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A RESEARCH ON PROJECT MATURITY PERCEPTION OF TECHNO-ENTREPRENEURSHIP FIRMS

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ABSTRACT

The objective of study is measuring the project maturity levels of techno-entrepreneurship (start-ups) which was established toward technology development, and analyzing the relationship between project maturity levels and demographic features of firms. We used a scale developed by Holmes and Walsh in 2005 to measure project maturity levels. The scale is addressing the maturity levels based on knowledge areas consisting of scope, time, cost, quality, risk, human resource, communication and procurement management. The survey was conducted on the techno-entrepreneurship firms located in Turkey. We did correlation analysis on the data in SPSS. The results clearly indicate no relationships between the sectoral differences of firms and project management knowledge areas. Despite we found partly relationship between age and size differences of firms and some of project management knowledge areas, the results dont confirm absolute relationship.

Keywords: Techno-entrepreneurship, project maturity model, start-ups, project maturity levels
JEL Codes: O32, M13, L26, O22

1. INTRODUCTION

Rapidly developing technology not only has showed paradigmal transformations in human life but also deeply changed the practices of business life. As a result, a variety of tools and practices have found their place in the business world and in the academic world, enabling the production, storage, sharing and feedback of knowledge. The increase in knowledge as a social power and the quality of knowhow in commercial success have made it sine qua non that entrepreneurship has become an economic gain for micro and macro level economic development and the innovation was accepted as a method for this. Techno-entrepreneurship, which embraces entrepreneurship-based business ideals and technology-based innovation efforts, presents an important structure and investment mechanism in the sector. The academic studies on the subject examine techno-entrepreneurship in various dimensions and aim to produce predictions about how it could work better.

2. LITERATURE REVIEW

While studies on project management in the context of technology firms initially concentrated on R&D activities (Zedtwitz, 2002; Chiesa, 2000; Sicotte and Langley, 2000; Coombset al, 1998; Keller, 1994; Pinto and Slevin, 1989; Katz and Allen, 1985; Liberatore and Titus, 1983), especially after 2000, they have evolved into the innovation process (Kapsali, 2011; Arttoet al.,2011; Filippov and Mooi, 2010; Bygstad and Lanestedt, 2009; Manley, 2008; Miia et al, 2006; Barlow, 2000; Gann and Salter,2000; Gann and Salter, 1998). Liberatore and Titus emphasized that project managers should be informed about the methods and techniques that are used in the management of R&D projects and that will adapt to the organizational structure. (Liberatore and Titus, 1983; 972). Katz and Allen have also shown how different applications seen in the use of force in matrix organization structures affect project performance (Katz and Allen, 1985, p. 85). Pinto and Slevin also identified fourteen critical success factors for the R&D projects, ten of which are controllable and four of which are uncontrollable (Pinto and Slevin, 1989; 31). In his study where Keller has questioned the interdependency theory of the

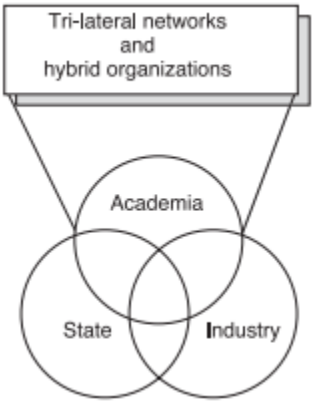
compatibility between technology and information processing used in R&D projects he has shown that information processing is crucial to the quality and success of project management. In his study where Keller has questioned the interdependency theory of the compatibility between technology and information processing used in R&D projects he has shown that information processing is crucial to the quality and success of project management (Keller, 1994, 175). Coombs and colleagues have introduced different administrative templates in the framework of benchmarking - idea for the three different types of projects they have introduced. (Coombs et al, 1998; 186). Sicotte and Langley emphasize the uncertainty in the project process in their study of the relationship between R&D performance and compliance mechanisms (Sicotte and Langley, 2000; 23). Chiesa handled the management and organizational dimension of global R&D projects in a categorical perspective. Chiesa pointed out that the R&D projects differ in project development, research activities require organizational and administrative structures in which interdepartmental coordination, interaction and communication takes place, and the use of electronic means is widespread. (Chiesa, 2000; 353). Von Zedtwitz has developed a five-stage maturity scale in the work of companies to make a post-project evaluation interview in terms of organizational learning, and has shown that firms do not pay enough attention to what they do at the end of the project (Zedtwitz, 2002). After 2000, the general tendency in the literature is directed at understanding the management concept in innovation projects and examining the processes. Gann and Salter's article suggests that a methodological difference is needed for the examination of project-based service firms in terms of innovation (Gann and Salter, 1998: 451). Gann and Salter have attempted to provide a generic model (Gann and Salter, 2000, 969) that, in a similar perspective, has shown a process in other project-based operating companies in 2000. Barlow has demonstrated the importance of collaborations in building innovative and learning structures to achieve the complex process structure and the underperformance of project-based construction companies (Barlow, 2000). Miia et al. have examined the spread of project management and system among firms and have shown that both external pressures and internal complexity are effective in this dissemination (Miia et al, 2006). Manley also argues that contracting firms in the construction sector must have some conditions to innovate, such as advanced procurement systems and performance-based regulations (Manley, 2008). Bygstad and Lanestedt concluded that the success of information and communication technology-based innovations in service firms is dependent on the integration of project inputs and outputs, rather than on the execution of the project, in their studies of how they depend on cost, time and quality-focused understanding of traditional project management (Bygstad And Lanestedt, 2009). Filippov and Mooi discussed conceptual approach to R&D projects and position on other project types (Filippov and Mooi, 2010). Artto et al. have shown that various technical and strategic elements are used in an integrated way as a result of studying what management control systems are used at the beginning of innovation. (Artto et al., 2011; 419). Kapsali has also shown that in project-oriented innovation management, the flexibility of system understanding facilitates the planning and control of innovation, uncertainty and complexity. (Kapsali, 2011, 405).

