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SUCCESS AND FAILURE FACTORS FOR TECHNOLOGY-BASED STARTUPS: TURKISH ENTREPRENEURS' PERCEPTION

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SUCCESS AND FAILURE FACTORS FOR TECHNOLOGY-BASED STARTUPS: TURKISH ENTREPRENEURS' PERCEPTION

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Approval of the Graduate School of Social Sciences

_____

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I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Business Administration.

_____

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This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Business Administration.

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ABSTRACT

SUCCESS AND FAILURE FACTORS FOR
TECHNOLOGY-BASED STARTUPS:
TURKISH ENTREPRENEURS' PERCEPTION

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The aim of this thesis is to investigate and analyze the perception of Turkish entrepreneurs on the factors affecting the success of technology-based startups. The main contribution of this study to the literature is the data it presents and its usefulness in understanding the success factors for technology-based startups in terms of entrepreneur's perception.

In the scope of this study, a survey has been conducted with 111 entrepreneurs who have taken part in a technology-based startup as a founder or partner. Entrepreneurs were asked to evaluate the most and the least successful technology-based startups that they have witnessed the development stages in terms of 28 factors under the categories of the lead entrepreneur, the team, business idea and market, strategy and financial consideration. In order to measure the performance; sales, profit, return on investment, market share and number of users were asked to be evaluated.

One of the most remarkable results of this study is that the perception of entrepreneurs on the performance of technology-based startups is not very sensitive to regional and

cultural differences. The study did not find a significant correlation between the time and capital requirement of the business idea and the performance of the technology-based startup. Lastly, full-time devotion, technical and organizational skills of the lead entrepreneur, the network of the team and the strategies of the company proved to have a significant effect on the success of the enterprise.

Keywords: Startup, Technology-Based Entrepreneurship

ÖZ

TEKNOLOJİ TABANLI GİRİŞİMLER İÇİN
BAŞARI VE BAŞARISIZLIK FAKTÖRLERİ:
TÜRK GİRİŞİMCİLERİN ALGISI

Hızal, A. Sercenk
İşletme Yüksek Lisansı, İşletme Bölümü
Tez Yöneticisi: Doç. Dr. Adil Oran

Şubat 2019, 131 sayfa

Bu tezin amacı, teknoloji tabanlı girişimlerin başarısına etki eden faktörler üzerinde Türk girişimcilerin algısını araştırmak ve analiz etmektir. Bu çalışmanın literatüre ana katkısı; sunduğu veriler ve bu verilerin, teknoloji tabanlı girişimlerin başarısına etki eden faktörleri girişimcilerin algısı açısından anlamaktaki faydasıdır.

Tez çalışması kapsamında, daha önce teknoloji tabanlı bir girişimde kurucu veya ortak olarak yer almış 111 girişimciyle bir anket yapılmıştır. Bu ankette girişimcilerden gelişimine şahit oldukları, teknoloji tabanlı en başarılı ve en başarısız iki girişimi lider girişimci, girişim ekibi, iş fikri ve pazar, strateji ve finansal durum kategorileri altındaki 28 faktör açısından değerlendirmeleri istenmiştir. En başarılı ve en başarısız girişimlerin performanslarının ölçülmesi için ise için satış, kâr, yatırımın geri dönüşü, pazar payı ve kullanıcı sayısı göstergelerinin değerlendirilmesi istenmiştir.

Bu çalışmanın en dikkate değer sonuçlarından biri, teknoloji tabanlı girişimlerin performansı üzerinde girişimcilerin algısının bölgesel ve kültürel farklılıklara çok duyarlı olmadığıdır. Bu çalışmada, iş fikrinin zaman ve sermaye gereklilikleri ile

teknoloji tabanlı girişimlerin performansı arasında anlamlı bir korelasyon bulunmamıştır. Son olarak girişimle tam zamanlı ilgilenmek, lider girişimcinin teknik ve organizasyonel becerileri, girişim ekibinin iletişim ağı ile şirket stratejilerinin girişimin başarısına ciddi katkıları olduğu bulunmuştur.

Anahtar Kelimeler: Yeni Girişim, Teknoloji Tabanlı Girişimcilik

To My Family,

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First of all, I wish to express my deepest gratitude to my supervisor Assoc. Prof. Dr. Adil Oran for his continuous support, guidance, criticism and encouragement throughout this study. Without him, this thesis could not be as improved as it is now.

