecola et al. (2020) also suggest examining how new organizational forms are formed in coevolution studies.

We argue that by considering the emergence of a new organizational form from the perspective of coevolution, we may fill some of the gaps in both organizational form and coevolution literature. First, we clearly define the coevolving actors in the emergence of the form. We explain the interactions between these actors in the dynamic context. We propose the concepts of catalyst and proto form as mechanisms of coevolution to explain the interrelationships between these actors.

We use biological coevolution to explain catalysts, the first concept we propose as a mechanism of coevolution. *Biological catalysts* are mechanisms that accelerate relational reactions between existing enzymes and arise unaffected by reactions (Jimenez et al., 2008; Marti et al., 2008). In this study, catalysts as a mechanism of coevolution are actors that promote, accelerate, and inspire a certain change or action. Catalysts provide interaction between actors or organizations. Catalysts, by their actions, cause other actors in the coevolutionary process to sustain their interaction (Villani & Philips, 2021). They can accelerate the coevolution of actors in the process of change in the institutional environment. Moreover, effective catalysts accelerate and support the emergence of a new application or form in an institutional environment.

The second concept we propose as a mechanism of coevolution is proto forms. We use the proto form to describe the trial and error processes that precede the emergence of a new organizational form. Proto forms are new practices or innovations created by actors to initiate transformation in the institutional environment (Lawrence,

Hardy & Philips, 2002; Li & Khessina, 2020). Some actors who take the initiative can develop proto forms to expand their fields of action (Lawrence et al., 2002) and speed up the process. In other words, proto forms arise when the actors attempt possible applications of the form. When the proto form first came out, it might not be in perfect shape. In this process, improvements continue until the form reaches its final shape. Since the proto forms are in the development process, they can change due to negotiations and adaptation processes (Kleinaltenkamp et al., 2018). Interactions and collaborations between actors can transform the proto form into its final form. Proto forms play a vital role in the emergence of the new organizational form. Because they provide an understanding of form to other actors in interaction (Li & Khessina, 2020), they can also direct regulatory actors to legal action.

We also consider McKelvey's (2002) arguments to more clearly explain the coevolution among actors and the emergence of a new organizational form as a result of coevolution. McKelvey (2002) notes that for coevolution to occur, certain conditions are required. First, heterogeneous actors (agents, molecules, genes, organisms, species, organizational processes, individuals, groups, organizations, or populations), for instance, must exist. Second, actors must be capable of changing / learning. Third, actors must be able to interact and reciprocally influence each other. There must be some greater degree of adaptation and restriction that motivates the mechanism of coevolution. Moreover, it must be an event that initiated coevolution.

On the other hand, McKelvey (2002) also mentions damping mechanisms while talking about coevolution. Coevolution produces nonlinear results. Managers need to manage the process through damping mechanisms when coevolution develops in an undesirable (negative) direction. Damping mechanisms are methods of controlling the rate of coevolution or turning it off completely. "*Their timing seems random-damping mechanisms may occur too soon or too late*" (McKelvey, 2002: 8). When damping mechanisms are too strong and applied at the beginning of the coevolution process, it can immediately stop the coevolution process. Therefore, damping mechanisms should be activated when necessary to end coevolution (McKelvey, 2002).

To sum up, with this study, we focus the emergence of technoparks as a new organizational form from the perspective of coevolution. We explain the events that started the coevolution, how the first idea about the form was born, how this idea developed, the various coevolving actors, the actions and interactions of the actors. Also, we study the catalysts that accelerated the process, how the proto form was formed in the first application process, how the proto form was revised and how the established. We expand the theory by highlighting and revealing these issues.

EMPRICAL CONTEXT: TECHNOPARKS IN TURKEY

Our study is based on the emergence process of technoparks in Turkey. The establishment of Technoparks in Turkey started in 1987-1989 in line with the decisions taken by the State Planning Organization during the Özal government period (Cansız, 2017; Harmancı & Önen, 1999). In these years, although there was not enough legal infrastructure, universities such as Middle East Technical University (METU) and Istanbul Technical University (ITU) started to work on establishing a technopark (Cansız, 2017).

In 1990, at the invitation of the State Planning Organization, a team from the United Nations Development Fund for Science and Technology (UNFSTD) came to Turkey. In Istanbul, Ankara, Izmir, Gebze, and Eskisehir, explored the possibilities of universities and research centers. Then, a project titled "Program for Establishing Technoparks in Turkey" was initiated between Turkey and the UNFSTD. As a result of the project, with the Small and Medium Enterprises Development Organization and METU, Technology Development Centers affiliated to the Small and Medium Enterprises Development Organization started to be established. Technology Development Centers are

structures that play a role in developing of university-industry cooperation in Turkey and are the first step of technoparks. Technology Development Centers' activities accelerated the technopark process and contributed to the relative increase of its quality and success (Cansız, 2017).

As a result of the joint efforts of METU, The Scientific and Technological Research Council of Turkey (STRCT), and the Ministry of Industry and Trade, "Technopark Regulation" was put into effect by the Small and Medium Enterprises Development Organization in 1997 (3th STHC Decisions, 1997). This regulation acted as an incentive to accelerate the establishment of technoparks and to attract technology-based companies to technoparks until enacting the law. According to this regulation, the first approved technoparks were METU Technopark and The Scientific and Technological Research Council of Turkey Technopark. However, these technoparks have been fully operational after 2001. Finally, The Law on Technology Development Zones (In the study, the name technopark is used.) was approved on June 26, 2001. It came into force on July 6, 2001, after its publication in the Official Gazette. Table 1 summarizes the timeline of significant events about the emergence of technoparks in Turkey.

Table 1. The Significant Events About The Emergence Process of Technoparks

1987-1989	During the Turgut Ozal Government Period, Adnan Kahveci researched on technoparks through the State Planning Organization (Today known as Ministry of Development).
1987	METU collaborated with the State Planning Organization to organize a conference on technoparks at METU.
1989	It was agreed in the 6th Development Plan that technoparks would be promoted.
1990	"Program for Establishing Technoparks in Turkey" was initiated between Turkey and the UNFSTD. As a result of the project, Technology Development Centers affiliated to the Medium Enterprise Development Organization began to be established with the initiatives of METU.
1992	ITU Technology Development Center, METU Technology Development Center, and The Scientific and Technological Research Council of Turkey (STRCT) Technology Development Center were established.
1995	It was agreed in the "Breakthrough in Science and Technology Initiative" within the framework of the 7th Development Plan that the Technoparks legislative structure would be made.
1996	METU and the Turkish Technology Development Foundation sent delegations abroad to cooperate in the Technoparks inquiry.
1996	The draft Law on Technoparks/Technology Development Zones prepared by the Ministry of Industry and Trade was introduced to the Prime Minister. However, the resolution was sent back by the Prime Minister for review.
1997	Small and Medium Enterprises Development Organization Technopark Regulation has been prepared. In addition, the first building construction protocol was signed between METU and the first investor and entrepreneur of METU Technopark, Emrehan Halıcı.
1998	The first approved technoparks were METU Technopark and STRCT Technopark, according to the Small and Medium Enterprises Development Organization Technopark Regulation.
2000	The Council of Minister passed the Technology Development Zones Law at the Turkish Grand National Assembly.
2001	The Law on Technology Development Zones was approved on 26 June and came into force on 6 July after publication in the Official Gazette.

METHODOLOGY

Research Setting and Data Collection

This study aims to understand the emergence process of technoparks as a new organizational form. Thus, we designed this study with an exploratory approach to qualitative research. We used qualitative methods preferred when variables could not be measured and a subject or problem needed to be discovered. Qualitative research provides the opportunity to examine the subject in-depth and detail (Creswell, 2007).