2.1. Technopolis and Techno-Entrepreneurship

2.1.1. Technopolis Concept

The infrastructures of the structures called Technology Park, Technopolis, Science Park, Research Park, Technology Development Zone, Technology Development Center, Technology Corridor and Innovation Center (İTÜ Arı Teknokent, 2017) have been created by the state to provide industry-university cooperation and are the implementation field of universities which are the focus of initiative and qualified information, which is a driving force in achieving economic development goals (Örnek and Dabyal 2015, 1147). Technopolis as a product of an understanding based on industrial-state university cooperation for country development and innovation; (Yalcintas, 2014, p. 86), which is an ecosystem linking universities, lR&D corporations and start-up technology firms, and offers incentive legislation, suppliers, human resource infrastructure and financing clustering model. Etzkowitz describes this model as a triple helix and demonstrates the importance of interaction between the industry, the state and the university in order to create the conditions for innovation in the information society. In this helix industry; Place of production, state; Interaction and the stability of exchanges and the sources of contractual relations; As the source of new knowledge and technologies, is the productive nature of knowledge-based economies (Etzkowitz, 2003; 295).

Figure 1: Triple Helix (State-Industry-University Collaboration)

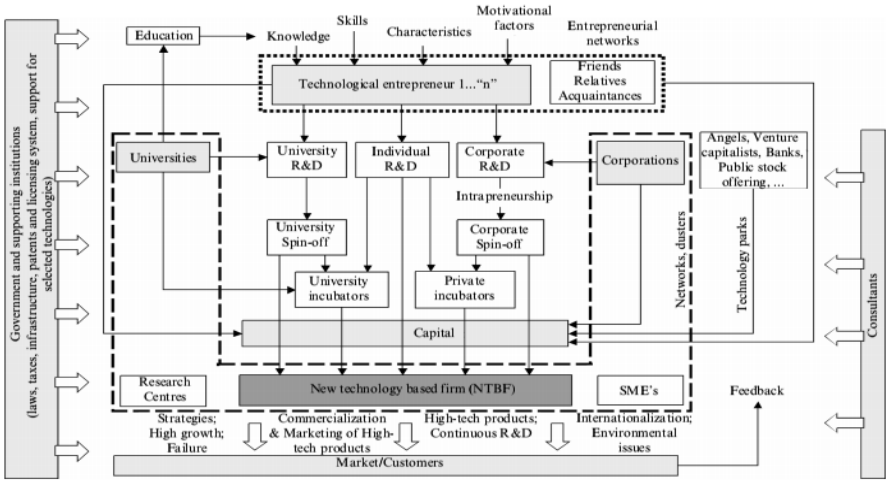


Source: Henry Etzkowitz, , 2003, "Innovation in Innovation: The Triple Helix of University-Industry-Government Relations", Social Science Information, Vol. 42, p. 302.

2.1.2. Techno-Entrepreneurship Concept

Beckman and colleagues express that techno-entrepreneurship deviates from entrepreneurship in the general sense by focusing on the use of innovations in science and engineering to evaluate opportunities (Beckman et al, 2012). Prodan, the concept of techno-entrepreneurship; Is defined as the innovative application of scientific and technical information by the person or persons who initiate, conduct and undertake the financial risks that arise in the scope of the vision and objectives that they specify (Prodan, 2007). Bailetti defines project investments as the convergence of heterogeneous entities and expert individuals in relation to developments in scientific and technological knowledge in order to generate value for a firm (Bailetti, 2012). Dorf and Byers describe development management with high risk taking serious risks as the business leadership style that includes technology-intensive commercial opportunities and high-potential capitalization of human capital (Roja and Nastase, 2014; 108; Dorf and Byers). Örnek and Danyal define within a few years the initiative aimed at developing a technology with high added value and a business plan within the framework of a threefold return of investment and the potential to produce qualified employment. (Örnek and Danyal, 2015, 1150). As a consequence of this situation, techno-entrepreneurs are separated from other entrepreneurs because of the knowledge, abilities and features they possess.

Figure 2: Model of Technological Entrepreneurship



Source: Igor Prodan, 2007, "A model of technological entrepreneurship" in Handbook of Research on Techno-Entrepreneurship (François Thérin Edition), Great Britain by MPG Books Ltd, Bodmin, Cornwall, p. 28.