I would like to express my gratitude to my parents for their unconditional love. Awareness of being loved no matter what you do must be the most comforting feeling in the world.

I am deeply thankful to my company; Yıldızlar Group, my employer; Edip Eren and my principal; Cengiz Ilman for supporting me in obtaining a Master's degree.

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LIST OF ABBREVIATIONS

ABİGEM	: EU Turkey Business Development Center
AI	: Angel investor
AKA	: Ankara Development Agency
EU	: European Union
GEM	: Global Entrepreneurship Monitor
GİSDEP	: Venture Capital Funding Program
KA	: Development Agencies
KGF	: Credit Guarantee Fund
KOSGEB	: Small and Medium Industry Development Organization
SME	: Small and medium-sized enterprises
TOBB	: The Union of Chambers and Commodity Exchanges of Turkey
TSKB	: Türkiye Sınai Kalkınma Bankası
TTGV	: Technology Development Foundation of Turkey
TÜBİTAK	: The Scientific and Technological Research Council of Turkey
TÜİK	: Turkish Statistical Institute
VC	: Venture Capitalist

CHAPTER 1

INTRODUCTION

Due to its potential of creating value, providing employment and contributing to sustainable economic growth, technology-based entrepreneurship gains an important role in the development of countries (Nyström, 2009). With the advancements in technology especially from the 1980's, significance of technology-based entrepreneurship has increased tremendously.

With the technology and innovation at their core, technology-based ventures generally aim to have scalable business models. Actually, they seem to have high potential to create huge profits; which comes with a high level of uncertainty. This uncertainty results in limited survival rate in technology-based ventures. Whereas a limited number of techno-entrepreneurs achieve to create successful ventures that could possibly make more profit or create more social impact than the firms that exist tens or hundreds of years, a significant portion of techno-entrepreneurs taste the failure (see Figure 1.1: Average Establishment Survival Rate). According to U.S. Small Business Administration; till the end of first year, more than 1 out of 5; within the first 5 years, more than half of the business establishment attempts results with failure.[1] Considering the higher uncertainty level at the technology-based ventures than conventional ventures, the more marginal results are possible.

The aim of the study is to measure Turkish entrepreneurs' perception of the success factors of technology-based enterprises. For that purpose, the factors that lead to success and failure, the profile of the entrepreneurs and entrepreneurs' perception of success factors were examined.

[1] https://www.sba.gov/sites/default/files/SurvivalRatesAndFirmAge_ADA_0_0.pdf

Even though the literature about entrepreneurship in Turkey has expanded over the recent years, it is still behind the developed countries. This study is conducted with Turkish entrepreneurs and aims to be a contribution to the related literature in Turkey and Turkish entrepreneurship ecosystem.