We collected the data through semi-structured interviews and document analysis. We used purposeful sampling and snowball sampling in the study. First, we interviewed people who knew about the technoparks emergence process. Later, we reached the individuals guided by these people. In this context, we started interviews with the manager of METU Technopark, the first technopark in Turkey. Next, this manager led us to two former deputies who played an active role in the legal process and establishment. One of these individuals was METU Technopark’s first investor and entrepreneur. The other is the Technopark Manager at Hacettepe.

The Ministry of Industry and Technology, on the other hand, carries out the tasks of providing technoparks with infrastructure funding, providing tax incentives, and supervising technoparks. That is why we connected with the retired senior manager of the Ministry of Industry and Technology. Then, we interviewed the ITU manager Ari Technopark, one of the first technoparks set up under the Technology Development Zones/

Technoparks Law. Via this manager, we reached out to the former chairman of the board of METU Technopark. Finally, we met with the assistant manager of Ankara Technopark. Interviews continued until saturation was achieved. In other words, we gathered the interview data until the concepts and processes obtained in the direction of the research question started to repeat (Mason, 2010). Therefore, we interviewed seven persons in total.

The first author guided interviews from July 13, 2018, to May 6, 2019. The interviews lasted between 50 and 90 minutes. In order to understand what environmental conditions that trigger the emergence of technoparks in Turkey and the actors who played a role in the emergence of technoparks, questions such as “What can you say about the environmental factors (political, economic, technological, social) that create technoparks?”, “How has the establishment process developed?”, “What are the difficulties and incentives experienced in this process?”, “Which institutions or actors contribute/affect the development of technoparks?”, “How have the policies, practices, and mechanisms of the state shaped technoparks?”, “What is the reason for the establishment of technoparks in universities?” were directed to the participants. We transcribed interviews and collected 101 pages of interview data. Table 2 contains comprehensive details about the interview

In the study, we analyzed the Development Plans, Technopark Regulation for Small and Medium Enterprises Development Organization, Technology Development Zones (Technoparks) Law Draft and General Justification, Technology Development Zones

Table 2. Information About Participants and Interviews

Coded Names	Institutions	Jobs	Date of Meeting	Time	Duration	Meeting Place
K1	Z Technopark	Executive Manager	December 6, 2018	14:30	65 minutes	Manager’s office
K2	X Technopark	Board Chairman and Professor	May 6, 2019	13:30	60 minutes	Manager’s office
K3	X Technopark	Deputy and Entrepreneur	October 5, 2018	14:00	50 minutes	Manager’s office
K4	Y Technopark	Deputy and Manager	July 23, 2018	14:00	90 minutes	Manager’s office
K5	X Technopark	Manager	July 13, 2018	13:30	55 minutes	Manager’s office
K6	Ministry of Industry and Technology	Head of Department	December 6, 2018	16:30	85 minutes	Manager’s office
K7	T Technopark	Manager	May 6, 2019	15:15	60 minutes	Manager’s office

Table 3. Information About Documents

Documents	Date
5. Development Plan (1985- 1989)	July 13, 1984
6. Development Plan (1990-1994)	June 22, 1989
7. Development Plan (1996-2000)	July 18, 1995
8. Development Plan (2001-2005)	June 27, 2000
Small and Medium Enterprises Development Organization Technopark Regulation	1997
Technology Development Regions/Technoparks Law Draft and General Justification	May 30, 2000
Technology Development Regions/Technoparks Law	June 26, 2001

Law documents. We discussed the era between 1980-2001 in the study for the establishment of technoparks. We reviewed one thousand two hundred two pages of documents within the framework of the study. We revealed the conditions and institutional arrangements that cause the emergence of technoparks through these documents. Detailed information on the documents reviewed as shown in Table 3.

To increase trustworthiness within the scope of the study, we have diversified data using different methods (interview and document analysis) in data collection. In addition, we also diversified the data sources in order to obtain different perspectives on the event and phenomenon under investigation and included participants with different characteristics. Thus, this triangulation of sources and data increases qualitative research's trustworthiness (Lincoln & Guba, 1985).

Data Analysis

In order to understand the emergence of technoparks as a new organizational form, we analyzed our data with an inductive approach (Corley and Gioia, 2004). We relied on interviews as the primary data source regarding the emergence process of the form. We have used the document data to understand the events that trigger the changes in the institutional environment and to reveal the legal regulations related to technoparks due to the interaction between the actors.

We know that changes and triggering conditions in the institutional environments and systems lead to the birth of a new form. In this sense, we first created our themes related to the trigger conditions that create changes in the institutional environment. We have identified the actors that we predict will be affected by changes in the institutional environment. We assumed

that the actors would interact, and a new form would emerge due to these interactions.

We transcribed our interview data and transferred it to the N-Vivo program along with the documents. In the first stage, we reread and reevaluated the data. Next, we identify the initial concepts by coding small pieces or sentences that make sense. We combined similar concepts among these categories under the open coding process (Corley & Gioia, 2004; Strauss & Corbin, 1998).

In the second stage, axial coding begins (Strauss & Corbin, 1998, Charmaz, 2006). We have grouped similar categories related to each other under themes that we have created related to the trigger conditions that create changes in the institutional environment. On the other hand, we also created new categories according to the meanings that emerged from the data, which we could not find in theory. We grouped the interrelated ones among these categories, which emerged from the interaction of the actors in the emergence of the form, into new second-order themes (Corley & Gioia, 2004; Gioia et al., 2013). We have gathered these themes in the inclusive dimensions we propose as catalysts and proto forms.

Moreover, we integrated the emergent findings to develop a conceptual model explaining the emergence of technopark as a new organizational form. Figure 1 displays the final data structure outlining some variables in the conceptual model.