2.2. Technopolises and Techno-Entrepreneurship in Turkey

2.2.1. Technopolises in Turkey

The establishment of techno-cities in Turkey dates back to 2001. With the Law No. 4691 on Technology Development Regions published on 26.6.2001, the establishment and development of techno-cities were taken under legal framework. The first article explaining the purpose of the law, which also shows the meaning of techno-cities, is as follows (Official Gazette, Law on Technology Development Regions, 2001). The purpose of this law is to produce technological knowledge in order to bring the country's industry to an international competitive and export oriented structure by providing cooperation with universities, research institutions and establishments and production sectors, to improve innovation in product and production methods, to increase product quality or standard, to increase productivity, To create new business opportunities for researchers and qualified persons, to create new technology opportunities for small and medium-sized enterprises, to provide investment opportunities in technology-intensive areas by considering the decisions of the Supreme Board of Science and Technology, To assist in the transfer and to provide the technological subdivision that will accelerate the entry of the foreign capital to the country which will provide high / advanced technology. The purpose of this law is to produce technological knowledge in order to bring the country's industry to an international competitive and export oriented structure by providing cooperation with universities, research institutions and establishments and production sectors, to improve innovation in product and production methods, to increase product quality or standard, to increase productivity, To create new business opportunities for researchers and qualified persons, to create new technology opportunities for small and medium-sized enterprises, to provide investment opportunities in technology-intensive areas by considering the decisions of the Supreme Board of Science and Technology, To assist in the transfer and to provide the technological subdivision that will accelerate the entry of the foreign capital to the country which will provide high / advanced technology.

There are 46 techno-cities established in Turkey by 2017 (TGBD, 2017). The number of firms in these regions is 3629.

Table 1: Technopolises in Turkey and Numbe rof Firms

Technopolis	Count of Company	Location
Ankara Üniversitesi Teknokent	101	Ankara
Antalya Teknokent	68	Antalya
Ata Teknokent	57	Erzurum
ATAP	88	Eskişehir
Bilkent Cyberpark	218	Ankara
Boğaziçi Teknopark	23	İstanbul
Cumhuriyet Teknokent	29	Sivas
Çanakkale Teknopark	20	Çanakkale
Çukurova Üniversitesi Teknokent	69	Adana
DEPARK - Dokuz Eylül Teknopark	136	İzmir
Dicle Teknokent	9	Diyarbakır
Düzce Teknopark	16	Düzce
Ege Üniversitesi Teknopark (ideEGE)	59	İzmir
Erciyes Teknopark	176	Kayseri
Erzurum Ata Teknokent	57	Erzurum
Fırat Teknokent	9	Elazığ
Gazi Teknopark	106	Ankara
Gaziantep Teknopark	57	Gaziantep
GOSB Teknopark	108	Kocaeli
Göller Bölgesi Teknokent	32	Isparta
Hacettepe Teknokent	251	Ankara
İstanbul Teknokent	83	İstanbul
İTÜ Arı Teknokent	174	İstanbul
İzmir Bilimpark	-	İzmir
Kahramanmaraş Teknokent	-	Kahramanmaraş
Kocaeli Teknopark	90	Kocaeli

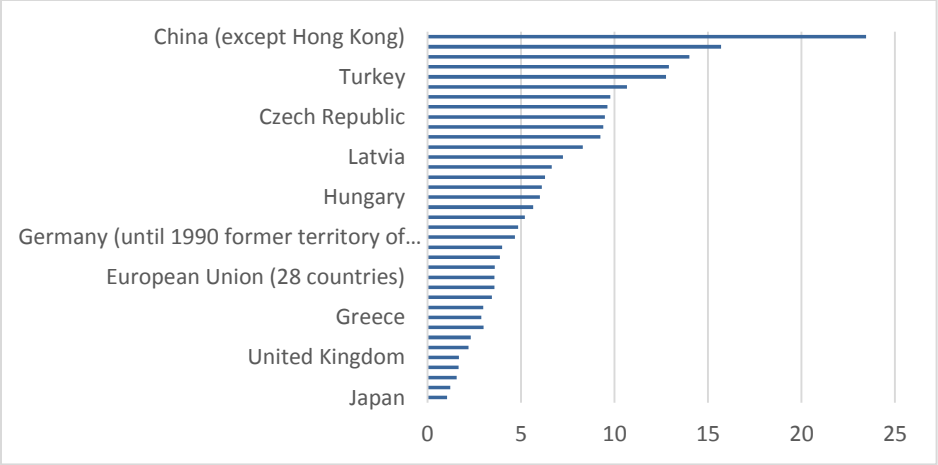
Konya Teknokent	96	Konya
Malatya Teknokent	12	Malatya
Mersin Teknopark	68	Mersin
Muallimköy - Bilişim Vadisi	-	Kocaeli
Niğde Teknopark	-	Niğde
ODTÜ Teknokent	335	Ankara
OSTİM Teknopark	-	Ankara
Pamukkale Teknokent	95	Denizli
Sakarya Teknokent	65	Sakarya
Samsun Teknopark	39	Samsun
Teknopark Ankara	-	Ankara
Teknopark İstanbul	117	İstanbul
Teknopark İzmir	74	İzmir
Tokat Teknopark	24	Tokat
Trabzon Teknokent	51	Trabzon
Trakya Teknopark	36	Edirne
TÜBİTAK Marmara Teknokent	64	Kocaeli
ULUTEK	112	Bursa
Yıldız Teknopark	377	İstanbul
YYÜ Teknokent	28	Van
TOTAL	**3629**	