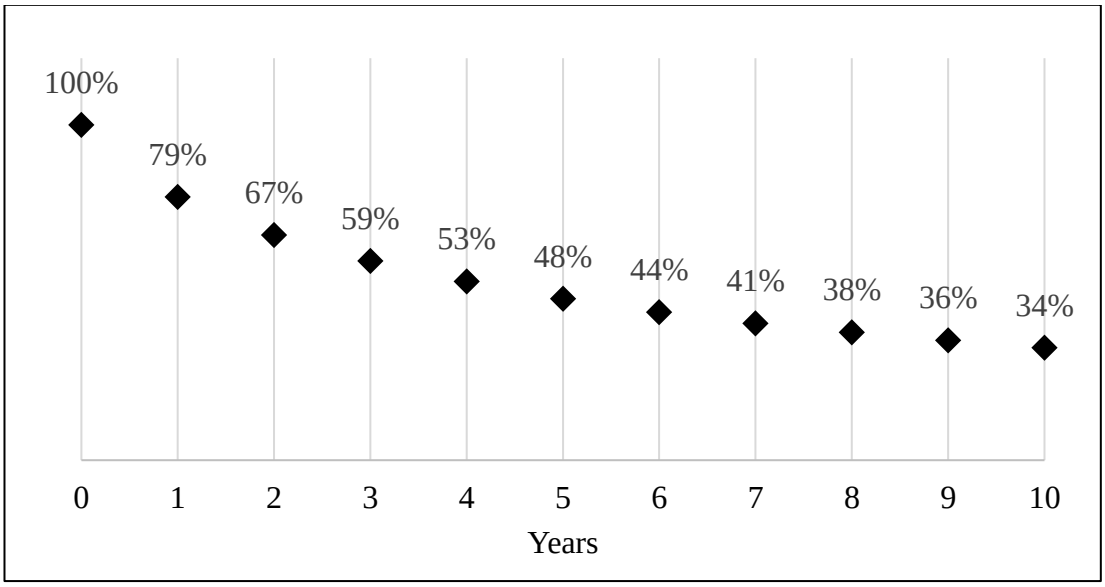

Figure 1.1: Average Establishment Survival Rate

Source: U.S. Small Business Administration

The main hypothesis of this study is that; despite the regional, cultural and economic condition differences, Turkish entrepreneurs' success perception of technology-based enterprises will be similar to other samples around the world. Furthermore, the profile of the entrepreneurs will affect their perception of the subject.

The data used to analyze in the scope of this study is the survey results of 111 Turkish entrepreneurs who have worked as founder/partner at a technology-based venture. Participants were asked to evaluate the most and the least successful ventures, which they have witnessed the development stages according to 28 success factors under five groups and 5 performance indicators. It should be noted that, survey result contains data for 222 technology-based ventures in total, but the entrepreneurs were not asked to name the ventures that they selected. As a result, the number of 222 ventures could

have some duplication and actual number of different ventures could be lower than that.

In order to gather data, entrepreneurs were reached out by e-mail and social media. Many people and institutions from the entrepreneurship ecosystem were contacted to reach more entrepreneurs. It is worthy to note that, more than half of the participants were registered at TÜBİTAK support programs database.

The expected results of the study are as follows;

- Entrepreneurs who worked full time instead of part-time will have a positive effect on venture's success.
- Ventures that require less time and resources will do better compared to their more resource-dependent counterparts.
- Team's ability to network with related people, institutions and organizations has a direct correlation with the venture success.
- Entrepreneur's technical and organizational skill set will have a positive impact on venture's performance.
- Entrepreneur's educational background, work and R&D experience in regard to "idea" compatibility are not critical to startup success.
- Whether the startup is local or global does not directly affect its performance.
- The size of startup team does not impose an important contribution to its success.
- Strategies (organizational and/or financial) followed by the venture has a significant importance in its success.

The organizational scheme of the study aims to break down the topics in the manner that explains the current situation in Turkish entrepreneurial ecosystem, review the present literature and compare the analyzed data to draw conclusions.

First, the study states its list of hypotheses that are mentioned above. Later, it goes into detail about Turkish entrepreneurial ecosystem. In doing so, it benefits from Turkish

Statistics Institution (TÜİK) and Global Entrepreneurship Monitor (GEM) reports. Later it breaks down the entrepreneurial support programs available for technology-based startups in detail which are governmental, private and incubation/ acceleration programs based.

The second part of the literature review is dedicated to understanding and discussing the definition of success. After doing so, it analyzes current literature for their definition of success and highlights the principal consensus groups in accordance with their performance indicators.

The third portion of the literature review is dedicated to investigating the success factors. The study compiles the factors mentioned by the literature and groups them into its respective segments.

In the following part, the study draws conclusions from the literature review with the intention to compare them with both hypotheses and the findings of the study.

After the literature review, the study explains the data collection and methodology. It answers why entrepreneurs were chosen as a focus and explains the definition of "entrepreneur" that was used in data collection. In the next section, the survey method is explained. For this purpose, the study goes into depth about its questions and why these questions were chosen in accordance with the literature review.

The next segment is dedicated to analysis and results of the study. It gives a general conclusion and details of the analysis which are visually presented and explained further.

Lastly, the study discusses some key points regarding the literature review and the collected data respective to its findings. It gives a final conclusion about data analysis and how it compares to both the literature and the hypotheses. Finally, it mentions the limitations that were present during the research and preparation of the study and offers direction for further research for those who might benefit from this study.

CHAPTER 2

LITERATURE REVIEW

2.1. Entrepreneurship in Turkey

2.1.1. Development of Entrepreneurship Ecosystem in Turkey

Entrepreneurship is a growing trend both in the world and in Turkey. Turkish Statistics Institute (TÜİK) reported the number of active enterprises as 2,591,082 in 2011, 2,646,117 in 2012, 2,695,131 in 2013 and 2,677,316 in 2014 (see Figure 2.1: Number of Active Enterprises in Turkey).