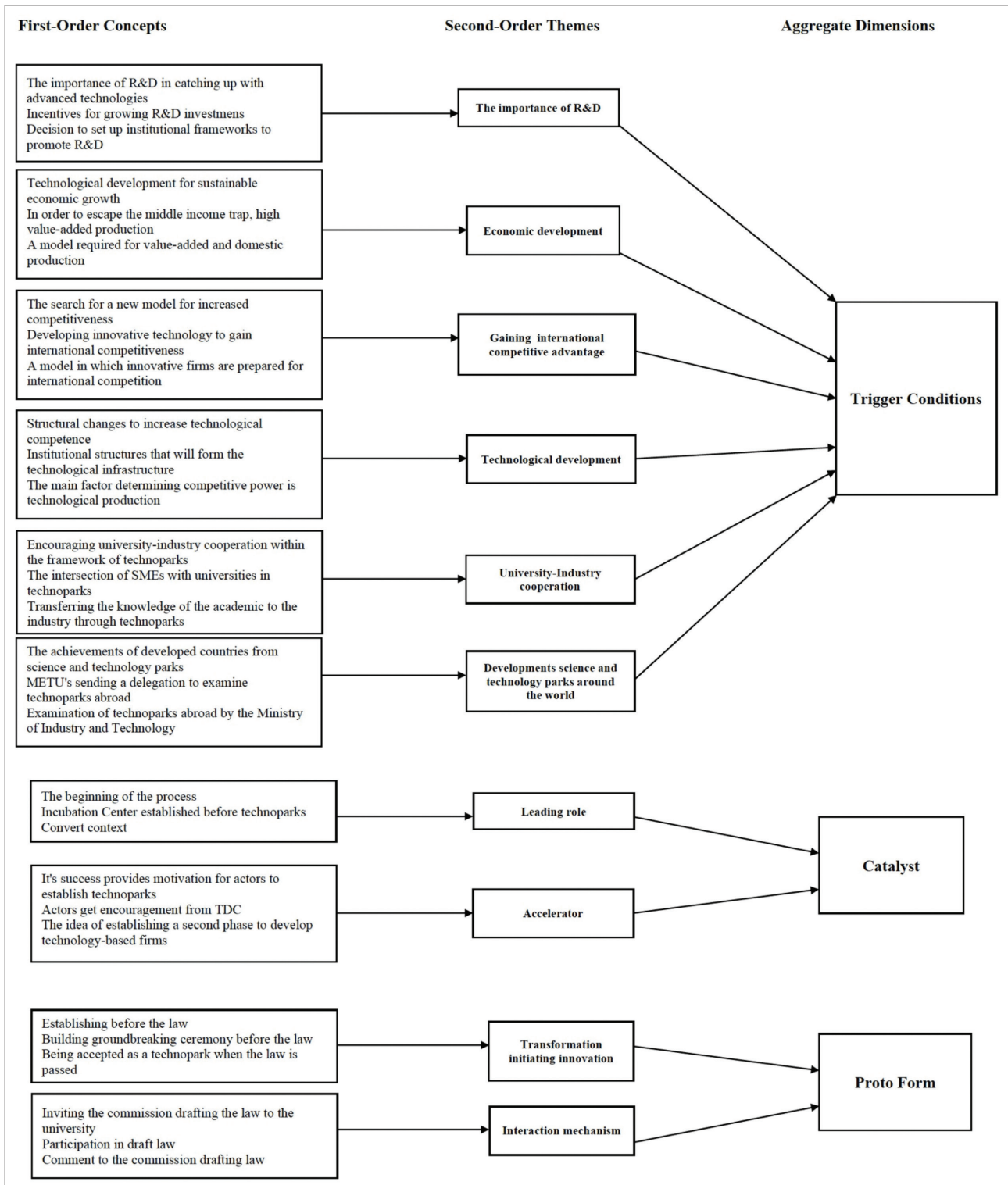


Figure 1. Data Structure

Also, Table 4 shows additional supporting data that provide evidence for our developed model.

Table 4. Supporting Data Providing Evidence

Aggregate Dimension: Trigger Conditions	
Second-Order Themes	Representative Quotations
The importance of R&D	R&D activities are of great importance in catching up with advanced technologies. (Technopark Law's General Justification, 2000).
	Before technology parks establishing in Turkey, the proportion spent on research and development was around 0.6 percent. In other words, outside the defense industry sector, research and development seemed almost nonexistent (P4).
	Why are all these laws on research and development supported? The number of entrepreneurs is increased, more technological goods are made, more added value is generated, more exports are produced, products are localized as far as possible (P6).
	Such as supporting creative entrepreneurship, regulating R&D incentives ... developing institutional structures that will support R&D related to the establishment of technoparks and venture capital institutions required for this ... (7th Development Plan, 1995).
Economic Development	It is of primary importance to build and protect a sustainable growth climate, to use advanced technology to boost Turkey's international competitiveness, develop and produce... to create a technological infrastructure technology development zones/technoparks ...The law in force should be governed by the applicable legislation (Technoparks Law's General Justification, 2000)
	With this law, technology-intensive production and entrepreneurship are supported ... to contribute to economic development and regional development ... (Technoparks Law's General Justification, 2000)
	Turkey has no choice but to develop high value-added products to escape the middle-income trap (P4)
	Technoparks are required model for the country to produce value-added products and domestic production (P1)
Gaining international competitive advantage	Countries that dominate science and technology are on the way to gain absolute superiority in all areas of economic activity. The key factors that decide the competitive advantage of nations are science and technology policies... (Technoparks Law's General Justification, 2000)
	Turkey has sought a new model, especially for its industry to compete, and employ university graduates, trained workforce (P5).
	Since innovative technologies are not developed, international competitiveness cannot be gained. (7th Development Plan, 1995).
	Technoparks offer essential opportunities to prepare innovative companies for international competition. (P5)
Technological development	Significant structural changes will be made to increase technological competence. (7th Development Plan, 1995).
	Establishing institutional structures that will form the technological infrastructure ... (7th Development Plan)
	Let us look at things from a broader perspective. What should it do to be a developed country? It has to produce technology, export technological products. (P6)
	Producing and exporting technology provides a competitive advantage in world markets for countries. (Technoparks Law's General Justification, 2000)
University-Industry collaboration	University, research institutions, and industry cooperation will be supported and encouraged within the framework of technoparks. (6th Development Plan)

	There was a history of industrial research in universities that was not nil, yet it was entirely focused on those personal relationships. Not very formal or systematic, it was (P2).
	R&D studies of SMEs will be encouraged, and it will be ensured that they intersect with universities in technoparks (8th Development Plan)
	Transferring the knowledge of universities to the industry in the shortest way... This is achieved by formations such as technoparks (Technoparks Law's General Justification, 2000)
Developments in the world's science and technology parks	In the last 30 years, science and technology parks have been created in developed countries such as the USA, England, France, and Germany. (Technoparks Law's General Justification, 2000)
	These new production models in developed countries have achieved great success. (P1)
	Then this process continues at METU with the sending of delegations abroad. Delegations are going to America and Europe to examine and assess the technology parks there (P5).
	There are a few technoparks all over the world, you know very well. For example, Silicon Valley is in America, Sophia Antipolis is in France, and Tefen Technopark in Israel. My colleagues working in the Ministry of Industry and Technology researched Sophia Antipolis, Tefen Technopark, and Silicon Valley (P6).
Aggregate Dimension: Catalyst	
Second-Order Themes	Representative Quotations
Leading Role	It is vital to include Technology Development Centers (TDC) at the beginning of this process. (P2)
	While giving an introductory speech about technoparks, a telecommunication company manager said, "Hodja, you are dreaming, such a Technology Center in Turkey is useless, no one invests in technology either." I said, wait 2-3 years and you will see the results. I said we have an example of TDC (P2)
	I was the chairman of the board of the Teknopark company from 1998 to 2008. I lived there for the first ten years of its founding period. In the most difficult process, we were going towards an unknown. I mean, there are examples in the world, but the investment climate in Turkey is technology development skills. If we didn't have the TDC example, we would be very scared.
	TCDs are a critical core. First, TDC has provided a moderator condition. Second, TCDs have a transformative effect on the context. Based on this example, actors have turned to such models more courageously. (P7).
	The World Bank's subsidiaries report, "For the early establishment of technoparks in Turkey, but there are benefits at the start of this study. First, incubation centers are established, then reached a certain maturity industry technopark model can be established." sums up. Following this report, Technology Development Centers, which are incubation centers, started to be established in cooperation with The Small and Medium Enterprise Development Organization and universities. The first TDCs were established in 1991 at ITU and in 1992 at METU. (P5)
Accelerator	Seeing the success of TDC was an excellent motivation for us. (P2)
	Prof. Dr. Ömer Saatçioğlu should be given his due. He was the rector at that time. TDC was founded with his contributions. I think it was a very important thing, if we didn't see that success, it would be hard to believe, stop continuing. (P2)
	Based on this example, actors have turned to such models more courageously. (P7).
	Firms leaving the Technology Development Center do not know what to do. In other words, these entrepreneurs are leaving, but they are quickly emerging from a protective atmosphere to an environment they do not recognize. So we said, could we do a second stage? What this might be, Technoparks. (P2)

Aggregate Dimension: Proto Form	
Second-Order Themes	Representative Quotations
Transformation initiating innovation	During this time, a couple of similar things were going on together in the late 80s and early 90s. One of them was founded the management of METU Technoparks Corporation in 1990, before the Technoparks was established in Turkey (P5).
	The foundation of the first building of METU Technopark was laid in 1999 (P2).
	METU was established before the law, and Gebze STRCT also set out before the law (P7).
	The Ministry of Industry also took some things from us by using similar criteria in the evaluation of technoparks. When it was the first Technopark (P2).
	METU Technoparks were officially accepted as technoparks when the law was enacted (Technoparks Law, 2001).
Interacting Mechanism	In 2000, we invited the commission that prepared the Technopark law to the university (P2).
	Together with the team at the Ministry of Industry, we also attended the draft law preparation meetings. How can we retouch and give advice? There was good interaction between the university and the Ministry of Industry at that time. (P2)
	While preparing a law, especially when making a law like Technopark, you get ideas from many institutions, it is important to get ideas. You look at the examples, for example, there is an example from METU. How is this place managed? (P6)
	At that time, there was good communication between the university and the Ministry of Industry when this law was passed. We also put the thing clause into the law; "STRCT and METU technoparks are considered as Technology Development Zones from the moment this law is passed" (P2).
	We told the commission that if universities are not going to be partners, it is tough to establish technoparks within the university. Because the university will give land, give academic support, and provide infrastructure support. There must be a legal basis. The commission listened to our advice and made changes to the draft law. (P2)

FINDINGS

As a result of the data analysis, we revealed how the coevolution of actors in the institutional environment emergences the technopark organizational form. Moreover, in this direction, the conceptual model we developed within the scope of this study is shown in Figure 2. Our conceptual model describes the flow inspired by McKelvey (2002). We developed the model in line with our predictions that conditions changing the institutional environment will lead to the emergence of a new form and in line with the flow of findings from data analysis. The model we have developed includes the events that cause changes in the institutional environment and the triggering conditions, the actors who play and interact in this process, the outputs of the interaction, the catalysts, the proto form.