Source: The count of firms collected from the web pages of technopolises lised in TGBD

2.2.2. Development of Techno-Entrepreneurship in Turkey

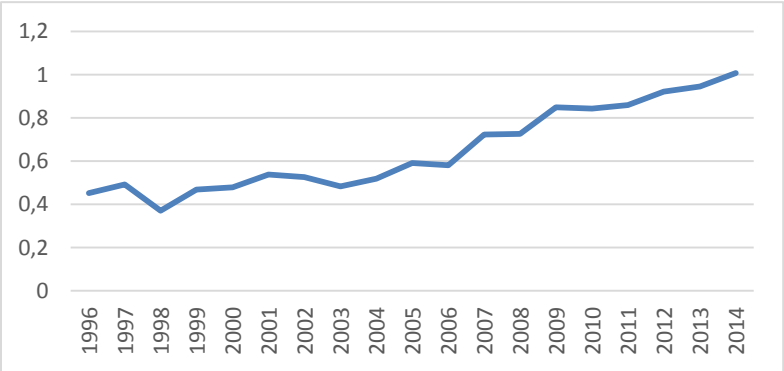
In recent years, a number of legislative acts have been made to encourage entrepreneurship. The most important of these was the "Law on the Support of Research and Development Activities" numbered 5746, which was published in the Official Gazette in March 2008, and the Implementation and Auditing Regulation on the Support of Research and Development Activities which went into effect after that. The concrete results of these regulations are seen in the changes that have occurred over time. As can be seen in Figure 4, the share of R&D spending in the GNP has increased steadily and has reached levels of 1% in 2014 (World Bank, 2017). In Turkey, about 2½ billion EUR in R&D expenditure was made in 2007, while in 2014 this figure reached 6 billion Euros and an annual average increase of 12,75% (Eurostat, 2017). In this respect, Turkey has surpassed many developed countries, including the European Union countries, and has been the country with the highest rate of increase in R&D spending in the years following China, Slovakia, Bulgaria and Poland. The human power employed in the R&D activities also showed a significant increase, reaching approximately 3 times the number in 2000, as seen in Figure 5.

Figure 3: Annual Avarage Rate of Increase in R&D Expenditure Between 2007-2014 Years



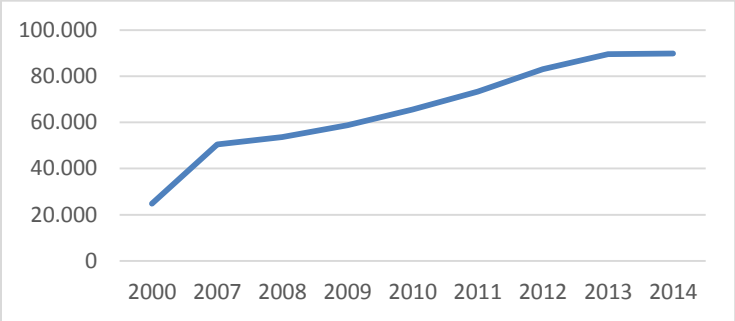
Source: The diagram adapted from the data on Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance

Figure 4: Turkey R&D expenditure (% of GDP)



Source: World Bank, Research and development expenditure (% of GDP)

Figure 5: Increase of Researchers in R&D in Turkey



Source: The diagram adapted from the data on World Bank "Researchers in R&D (Per Million People)" in World Development Indicators and on Turkish Statistical İnstitute "Address-Based Population Registration System" in Statistics.

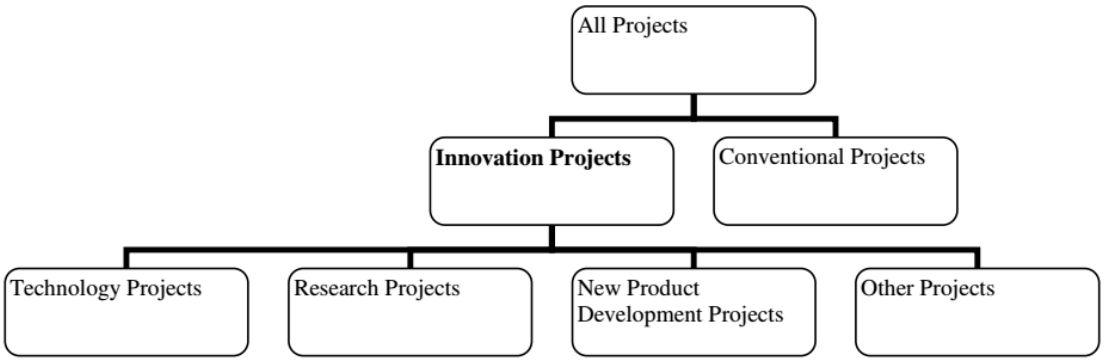
In order to reinforce this point, the Ministry of Science, Industry and Technology announced that in January 2015, "to increase the knowledge of knowledge of R & D and innovation activities, culture, people and society and to design new processes, systems and applications, Techno-entrepreneurial support to support scientific and technological development in the field by focusing on scientific and technological ambiguity by carrying out studies and supporting activities including innovation processes including environmentally compatible product design and software activities with original, experimental, Published the Guidelines for Application Procedures and Guidelines. (Ministry of Science, Industry and Technology, 2015). With this support, innovative ideas are supported both financially and in terms of infrastructure possibilities.