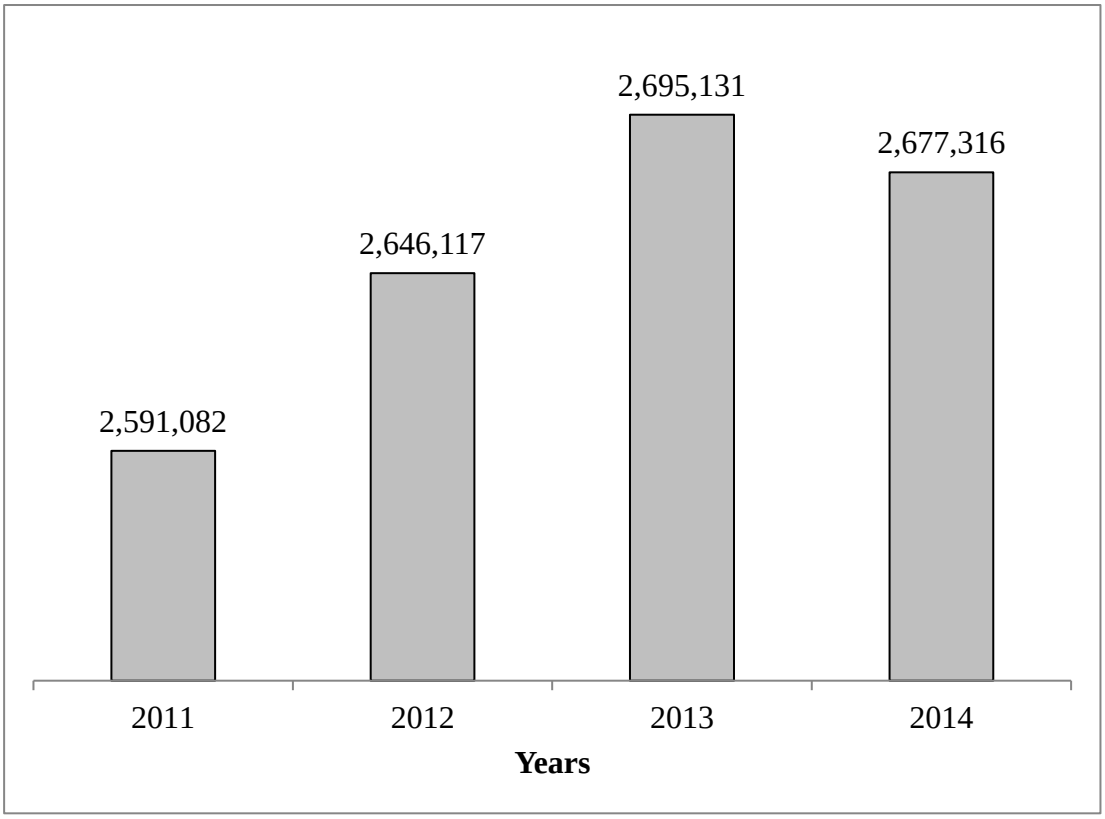

Figure 2.1: Number of Active Enterprises in Turkey

With these advances, support programs of various sources and sizes also entered the ecosystem. These support programs can be grouped into three main categories: Governmental support programs, private support programs, and incubation/acceleration programs. Governmental programs generally target SMEs and cover all stages of venture development, even integrating government-operated banks. Private investments and incubation/acceleration centers are relatively new and they target early stages of startup development, mainly pre-seed and seed stages of the operation. Further details on support programs are discussed in 2.1.2 section of the study "Main Entrepreneurship Supports in Turkey." In addition to that, Global Entrepreneurship Monitor (GEM) in their 2010 report[2] for Turkey states that;

> In 2010, 3.69% of the adult population in Turkey were actively trying to start a business (nascent entrepreneurs); 5.05% were owner−managers of a business that was 3-42 months old (new businesses). Early-stage entrepreneurial activity, the sum of the nascent entrepreneurship rate and the new business owner-manager rate was 8.52% in Turkey, higher than the average of 6% recorded for 2006−2008.