Based on McKelvey's arguments (2002), we present our findings under the headings of initiating events, interacting actors and the interaction process.

Findings Regarding Initiating Events

The free market economy in Turkey started with the implementation the 24 January 1980 Stabilization Program. These decisions started a new era in Turkey (Boratav, 2007; Kırmızıaltın, 2012; Pamuk, 2012). In addition, with the implementation of these decisions, significant institutional changes have been experienced in the economic and political fields (Buğra & Savaşkan, 2015; Dirlik, 2016; Kibritçioğlu, 2004; Özen, 2002). In the new era, import substitution and a state-centered industrialization approach are unnecessary. The main objective of the new period is to open the economy to international markets, focus on exports, and focus on a market-centered understanding (Kırmızıaltın, 2012; Pamuk, 2012). In order to achieve these goals, the devaluation was made, the exchange rate policy and imports were liberalized, the arrival of foreign capital in the country and exports were encouraged, price controls and subsidies were abolished, and regulations were made against labor in the capital-labor conflict, and policies aimed at narrowing domestic demand were

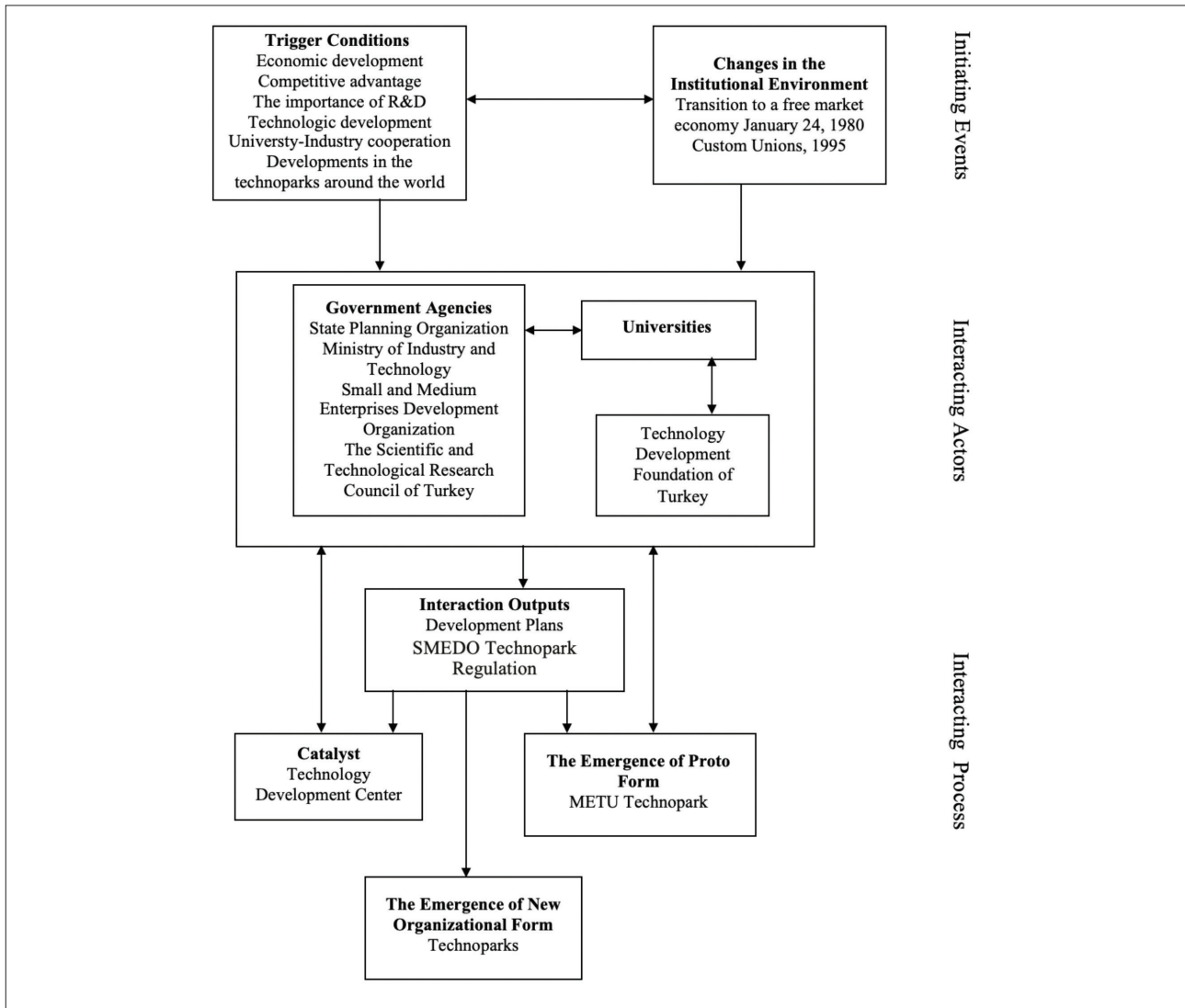


Figure 2. The Emergence of Technoparks as a New Organizational Form

implemented (Boratav, 2007; Kazgan, 2006; Kirmızıaltın, 2012; Pamuk, 2012).

On the other hand, the focus was put on the development of science and technology policies during this time, and it was reported that frameworks would be developed to promote research and development (R&D) studies, advanced technology production, and university-industry cooperation (Çalışır & Gülmez, 2010; Özdaş, 2000; Yıldız et al., 2010). One of these frameworks is the technoparks are intended to be established to achieve national objectives (2nd STHC Decisions, 1993; 4th Development Plan, 1995).

The decisions of the Customs Union were adopted in 1995 and came into effect. The introduction of the Customs Union is expected to increase competition, increase investment, accelerate industrialization and accelerate technological development. Growing foreign investment in the capital has led to an increase in competition. The increasing rivalry has led domestic

firms to turn to more productive working methods and thus to investments in research and development to gain sustainable competitive power. Technological development was helped by the technological goods that arose as a result of these R&D investments (Yıldırım & Dura, 2007; Türker, 2009). In order to gain a competitive advantage in the international arena, it can also be said that technoparks play a essential role in promoting and supporting R&D and innovation-oriented firms.

Findings Regarding the Interacting Actors

In this section, we briefly introduce the actors who played role in the emergence of technoparks.

State Planning Organization/SPO (Today known as the Ministry of Development) is the government agency that came up with the first idea about technoparks in Turkey.

Ministry of Industry and Trade (Today known as the Ministry of Industry and Technology) is the government agency that carries out the work of legal regulations related to technoparks.

Small and Medium Enterprises Development Organization (SMEDO) was established in 1990. SMEDO, in line with the instructions of the Ministry of Industry, established Technology development centers and issued the Technopark Regulation.

The Scientific and Technological Research Council of Turkey (STRCT) is a government agency responsible for coordinating activities related to technoparks and supporting companies that will operate in technoparks.