2.3. Project Management and Maturity Concept

2.3.1. Project Management

The concept of the project is defined as a transitional organization and process established to achieve specific objectives under time, budget and various resource constraints (Shenhar and Dvir, 2007). Project management is a process that covers the scope of the project, the planning of resources and costs, the organization of resources in time, risk, human resources and communication, and the supply of resources (Nokes and Kelly, 2007). Project management is the key activity of the innovation process for many industries (Shenhar and Dvir, 1996). It is an important organizational instrument for techno-entrepreneurs, who have a mission and vision to develop technology. Filippov and Mooi (2010) clearly demonstrate the innovation dimension of the classification project types made in Figure 6 below. The authors distinguish between projects as traditional and innovation projects distinguish innovation projects as technology-required projects, research projects including social studies, new product development projects and other projects (Filippov and Mooi, 2010).

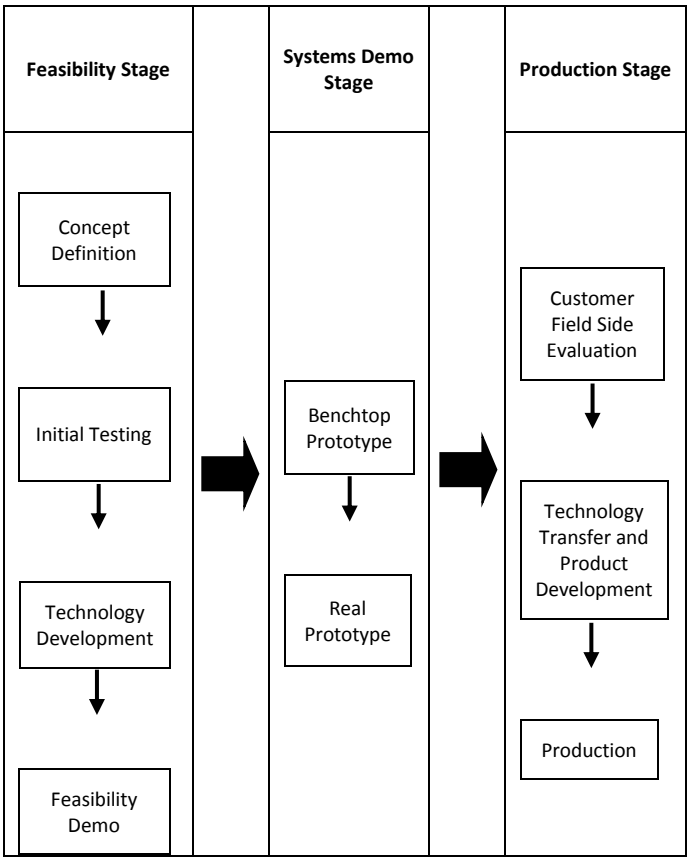
Figure 6: The Project Types



Source: Sergey Filippov and Herman Mooi, 2010, "Innovation Project Management: A Research Agenda", RISUS. Journal on Innovation and Sustainability, ISSN 2179-3565.

The process design presented by Verma and his colleagues on how project management in techno-entrepreneurship firms is realized is quite descriptive. This design, which is basically composed of three stages, feasibility, demo design and production, has a generic quality.

Figure 7: R&D Project Process



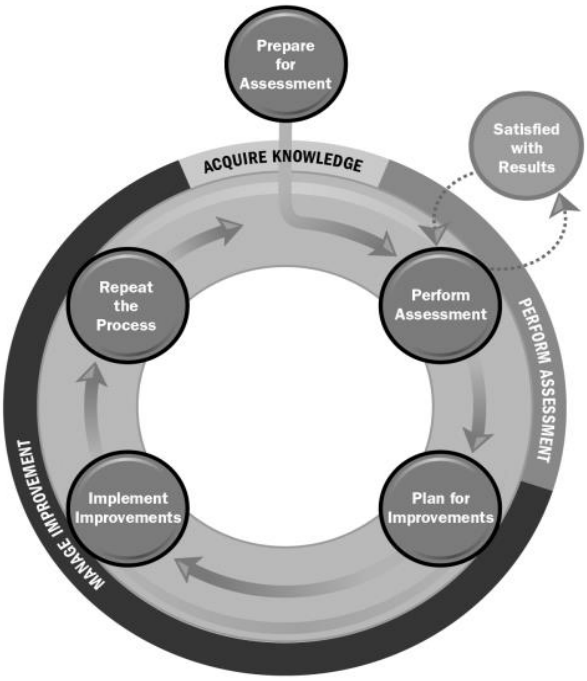
Source: Devesh Verma, Anant Mishra and Kingshuk K. Sinha, "The development and application of a process model for R&D Project", Journal of Operations Management, 2011, Vol. 29, pp. 462–476.