GEM Turkey 2010 report states that, enterprise survival rate (survival for more than 42 months) has improved from 4.82% to 10.73% since 2008. In other words, 5.91% more of early stage entrepreneurs achieved to transform into established businesses. An interesting finding of the report is that Turkish entrepreneurship ecosystem sits on the fourth rank in female-led ventures among GEM countries. 2010 GEM report finds the entrepreneurial education in Turkey to be insufficient. The report points out that entrepreneurs worldwide are under pressure and Turkish ecosystem endured relatively well.

GEM reports that Turkish ecosystem is favorable for commercial and professional infrastructure. In terms of internal market dynamics, Turkey has been found feasible for entrepreneurial activity. Other findings of the GEM report regard societal

[2] https://www.gemconsortium.org/report/48353

perception of entrepreneurship in Turkey. The report says that, although not particularly encouraged towards it, entrepreneurs have a respectable place in society since the public opinion views entrepreneurship as a valid way to reach financial status, making budding entrepreneurs more accepted.

Turkey has been slow to develop an ecosystem for technology-based entrepreneurship compared to North America, Europe and the Far East. For a long time, Turkey overlooked SMEs and focused on industrialization on big scales. The importance of SMEs was acknowledged and promoted starting in early 1990's. However, each year, more and more companies are starting/leaning towards the procuring of technology-based products. Some statistics from TÜİK's biennial innovation reports of years 2012[3], 2014[4] and 2016[5] are shown below. In Figure 2.2, percentage of companies claim that they performed innovation activity in recent year in turkey is given.

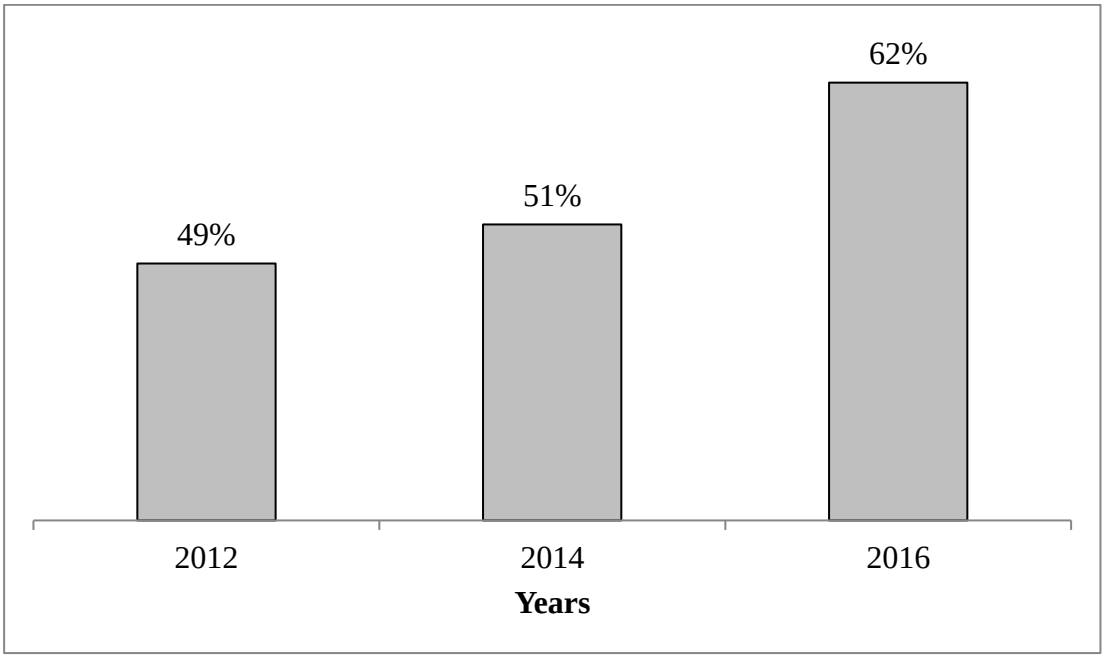

Figure 2.2: Innovation Activity of Companies in Turkey

[3] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=13640

[4] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=18662

[5] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=24864

Furthermore, R&D expenditure has significantly increased in both public and private sectors. R&D spending according to the data presented by TÜBİTAK[6] is shown below.