Universities are one of the main actors that ensure university-industry cooperation, which is the primary purpose of technoparks. Universities have been involved in establishing technoparks in Turkey by taking the initiative.

Technology Development Center has emerged due to the interaction of universities and government agencies. The purpose of the establishment of TDC is to establish and develop new technology-based firms, support the R&D activities of these firms and SMEs, and ensure the cooperation of small enterprises with universities, public and private sectors R&D institutions.

Technology Development Foundation of Turkey (TDFT) is an autonomous institution established to support and increase the competitiveness of the private sector in the international market, R&D, and innovation activities. TDFT supported the research of technoparks abroad and the feasibility study of technoparks in cooperation with universities.

Findings Regarding the Interacting Process

The first idea about technoparks in Turkey was brought to the Minister of Treasury Adnan Kahveci in 1987. Adnan Kahveci started research on technoparks through the State Planning Organization. The participant said the following about this issue:

It is said that during the Turgut Ozal government, Adnan Kahveci attached great significance to this work. It knows that he quickly adopted the technopark concept and gave instructions through the State Planning Organization to examine specific processes and develop a model (P5).

After this decision, METU took the initiative and got involved in the process. METU organized a conference on technoparks in cooperation with SPO. Regarding the involvement of METU in the process, the participants said the following:

In the second half of the 1980s, the rector of METU, vice-rectors, advisors, and the board of directors of the foundation said that there is a need for a technopark in Turkey. They act with the thought of "Can we, as METU, lead this?" (P2).

Afterwards, a conference on technoparks is held at METU, again in cooperation with the SPO, 1987 as far as I know (P5).

Regarding the reason why universities are involved in this process, the participants stated that:

University professors can also open companies in technoparks to turn the technologies they have developed into products (P6).

I thought that this structure would work at METU, the best university in Turkey. Because both student and academic resources are perfect, the software is promising here (P3).

After these developments, a decision on technoparks was taken in the 6th Development Plan in 1989.

In order to develop University-Industry cooperation, necessary changes will be made in the legislation, technoparks operating in this field will be encouraged and expanded (6th Development Plan).

In 1990, at the invitation of the SPO, the United Nations Development Fund for Science and Technology (UNFSTD) came to Turkey. As a result of UNFSTD's research on technoparks in Turkey, a project was conducted in cooperation with SPO and UNFSTD. According to the project report, it is recommended to establish incubation centers as a preparatory stage for technoparks.

In 1992, Technology Development Centers affiliated to SMEDO started to be established with the initiatives of METU. Participants describe the initiatives of METU in the emergence of TDCs as follows:

METU Technopark Corporation is being established under the METU Development Foundation. This is the first act of the university. On the other hand, negotiations with SMEDO continue in the public sector. The university decided to establish TDC in 1992. The university says to SMEDO that we will give the land, you set up the building and provide financial support and let us operate this model (P2)

METU plays a leading role. TDCs, which are incubation centers, started to be established in cooperation with SMEDO and Universities. The first two are starting to serve at METU and ITU (P5).

Regarding the role of TDCs in this process, the participants expressed the following:

Since there were Technology Development Centers before the technology parks, the first was established at METU. What was TDC, an organization that develops and supports new technology-based firms? The basic idea of technoparks comes from TDC (P2).

Before the technoparks, SMEDO had TDCs. To develop small entrepreneurs. Firms were entering this incubation, leaving after a bit of budding (P6).

Over time, starting from 1992, it has been shown that there is a potential in the Technology Development Center, i.e., companies entering the Technology Development Center are very successful. This situation inspired us as well (P2).

In the 7th Development Plan in 1995, legal regulations related to technoparks were mentioned.

The Legislation on Technology Development Zones (Technoparks) will be implemented within the Science and Technology Project Breakthrough (7th Development Plan).

On the other hand, in 1995, METU started the construction of the technopark building in order to advance this process as a result of its success in TDC. The participant stressed it as follows:

In 1995, METU says that my incubation was established, I started to progress, now I will gradually mature the technopark process and go beyond incubation. In 1995, together with Semra Teber, creating a conceptual plan for this place was started... This area is started to be planned for the development of a technopark within METU, in a greener area (P5).

In 1996, in cooperation with METU and TDFT, a delegation of faculty members from METU went abroad to examine technoparks in the world. A feasibility study has been prepared on the formation of technoparks in Turkey. Participants underlined:

The first study on this subject in Turkey came to the fore with a feasibility study conducted by a committee under the chairmanship of STRCT vice president, Professor Doctor Metin Ger, who is also a faculty member at METU, to examine structures such as Technopark, Technocity, and science park in the world (P4).

Metin Ger's is called this Technopark or something, but let us see what foreign examples of this are. That is when it starts (P2).

If technoparks could be established in the days when that feasibility study was carried out, if the law had been enacted, they would have entered almost at the same time as France and Japan. Unfortunately, things are moving slowly in Turkey due to bureaucracy. We notice many things early. We are working and preparing the reports, but it is difficult to implement (P4).

In 1997, "SMEDO Technopark Regulation" came into effect due to the joint efforts of METU, STRCT, and the Ministry of Industry and Trade. On the other hand, with the participation of the president, ceremonies were held for both the METU Twins building and the Halıcı Software house. In addition, the first projects started to be formed in METU, and the first protocol was signed with Emrehan Halıcı. Participants stated that:

In 1997, the first projects are being prepared. Emrehan Halıcı and METU are signing a protocol. The projects of the first technopark building and the twin building we are in are being prepared, and the groundbreaking ceremony is held with the participation of Süleyman Demirel. These are the first breakthroughs... In 2000, we see that the Twins building was put into service. The Halıcı building, on the other hand, was put into service at the beginning of 2001. The first technopolis buildings were put into service at the beginning of 2000 and 2001. These are the first steps in Turkey (P5)

I wanted to do something more concrete beyond civil society work. I met with the rector of METU, Süha Sevük. I tried to explain the importance of the software with the reports I have. As a result of long negotiations, we signed the first protocol in 1997 (P3).

We realized that we needed new investors. I think he was meeting with Emrehan Halıcı in 1997. Do you invest? Emrehan also develops software. He says why not, but there is still a need for incentives. Coming to the contract phase with Emrehan (P2).

According to the SMEDO Technopark Regulation in 1998, METU Technopark and STRCT Technopark are the first technoparks to be approved. METU Technopark Corporation, founded in 1992, has gained an official qualification according to this regulation.

In 1999, the technopark law is being discussed in the Turkish Grand National Assembly. Participants expressed:

I was elected as a deputy from the "Demokratik Sol" Party (DSP) in 1999. I became the group vice-chairman of Prime Minister Bülent Ecevit. Meanwhile, the Technopark Law was being discussed in the parliament. The Information Technologies group was established in the parliament, and I joined this group as a civil society organization representative. The work to establish a technopark started here and then moved to the parliament. "Doğru Yol" (DYP) and "Refah" (RP) contributed among the other parties. Especially Abdullah Gül and İlyas Yılmazyıldız were very supportive. The Technopark Law is one of the rare laws that the majority supports. In this process, I became the first investor, and I think I played an important role in the law (P3).

A technology commission was established under the chairmanship of Professor Doctor Ziya Aktaş. This law was discussed extensively in the commission. By the way, Emrehan Halıcı was the vice president of the DSP group at that time. He built the first building in the Technopark in METU. So at that moment, there was a mature idea. I also actively participated in the DYP and studied the systems in the world. Finally, we passed this law in July 2001 (P4).

While the debate on the technopark law continued in the Grand National Assembly of Turkey, in 2000, METU Technopark invited the commission that prepared the law to the university. METU shared its views and experiences

about technoparks with the commission members. The participants noted this issue as follows:

Legislative questions were asked, especially at METU (P7).

The structure of METU is taken as an example. They also supported while preparing the law (P6).

In 2000, it was accepted that legal and institutional arrangements would be made in the 8th Development Plan. At the same time, the Draft Law on Technopark and its justification were accepted. Finally, the official gazette of the Technopark Law was published in 2001.