2.3.2. Project Management Maturity and Levels

- Project management maturity refers to a level of implementation, and the project management maturity model that emerges in this context provides a set of standards for organizations to understand project management practices (PMI, 2003). These standards, which are determined by the Project Management Institute, have been updated over time, and in 2013, a third edition and a more detailed evaluation proposal were presented. The steps of this model, consisting of 5 levels, are as follows (PMI, 2013a; 23);
- The first step is the starting step and in this phase firms make a project analysis in line with their mission, vision, core values, goals, objectives and needs.
- In the second stage, firms review their own performance levels by comparing their competencies with the competencies required by the project.
- In the third stage, improvement and development plans are made by eliminating the shortcomings of this comparison.
- In the fourth stage, the companies take the necessary steps to implement the planned plan.
- In the fifth stage, the applied improvements and improvements are controlled.

These maturity levels are shown in Figure 8 below.

Figure 8: Organizational Project Management Maturity Model Cycle (OPM3 Cycle)



Source: PMI Project Management Institute, 2013, Organizational project management maturity model (OPM3), 3. Edition, Project Management Institute, Inc, USA.

Again, PMI identified areas of knowledge that express the activities, concepts and terms that make up the project management field. (PMI, 2013b; 60). These areas are described by Crawford as follows (Crawford, 2015). Scope Management: Scope planning involves a variety of activities, including identification, validation, change control, needs analysis and job separation, and indicates that the elements necessary to complete the project are fully identified. Time Management: It consists of planning and follow-up activities such as identification and ranking of activities, calculation of required resources and staff, and integration of these activities by connecting programs to the programs and aims to complete the project within the determined time. Cost Management: It consists of cost definition, calculation, planning and control and budgeting activities and aims to follow the financing of the project by determining the financial resources required to complete the project. Quality Management: It consists of quality planning, assurance and control and administrative supervision activities. It is aimed to satisfy customer needs, to respond to needs and to ensure compliance with the objectives.

Human Resources Management: consists of HRD planning and the creation, development and management of the project team and aims to identify and develop the HR skill set required for the project. Communication Management: It consists of communication planning and control, problem tracking and management and aims to follow and control project data until collection and use. Risk Management: It consists of risk identification, quantitative and qualitative risk analysis, risk response planning, risk control and risk database creation and aims to control and resolve all risk factors until the project is completed. Procurement Management: Procurement consists of activities such as planning, control and procurement and aims to make procurement contracts necessary for completion of the project. Stakeholder Management: Identification of the stakeholder and the identification of obligations to stakeholders and aims at the management of all persons and segments involved in the project.

3. DATA AND METHODOLOGY

The aim of this research is to measure the scope, time, cost, quality, risk, human resources, communication and supply management practices that are considered as indicators of maturity in project management in the context of techno-entrepreneurship firms and to examine the relationship between these applications and the age, activity area and size of techno-entrepreneurship firms. . The hypotheses formed in this context are as follows;

H1: There is a meaningful relationship between the ages of techno-entrepreneurship firms and project management practices.

H2: There is a significant relationship between the size of techno-entrepreneurship firms and project management practices.

H3: There is a meaningful relationship between the fields of activity of techno-entrepreneurship firms and project management practices.

In this way, the extent to which techno-enterprising firms, which are a type of business with low survival rates, high sectoral concentration and low number of employees, perform activities rated as a demonstration of project management; In the context of their sector, age and size. A 40-question questionnaire was used by Holmes and Walsh (2005) to measure the project case. The original questionnaire consists of open-ended questions and is converted to scale form in triple likert. Stakeholder management from the knowledge areas is not included in the Holmes and Walsh survey because it was defined by PIM in 2013, and our work has not been included. The results of the questionnaires were evaluated by SPSS statistical program in computer environment. Correlation analysis was used when research hypotheses were tested. A sample consisting of firms registered to Techno-Entrepreneurshiip Association was selected and 100 returns were made.

4. FINDINGS AND DISCUSSION

As a result of the research, the sector, age and size distribution of firms are presented in the following tables. Although the majority of the firms are in the R&D field, the firms in the sample are diversified in the sector.

Table 2: Sectoral Distribution

Foundation Year	Company Number	(%)
R&D	83	83,0
Iron&Steel	3	3,0
Air-Conditioning	1	1,0
Energy	9	9,0
Tourism	1	1,0
Agriculture	2	2,0
Textile	1	1,0
TOTAL	100	100,0

The number of employees in the firm is used to determine firm size. Almost all of the enterprises are small and medium sized (SME) enterprises, as can be seen in Table 3 below.