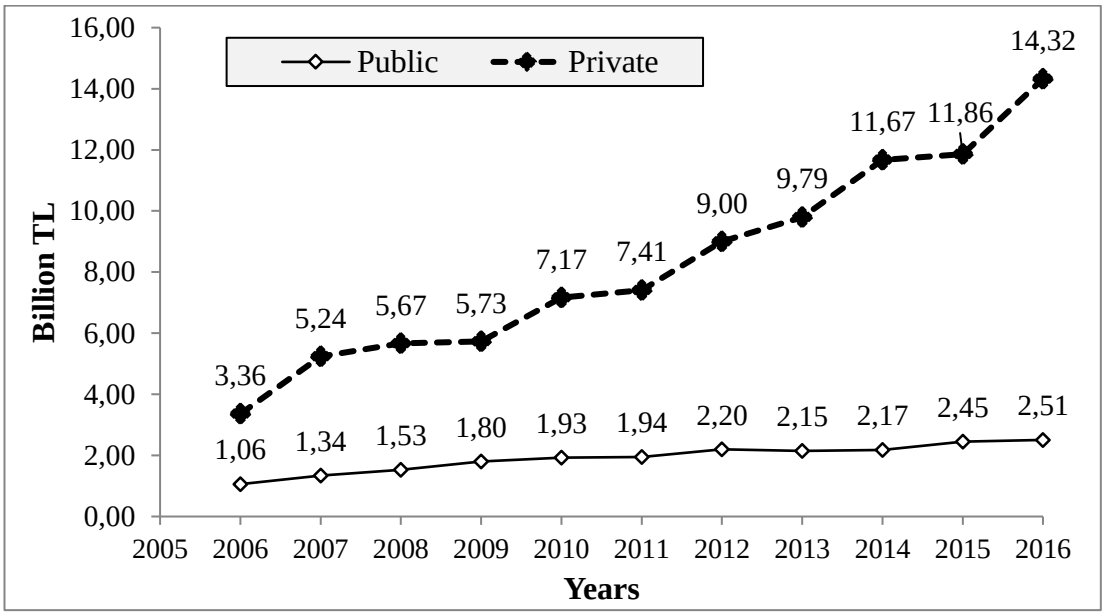

Figure 2.3: R&D Expenditure in Turkey

Other mention-worthy TÜİK reports regard enterprise longevity. According to TÜİK in 2012[7], enterprise birth rate was 26.4% and death rate was 18.6%. 86.4% of the enterprises born in 2011 survived 2012. In 2013[8], birth and death rates were 14.8% and 7.1%. 79.4% of 2012 born enterprises survived 2013. 2014's[9] birth rate was 15.7%, the death rate was 11.5% and 81.9% of 2013-born ventures survived 2014. The birth rate in 2015[10] was 13.1% with 68.8% of enterprises born in 2014 surviving. 2015-born enterprises survived into 2016 with a percentage of 82.9.

[6] https://www.tubitak.gov.tr/sites/default/files/289/bty15.pdf

[7] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=16190

[8] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=18646

[9] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=21529

[10] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=24870

2.1.2. Main Entrepreneurship Supports in Turkey

Technology-based startups in Turkey may benefit from a variety of entrepreneurship supports. These supports can be divided into three categories: Governmental support programs, private investors including angel investors and venture capitalists, and incubation/acceleration programs.

2.1.2.1. Governmental Support Programs

The Scientific and Technological Research Council of Turkey (TÜBİTAK) offers a variety of supports including entrepreneurship programs. From the year 1995 TÜBİTAK has started offering entrepreneurship support programs, 34,874 projects were admitted and 18,872 projects were funded with 7.1 billion TL which generated a 12.7 billion TL in R&D market volume[11].

The 1512 Entrepreneurship Support Program[12] was introduced by TÜBİTAK in 2012. The aim of the program is to allow young entrepreneurs (students who are qualified to graduate within a year, MS and Ph.D. students, and those who concluded their MS and Ph.D. degrees within last 10 years) to introduce technology-based innovations to the national and international marketplace. Since the program's start in 2012, 12,866 projects were submitted, 2,346 were asked to present a business model and 958 were funded. The program started off with a grant of 100,000 TL and was increased to 150,000 in 2015. The grant can be used to cover personnel, travel, equipment, office and service costs.