DISCUSSION

Our aim in this study has been to reveal the emergence of technoparks as a new organizational form from the coevolution perspective. Our study makes some theoretical contributions. The first is a contribution to the literature on organizational forms. The emergence of organizational forms is not a stable but a dynamic process. The formation of an organizational form takes place step by step in a dynamic process. The thoughts, actions, interactions of many actors, who participate or leave the process at various stages, and their efforts to learn through trial and error shape the process incrementally. However, the organizational form literature has ignored these processes. Population ecology theory emphasizes the evolution of new organizational forms, transforming a new organizational form into a legitimate form, and the dynamics underlying diversity and changes in organizational forms. The institutional theory focuses on the process of legitimation rather than the emergence of organizational forms, emphasizing the impact of institutional arrangements, institutional changes, and institutional logics in this process. These two theories, which focus on macro processes, do not explain the evolution of a new form from the idea stage to a viable form. By considering the emergence of a new organizational form from the perspective of coevolution, we show how this dynamic process develops step by step and how the interactions of actors in this process shape a new form. In this sense, we extend the theory about organizational forms.

Second, it is a contribution to the coevolution literature. Coevolution focuses on the evolution of organizations with their environments at the industry level, the interaction of organizations and environments in institutional change, and how existing organizational forms evolve with their environments. However, it ignores the process of the emergence of a new organizational form. Based on McKelvey's (2002) coevolution argument, we show how a new organizational form emerges due to the interaction of various actors. We also fill in some gaps that pointed out by Abatecola et al.(2020) in their work,

by revealing the coevolving actors and interrelationships between them, and the concepts of catalyst and proto form as mechanisms of coevolution. So, we extend the coevolution theory by showing that the emergence of a new organizational form can be explained by coevolution.

Turkey switched from a closed economy to an open economy integrated with global capital on January 24, 1980. The transition to a market economy integrating with the global order has brought about critical institutional changes. Interactions with foreign actors have begun, and steps have been taken to adopt policies and practices in foreign countries. With the removal of barriers for foreign investors to enter the country, competitive pressure has increased, and technology and innovation have gained importance in terms of competitive advantage. These changes have led to developing an innovative model of economic development. Factors such as research and development and university-industry cooperation have emphasized in the government's policy documents. These developments, which changed the institutional environment's nature, provided institutional actors opportunities to initiate new practices, models, and regulations. The first idea about technoparks in Turkey emerged by the state as the most critical decision-making factor. This structural transformation, which started with the January 24 Decisions, is the event that started the coevolution process as stated by McKelvey (2002) and may have led to unexpected and unpredictable results such as the emergence of technoparks.

In late industrialized and poorly institutionalized countries like Turkey, the state plays a vital role in initiating new practices and directing entrepreneurial activities (Buğra, 1994; Özen, 2010). In this context, the representative of a government agency (SPO) started the process with research on technoparks by using public authority. On the one hand, this action of the SPO, on the other hand, the increase in the importance of university-industry cooperation and research and development factors in the government's policy documents affected universities and universities that took the initiative were included in this process. Universities have been involved in this process to gain profit through the commercialization of their academic products and to benefit from qualified human resources. On the other hand, it has been observed that TDFT (through METU) and UNFSTD (through SPO) are involved in a short-term process at some stages. These interactions and developments between actors explain McKelvey's (2002) argument that there must be heterogeneous actors for coevolution, and these actors must interact with each other.

However, while the state and universities play a role in the formation process of technoparks, it is seen that the

companies that make up the third pillar of technoparks are not involved in this process. The fact that companies did not participate in this process can be explained by the economic conditions of the 1980s and the cultural codes of the actors. The economic conditions of the period, such as the export performance being based on incentives rather than industrial development, the dependence of exports on imports in the production process, the inability to produce high value-added products due to dependency on technology, high-interest rates, devaluation and reduction of production costs, and reduction of production costs for foreign markets (Boratav, 2007) may have caused companies not to be involved in the formation process of technoparks.

On the other hand, when the relations between the state and the private sector are evaluated, there is an order in which the private sector expects the solution to every problem it faces from the government, avoids taking responsibility, and needs state support for jobs that require significant investments (Buğra, 1994). In the new period that started with the January 24 decisions, companies have doubts about the success of the market mechanism, which operates according to its own rules without the state's intervention, and whether the new policies will be permanent and stable (Pamuk, 2012). In such an environment, it can be said that companies are not involved in the formation process due to cultural codes such as avoiding the uncertainty created by a new model such as a technopark and not wanting to take risks.

TDC was established with the joint ventures of Small and Medium Enterprise Development Organization and METU. TDCs established before technoparks have similar purposes to technoparks. However, according to the SMEDO regulation, a company can receive support from SMEDO for a maximum of three years. At the end of this period, companies completed their R&D projects. TDC has contributed to the success of many R&D projects. Despite this, companies cannot come to a level where they can compete with existing corporate companies in the market. Achievements from SMEDO motivated universities. It has taken action to continue supporting the development of companies in a second stage. Universities, which set SMEDO as an example, put pressure on government agencies to establish technoparks. In this context, we can say that TDCs are the catalysts that we define as an actor that plays a leading role in the emergence of a new form and accelerate the interaction between actors.

TDC as catalyst ensured the continuation of the interaction between the actors and the acceleration of the process. Catalysts are essential because they are the actors that accelerate the process of coevolution.

Because coevolution requires mutual, simultaneous relationships. Without catalysts, the emergence of a new form would not have occurred in many years, or even at all. Catalysts have played a leading role and activating actors in the coevolution process. Like biological catalysts, organizational catalysts have emerged unaffected by this process while accelerating the interaction of coevolving entities. Catalysts (TDC) continued to exist even after the technopark form emerged. Catalysts illustrate McKelvey's (2002) argument that they must be entities that motivate or accelerate coevolution.

On the other hand, in response to these actions of universities, government agencies did not take any action at times. This situation can be associated with the bureaucratic functioning of the state structure in Turkey. Government actors may have slowed down the coevolutionary process. It explains McKelvey's (2002) argument that higher-level entities may constraint or slow down coevolution.

By examining the technoparks in the world, METU gained knowledge about how the technopark model should be and how it can work in Turkey. According to SMEDO Regulation, METU Technopark was established. METU has been in constant interaction with the actors establish and support technoparks and to establish the legal basis for the operation of the model. METU participated in the draft law prepared by the Ministry of Industry and Technology and expressed its opinion on technopark model. METU Technopark tried to persuade regulatory actors to use legal regulations to develop the new form (Dorada, 2005). Therefore, these actions of METU show that it influenced the government in the law-making process.

Thus, the proto form that we define as a new application that starts transforming the institutional environment is METU Technopark. This action of METU provided an understanding of form to other interacting actors. METU Technopark is in the development process as it is a new application that has emerged through trials. The proto form can transform into its final form, especially as a result of interactions with the relevant actors of the government. It has been observed that interactions and collaborations between actors continue transforming the preliminary form into the final form. The proto form was accepted as a technopark with the law's enactment and became the final form. The proto form explains McKelvey's (2002) argument that for coevolution, actors must have the ability to learn.

Li and Olga (2020) define a proto form as a temporary organizational form that emerges when entrepreneurs try out possible applications of innovation based on pre-existing organizational forms. Similarly, in our study, universities, as actors in the process of coevolution,

started an application of this new structure based on technoparks abroad. Unlike the work of Li and Olga, METU Technopark as a proto form goes beyond the temporary form. Because, with the law enacted by the state, the proto form turned into the main form and thus gained a permanent feature.

Finally, the technopark organization form is an example of a positive and constructive coevolution process (McKelvey, 2002) that emerged due to the interaction of actors. Therefore, since coevolution between actors did not develop in an undesirable direction, we can state that the damping mechanisms that McKelvey (2002) stated did not emerge in this study.