Table 3 : Company Size

Employee Number	Company Number	(%)
0-10	77	77,0
11-50	14	14,0
51-250	8	8,0
> 251	1	1,0
TOTAL	100	100,0

As can be seen in Table 4 below, the majority of firms involved in analysis have been established over the past five years. This suggests that Turkey has given importance to techno-enterprise-based investments in the near future.

Table 4: Company Age

Foundation Year	Company Number	(%)
Before 2000	13	13,0
2000-2005	2	2,0
2005-2010	7	7,0
2010-2015	78	78,0
TOTAL	100	100,0

As a result of the descriptive analysis, 3 companies operating in the climate, tourism and textile sectors and 250+ employees represented by an example were excluded from the evaluation. The results of the correlation analysis with the sample of 96 firms are given in Table 5 below. The results show that there is no relationship between the sector in which the firm is located and the activities rated as indicative of maturity in project management. Regarding the size of the company, the number of employees shows that the applications related to project management are spreading a bit. It is seen that firm size has a positive effect especially on scope and time management. The age of the firm also has a positive effect in a similar manner and has a particularly significant relationship with time and quality management.

Table 5: Corelation Analysis

	1	2	3	4	5	6	7	8	9	10	11
Sector	1										
Size	,065	1									
Age	-,024	,789**	1								
Scope Man.	,041	,281**	,151	1							
Time Man.	,132	,321**	,315**	,615**	1						
Cost Man.	,087	,117	,128	,323**	,546**	1					
Quality Man.	,179	,232	,316**	,465**	,704**	,547**	1				
HRM	,086	,176	,239*	,543**	,607**	,580**	,727**	1			
Risk Man.	,032	-,124	-,186	,433**	,515**	,529**	,530**	,568**	1		
Com. Man.	,146	,126	,090	,585**	,620**	,564**	,680**	,684**	,744**	1	
Proc. Man.	,003	,038	,018	,458**	,459**	,614**	,575**	,576**	,688**	,692**	1

Although the correlation analysis shows a relationship, it does not provide sufficient support for the acceptance of hypotheses. In particular, H3 is completely rejected, and the hypotheses H1 and H2 support only two areas of activity.

5. CONCLUSION

This study on the scope, time, cost, quality, risk, human resources, communication and procurement management practices and the relationship between the activity area, size and age of techno-entrepreneurship firms, which is evaluated as a maturity indicator in project management, does not support such a relationship. In particular, there is no relationship between the sector and project management practices. Only in a narrow frame, there is a significant relationship between firm size and scope and time management practices and firm age and time and quality management practices. This study shows that project management practices may be related to technical and managerial dimensions beyond the company's

demographics. The work to be done in the context of organizational structure and decision-making processes in companies can shed light on the adoption of project management practices..

REFERENCES

Artto, Karlos, Iiro Kulvik, Jarno Poskela and Virpi Turkulainen, 2011, "The integrative role of the project management office in the front end of innovation", International Journal of Project Management, Vol. 29, pp. 408–421.

Bailetti, Tony, 2012, "Technology Entrepreneurship: View, Definition, and Distinctive Aspects", Technology Innovation Management Review, pp. 5-12.

Barlow, James, 2000, "Innovation and learning in complex offshore construction projects", Research Policy, Vol. 29, pp. 973–989.

Beckman, Hristine, Kathy Eisenhardt, Suresh Kotha, Alan Meyer, and Nandini Rajagopalan, 2012, "Technology Entrepreneurship", Strategic Entrepreneurship Journal, Vol. 6, pp. 89-93.

Bilim, Sanayi ve Teknoloji Bakanlığı, 2015, Teknogirişim Sermayesi Desteği Uygulama Usul ve Esasları, https://biltek.sanayi.gov.tr/TSD%20Dkmanlar/Uygulama%20Usul%20ve%20Esaslar%C4%B1.pdf Accessed at 09:58, 31.03.2017.

Bygstad, Bendik and Gjermund Lanestedt, 2009, "ICT based service innovation – A challenge for project management", International Journal of Project Management, Vol. 27, pp. 234–242.

Chiesa, Vittorio, 2000, "Global R&D project management and organization: a taxonomy", Journal of Product Innovation Management, Vol. 17, No. 5, pp. 341-359.

Coombs, Rod; Andrew McMeekin and Roger Pybus, 1998, "Toward the development of benchmarking tools for R&D project management", R&D Management, Vol. 28, No. 3, pp. 175 – 186.

Etzkowitz, Henry, 2003, "Innovation in Innovation: The Triple Helix of University-Industry-Government Relations", Social Science Information, Vol. 42, pp. 293-337.

Eurostat, "Total intramural R&D expenditure (GERD) by sectors of performance", http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do Accessed at 18:22, 28.03.2017

Filippov, Sergey and Herman Mooi, 2010, "Innovation Project Management: A Research Agenda", RISUS. Journal on Innovation and Sustainability, ISSN 2179-3565.

Gann, D.M., Salter, A., 2000, "Innovation in project-based, service-enhanced firms: the construction of complex products and systems", Research Policy, Vol. 29, pp. 55–972.

Gann, D.M., Salter, A., 1998, "Learning and innovation management in project-based, service-enhanced firms", International Journal of Innovation Management, Vo. 2, pp. 431–454.