CONCLUSION

This study focuses on the coevolution perspective to better explain the emergence of new organizational forms. We tried to understand the environmental conditions that triggered the emergence of technoparks, the influential actors in this process, and the dynamics of interaction between these actors. We have reached that technoparks, as a new organizational form, arose through the interaction of actors in the institutional environment due to the coevolution of actors.

The dynamics between actors taking place in institutional environments, however, are distinct from the biological environment. In an institutional environment, the interactions between actors interacting cannot be explicit, closely, and sequentially related. Instead, there may be integral working and loosely connected relationships with similar objectives between actors with distinct goals. Actors could have had multiple effects that may have created the same effect indirectly and concurrently. In other words, the actors' acts and activities have taken place in various ways and can influence each other over time.

According to the findings obtained this study, it is possible to assume that there is such a relationship between the actors who interact. There is a better meaning of job descriptions of government and government actors regarding the establishment of technoparks. Often these actors have hierarchical relationships. In this process, however, there is no instruction or a prescribed duty provided by the government or a higher-level approved actor to universities. Instead, there is an initiative for technoparks launched by universities. It can be said that technoparks emerged as a result of a process of coevolution where there were indirect effects that happened over time, the effects of the actors' actions on the concrete performance were not apparent. It was not obvious which actor was how powerful and dominant.

Based on coevolution, this study contributes to both coevolution and organizational forms studies by revealing the environmental conditions that trigger the emergence of a new organizational form, the actors involved in the process in a dynamic context, the interactions between the actors, and how this dynamic process develops gradually. However, to investigate the emergence of new organizational forms from the perspective of coevolution, new empirical research is needed.

Our study has some limitations. First of all, the most important constraint is the inability to reach every actor who plays an active role in establishing technoparks, since the history of the formation of technoparks is quite old. Secondly, this study focuses only on the emergence of the organizational form, based on McKelvey's coevolution argument. However, since we do not focus on the development process of technoparks, the extent to which the co-evolution between actors progressed positively and when the damping mechanisms started to be used in the development process are beyond the primary purpose and scope of our study.

Future studies can examine the evolution of technoparks and the actors they interact with within the development process. In addition, damping mechanisms can be studied in the coevolution of technoparks with their environment. Thus, our understanding of the coevolution of an organizational form with its environment can be extended.

ACKNOWLEDGEMENTS

The first author would like to deliver her sincere gratitude to committee members for their supports and invaluable contributions. The first author would like to express her sincere gratitude to the participants who provided support in the data collection process. The first author also would like to present her special thanks to The Scientific and Technological Research Council of Turkey Scientists Support Department for funding the doctorate education and the Scientific Research Projects Commission of Afyon Kocatepe University for funding the doctoral dissertation.

Finally, the authors would like to express their sincere thanks to the reviewers and the editor of the Ege Academic Review Journal for their contributions during the publication process.

REFERENCES

- Abatecola, G., Breslin, D., & Kask, J. (2020). Do organizations really co-evolve? Problematizing co-evolutionary change in management and organization studies. *Technological Forecasting and Social Change*, 155, 119964.
- Aluko, O., & Knight, H. (2017). From corner store to superstore: A historical analysis of Sainsbury's co-evolution. *Journal of Management History*, 23 (4), 423-453.
- Amburgey, T. L., & Rao, H. (1996). Organizational ecology: Past, present, and future directions. *Academy of Management Journal*, 39(5), 1265-1286
- Baum, J.A.C. & Singh, J.V. (1994). Organization-environment coevolution. In J.Baum & J.Singh (Ed.), *Evolutionary Dynamics of Organizations* (pp. 379-402). Oxford University Press.
- Breslin, D. (2016). What evolves in organizational co-evolution?. *Journal of Management & Governance*, 20, 45-67.
- Bogaert, S., Boone, C., Negro, G., & van Witteloostuijn, A. (2016). Organizational form emergence: A meta-analysis of the ecological theory of legitimation. *Journal of Management*, 42(5), 1344-1373.
- Boone, C., Divarçı Çakmaklı, A., & Van Witteloostuijn, A. (2018). Ideological polarization and organizational form evolution: A study of Islamic-secular rivalry and high schools in Turkey, 1971-1998. *Social Forces*, 96(4), 1593-1624.
- Boratav, K. (2007). *Türkiye İktisat Tarihi 1908-2005*. 11. Baskı. İmge Kitapevi.
- Buğra, A. (1994). *Devlet ve İşadamları*. İletişim Yayınları.
- Buğra, A., & Savaşkan, O. (2015). *Türkiye'de yeni kapitalizm*. İletişim Yayınları.
- Cansız, M. (2017). *2023'e doğru Türkiye teknoparkları*. TC Kalkınma Bakanlığı.
- Carroll, G. R., & Hannan, M. T. (1989). Density delay in the evolution of organizational populations: A model and five empirical tests. *Administrative Science Quarterly*, 411-430.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage Publication.
- Corley, K. G., & Gioia, D. A. (2004). Identity ambiguity and change in the wake of a corporate spin-off. *Administrative science quarterly*, 49(2), 173-208.
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. (Second Edition). Sage Publication.
- Çalışır, M., & Gülmez, A. (2010). Teknoloji politikaları çerçevesinde ekonomik gelişim: Türkiye-Güney Kore karşılaştırması. *Akademik İncelemeler Dergisi*, 5(1), 23-55.
- Dentoni, D., Bijman, J., Bossle, M. B., Gondwe, S., Isubikalu, P., Ji, C., Kella, C., Pascucci, S., Royer, A. & Vieira, L. (2020). New organizational forms in emerging economies: Bridging the gap between agribusiness management and international development. *Journal of Agribusiness in Developing and Emerging Economies*, 10 (1), 1-11.
- Dijksterhuis, M.S., Van den Bosch, F.A.J., & Volberda, H.W. (1999). Where do organizational forms come from? Management logics as a source of coevolution. *Organization Science*, 1(5), 569- 582.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, 147-160.
- Dirlik, O. (2016). Türk iş sisteminin evrimi: Makro kurumsal bir inceleme. *Yönetim ve Organizasyon Araştırmaları Dergisi*, 1(2), 5-30.
- Divarçı Çakmaklı, A., Boone, C., & Van Witteloostuijn, A. (2012). Identity realization, multiple logics and legitimacy: Organizational foundings during the emergence of the Dutch accounting industry. *Accounting, Organizations and Society*, 83, 1-12.
- Djelic, M.L. & Ainamo, A. (1999). The coevolution of new organizational forms in the fashion industry: A historical and comparative study of France, Italy and the United States. *Organization Science*, 10(5), 622-637.
- Fiol, C. M., & Romanelli, E. (2012). Before identity: The emergence of new organizational forms. *Organization Science*, 23(3), 597-611.
- Fligstein, N. (1991). The structural transformation of American industry: An institutional account of the causes of diversification in the largest firms, 1919-1979. In W.W. Powell & P.J. DiMaggio (Ed.), *The new institutionalism in organizational analysis*, (pp. 311, 336). University of Chicago Press.
- García-Cabrera, A. M., & Durán-Herrera, J. J. (2016). MNEs as institutional entrepreneurs: A dynamic model of the co-evolutionary process. *European Management Journal*, 34(5), 550-563.
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15-31.