Holmes, Steve J. and Robert T. Walsh, 2005, "Conducting Effective Project Management Maturity Assessment Interviews", Integrated Management Systems (IMSI TECH 2005).

İTÜ Arı teknokent, "Teknopark Nedir?", http://www.ariteknokent.com.tr/tr/nerede/teknopark-nedir Accessed at 15:32, 30.03.2017.

Kapsali, Maria, 2011, "Systems thinking in innovation project management: A match that Works", International Journal of Project Management, Vol. 29, pp. 396–407.

Katz, Ralph and Thomas J. Allen, 1985, "Project Performance and the Locus of Influence in the R&D Matrix", The Academy of Management Journal, Vol. 28, No. 1, pp. 67-87.

Keller, Robert T., 1994, "Technology-Information Processing Fit and the Performance of R&D Project Groups: A Test of Contingency Theory", The Academy of Management Journal, Vol. 37, No, pp. 167-179.

Liberatore, Matthew J. and George J. Titus, 1983, "The Practice of Management Science in R&D Project Management", Management Science, Vol. 29, No. 8, pp. 962-974.

Manley, K., 2008, "Implementation of innovation by manufacturers subcontracting to construction projects", Journal of Engineering, Construction and Architectural Management, Vol. 15, No. 3, pp. 230-245.

Martinsuo, Miia, Nicole Hensman, Karlos A. Artto, Jaakko Kujala and Ali Jaafari., 2006, "Project-based management as an organizational innovation: drivers, changes and benefits of adopting project-based management", Project Management Journal, Vol. 37, No. 3, pp. 87—97.

Nokes, Sebastian and Sean Kelly, 2007, "The Definitive Guide to Project Management", 2nd Edition, London, England, (Prentice Hall/ Financial Times).

Örnek, Ali Sahin, Yasin Danyal, 2015, "Increased Importance of Entrepreneurship from Entrepreneurship to Techno-Entrepreneurship (Startup): Provided Supports and Conveniences to Techno-Entrepreneurs in Turkey", World Conference on Technology, Innovation and Entrepreneurship, Procedia - Social and Behavioral Sciences, Vol. 195, pp. 1146 – 1155.

Pinto, Jeffrey K. and Dennis Slevin, 1989, "Criticla Success Factors in R&D Projects", Research-Technology Management, Vol. 32, No. 1, pp. 31-35.

Prodan, Igor, 2007, "A model of technological entrepreneurship" in Handbook of Research on Techno-Entrepreneurship (François Thérin Edition), Great Britain by MPG Books Ltd, Bodmin, Cornwall, pp. 26-38.

PMI Project Management Institute, 2013a, Organizational project management maturity model (OPM3), 3. Edition, Project Management Institute, Inc, USA.

PMI Project Management Institute, 2013b, A Guide to the Project Management Body of Knowledge, 5. Edition, Project Management Institute, Inc, USA.

PMI Project Management Institute, 2003, Organizational project management maturity model (OPM3), Project Management Institute, Inc, USA.

Resmi Gazete, (2001), Teknoloji Geliştirme Bölgeleri Kanunu, http://www.resmigazete.gov.tr/eskiler/2001/07/20010706.htm Accessed at 19:33, 30.03.2017.

Roja, Alexandru and Marian Nastase, 2014, "Technology Entrepreneurshıp And Entrepreneurıal Strategıes", Proceedings of the 8th International Management Conference, Bucharest, Romania.

Shenhar, Aaron J and Dov Dvir, 2007, "Project Management Research-The Challenge And Opportunity", Project Management Journal, 38, 2.

Shenhar, Aaron J and Dov Dvir, 1996, "Toward a Typological Theory of Project Management", Research Policy, Vol. 25.

Sicotte, Helene and Ann Langley, 2000, "Integration mechanisms and R&D Project performance", J. Eng. Technol. Manage., Vol. 17, pp. 1–37.

TGBD, Teknoloji Geliştirme Bölgeleri Derneği, 2017, http://www.tgbd.org.tr/WebContent/WebContent/4701

Turkey Statistic Institute, Adrese Dayalı Nüfus Kayıt Sistemi, http://www.tuik.gov.tr/PreTablo.do?alt_id=1059 Accessed at 12:08, 28.03.2017.

World Bank, World Development Indicators, http://databank.worldbank.org/data/reports.aspx?source=2&type=metadata&series=GB.XPD.RSDV.GD.ZS# Accessed at 12:08, 28.03.2017

World Bank, World Research and development expenditure (% of GDP), http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=TR Accessed at 18:53, 28.03.2017.

Yalçıntaş, Murat, 2014, "Üniversite - Sanayi - Devlet İşbirliğinin Ülke Ekonomilerine Etkileri: Teknopark İstanbul Örneği", Finansal Araştırmalar ve Çalışmalar Dergisi, Vol. 5, Iss.: 10, pp. 83-106.

Zedtwitz, Maximilian von, 2002, "Organizational learning through post-project reviews in R&D", R&D Management, Vol. 32, No. 3, pp. 255-268.