- Han, X. (2021). The evolutionary and ecological perspectives on organizational form, strategy and performance: evidence from privatized firms in China. *Journal of Asia Business Studies*.
- Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, 82(5), 929-964.
- Hannan, M. T., & Freeman, J. (1987). The ecology of organizational founding: American labor unions, 1836-1985. *American Journal of Sociology*, 92(4), 910-943.
- Hannan, M.T. & Freeman, J. (1989). *Organizational Ecology*. Harvard University Press.
- Harmancı, M., and Önen, M.O. (1999). *Dünyada ve Türkiye'de Teknopark ve Teknokent Uygulamaları*. Türkiye Kalkınma Bankası A. Ş. Araştırma Müdürlüğü.
- Jha, H. K., & Beckman, C. M. (2017). A patchwork of identities: Emergence of charter schools as a new organizational form. In M.D.Seidel & H. R. Greve (Ed.) *Emergence Research in the Sociology of Organizations*, 50, (pp.69-107). Emerald Publishing Limited.
- Jimenez, P.R., Wiita, A. P., Rodriguez-Larrea, D., Kosuri, P., Gavira, J. A., Sanchez-Ruiz, J. M., & Fernandez, J. M. (2008). Force-clamp spectroscopy detects residue co-evolution in enzyme catalysis. *Journal of Biological Chemistry*, 283(40), 27121-27129.
- Karhu, A. (2020). Co-evolution of a MNE and institutional environment—focus on institutional logics change. *Business History*, 1-27.
- Kazgan, G. (2006). *Tanzimat'tan 21.Yüzyıla Türkiye Ekonomisi*. 3.Baskı. İstanbul Bilgi Üniversitesi Yayınları.
- Kırmızıaltın, E. (2012). *1980 Sonrası Türkiye Ekonomisi*. Maki Basın Yayın.
- Kibritçiöğlü, A. (2004). *Economic Crises and Governments in Turkey, 1969-2001 (Türkiye'de Ekonomik Krizler ve Hükümetler, 1969-2001)* (No. 0401008). University Library of Munich, Germany.
- Kleinaltenkamp, M., Corsaro, D., & Sebastiani, R. (2018). The role of proto-institutions within the change of service ecosystems. *Journal of Service Theory and Practice*, 28(5), 609-635.
- Lawrence, T. B., Hardy, C., & Phillips, N. (2002). Institutional effects of interorganizational collaboration: The emergence of proto-institutions. *Academy of management journal*, 45(1), 281-290.
- Lewin, A.Y. & Volberda, H.W. (1999). Prolegomena on coevolution: A framework for research on strategy and new organizational forms. *Organization Science*, 10(5), 519-534.
- Lewin, A.Y., Long, C.P. & Caroll, T.N. (1999). The coevolution of new organizational forms. *Organization Science*, 10(5), 535-550.
- Li, Y., & Khessina, O. (2020). The role of proto-forms in the emergence of historic movie theaters in Chicago communities: 1896-1962. *Academy of Management Proceedings*, Vol. 2020, No.1.
- Liu, J., & Elliott, R. W. (2016). The evolution of a new hybrid organizational form in Chinese higher education: An institutionalist analysis. In *A Global Perspective on Private Higher Education* (pp. 97-111). Chandos Publishing.
- Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Sage Publication.
- Marti, S., Andres, J., Moliner, V., Silla, E., Tunon, I., & Bertrán, J. (2008). Computational design of biological catalysts. *Chemical Society Reviews*, 37(12), 2634-2643.
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Qualitative Social Research*, 11(3). file:///C:/Users/ak% C3% BC/Downloads/1428-5623-3-PB.pdf .
- McKelvey, B. (2002, July 4-6). *Managing coevolutionary dynamics*. 18th EGOS Conference, Barcelona, Spain.
- McKendrick, D. G., & Carroll, G. R. (2001). On the genesis of organizational forms: Evidence from the market for disk arrays. *Organization Science*, 12 (6), 661-682.
- Mutch, A. (2021). Challenging Community: Logic or Context?. *Organization Theory*, 2(2), 1-18.
- Olsen, T. D. (2017). Rethinking collective action: The co-evolution of the state and institutional entrepreneurs in emerging economies. *Organization Studies*, 38(1), 31-52.
- Özdaş, N. (2000). *Bilim ve teknoloji politikası ve Türkiye*. TÜBİTAK.
- Özen, S. (2002). Bağlam, aktör, söylem ve kurumsal değişim: Türkiye'de toplam kalite yönetiminin yayılım süreci. *Yönetim Araştırmaları Dergisi*, 2 (1), 47-90.
- Özen, Ş. (2010, Feb 12-13). Yeni kurumsal kuramın dayandığı siyasal sistem varsayımları ve Türkiye açısından bir değerlendirme. I. *Örgüt Kuramı Çalıştayı Bildirileri* (17-32). Başkent Üniversitesi, Ankara, Türkiye.
- Pamuk, Ş. (2012). *Türkiye'nin 200 Yıllık İktisadi Tarihi*. 5. Basım. Türkiye İş Bankası Kültür Yayınları.
- Riaz, S., & Qureshi, I. (2017). Emergence of a new institutional logic: Shaping the institutionally complex field of community radio in India. In M.D.Seidel & H. R. Greve (Ed.) *Emergence Research in the Sociology of Organizations*, 50, (pp.383-418). Emerald Publishing Limited.

- Romanelli, E. (1991). The evolution of new organizational forms. *Annual Review of Sociology*, 17, 79-103.
- Ruef, M. (2000). The emergence of organizational forms: A community ecology approach. *American Journal of Sociology*, 106(3), 658-714.
- Science and Technology High Council Decisions, 2nd. (STHC) (1993). *The Scientific and Technological Research Council of Turkey*, Ankara.
- Science and Technology High Council Decisions, 3th (STHC) (1997). *The Scientific and Technological Research Council of Turkey*, Ankara.
- State Planning Organization. (1989). *6th. Development Plan*.
- State Planning Organization. (1995). *7th. Development Plan*.
- State Planning Organization (2000). *8th. Development Plan*.
- Streeck, W., & Schmitter, P. C. (1985). Community, market, state-and associations? The prospective contribution of interest governance to social order. *European sociological review*, 1(2), 119-138.
- Strauss, A. and Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage Publications.
- Technology Development Regions/Technoparks Law Draft and General Justification (2000). Grand National Assembly of Turkey.
- Technology Development Regions/Technoparks Law, Law No.4691 (2001). Republic of Turkey Laws. Ankara: Official Gazette (No.24454).
- Science and Technology High Council Decisions, 2nd. (STHC) (1993). *The Scientific and Technological Research Council of Turkey*, Ankara.
- Science and Technology High Council Decisions, 3th (STHC) (1997). *The Scientific and Technological Research Council of Turkey*, Ankara.
- Soydemir, C. O., & Erçek, M. (2020). State and transforming institutional logics: the emergence and demise of Ottoman cooperatives as hybrid organizational forms, 1861–1888. *Business History*, 1-31.
- Türker, O. (2009). Gümrük birliği sonrası Türkiye'nin dış ticaretinin rekabet gücü. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 32, 281-302.
- Uli, V. (2015). Co-evolutionary dynamics in the music industry. *Annual Conference of the European Academy of Management*, June, Warsaw Poland.
- Uli, V. (2018). A co-evolutionary perspective on business processes: Evidence from the performance appraisal of a service firm. *Business Process Management Journal*, 24(3), 652-670.
- Villani, E., & Phillips, N. (2021). Formal organizations and interstitial spaces: Catalysts, complexity, and the initiation of cross-field collaboration. *Strategic Organization*, 19(1), 5-36.
- Weber, M. S., Fulk, J., & Monge, P. (2016). The emergence and evolution of social networking sites as an organizational form. *Management Communication Quarterly*, 30(3), 305-332.
- Winter, J., Davidson, E., Boyce, C., & Fan, V. (2019). Emergence, Convergence, and Differentiation of Organizational Forms of Health Data Governance. In *Academy of Management Proceedings*, 2019 (1), p. 16403.
- Yıldırım, E., ve Dura, C. (2007). Gümrük birliğinin Türkiye ekonomisi üzerindeki etkileri konusundaki literatüre bir bakış. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 28, 141-177.
- Yıldız, B., Ilgaz, H. & Seferoglu, S.S. (2010, Subat 10-12). Türkiye'de bilim ve teknoloji politikaları: 1963'den 2013'e kalkınma planlarına genel bir bakış. *Akademik Bilişim Konferansı*, Mugla, Türkiye.