1514 Venture Capital Funding Program (GİSDEP)[13] targets SMEs in their startup and seed stages. Unlike 1512 Entrepreneurship Support Program, TÜBİTAK contributes 20% of the fund and covers the through GİSDEP's collaboration with private

[11] https://www.tubitak.gov.tr/sites/default/files/292/teydeb_istatistikler_2018_8mart.pdf

[12] https://www.tubitak.gov.tr/tr/destekler/sanayi/ulusal-destek-programlari/1512/icerik-destek-kapsami

[13]https://www.tubitak.gov.tr/tr/destekler/girisimcilik/ulusal-destek-programlari/icerik-1514-girisim-sermayesi-destekleme-programi-gisdep

investment. Therefore, it funds the SME as well as the investor who is referred as "fund manager". Fund managers are required to have a background in management or investing to qualify as a fund manager. Entrepreneurs and venture capitalists who have previously been active in teams consisting as fund managers may qualify as "fund manager candidates".

The aim of 2238 Entrepreneurship and Innovation Contest Program[14] is to encourage undergraduate students who have business ideas towards actualizing them. The program was created to act as an opportunity for students who wish to pursue entrepreneurship as a career and turning scientific findings into internationally competitive new business for the marketplace. Projects are subjected to an evaluation that considers four categories which are innovation, feasibility, sustainability and social impact. Contestants who succeed regionally are funded a prize of 1,500 TL to 3,000 TL whereas contestants who succeed nationally are funded between 5,000 to 10,000 TL.

Small and Medium Industry Development Organization (KOSGEB) was established in 1990 in order to offer grants to entrepreneurs who otherwise did not have means to finance their projects or grow their existing business. KOSGEB offers a variety of grants[15] to entrepreneurs from various fields including technology-based startups. Besides the entrepreneurship supports and grants, KOSGEB provides free entrepreneurship educations and entrepreneurs are required to attend these educations before the application of support programs.

With Entrepreneurship Support Program, KOSGEB offers a grant[16] of up to 150,000 TL, 100,000 TL of which needs to be reimbursed. The grant can be used for the funding costs of the company, machinery, office supplies and general maintenance. The program has added benefits for women, disabled and veterans.

[14] https://www.tubitak.gov.tr/sites/default/files/2750/2238-2018_ilani-web_sitesi.pdf

[15] http://www.kosgeb.gov.tr/site/tr/genel/destekler/3/destekler

[16] http://www.kosgeb.gov.tr/site/tr/genel/detay/1231/girisimcilik-destek-programi

KOSGEB's General Support Program[17] offers up to 470,000 TL divided into multiple categories for entrepreneurs and SMEs. High-Tech SMEs may benefit from educational and consulting portions of the said categories. This program is not reimbursed.

KOSGEB's R&D and Innovation Support Program[18] provides a grant up to 1,500,000 TL. This program is available for entrepreneurs and SMEs who have a technology-based research or innovation project. R&D and Innovation program compensates 75% of rental, staff expenses and project expenses. It also compensates 75% of 150,000 TL machinery expenses or 75% of 300,000 TL to be reimbursed.

Technomarket Program[19] directly aims at technology-based startups and SMEs. This program targets market competitiveness, in particular, to encourage R&D and innovation efforts into becoming marketable products. For this purpose, the program grants 150,000 TL to be used nationally (50,000 TL) and internationally (150,000 TL). This support is given as grant.

International Incubation Center and Acceleration Support Program is divided into two categories[20] and these two categories are aiming the different stakeholder groups of the entrepreneurship ecosystem. Firstly, the program grants up to $3,750,000 for institutions who wish to open and operate an Incubation Center outside of Turkey. Secondly, entrepreneurs who wish to set off their startups outside of Turkey are given a grant up to $60,000. The program aims to allow future SMEs to pursue their entrepreneurial efforts in denser incubation environments. As a result, this program is very important for both institutions and individuals that wants to be a part of the entrepreneurship ecosystem in Turkey.

[17] http://www.kosgeb.gov.tr/site/tr/genel/detay/1230/genel-destek-programi

[18] http://www.kosgeb.gov.tr/site/tr/genel/detay/1229/arge-ve-inovasyon-destek-programi

[19]http://www.kosgeb.gov.tr/site/tr/genel/detay/5804/teknopazar-teknolojik-urun-tanitim-ve-pazarlama-destek-programi

[20]http://www.kosgeb.gov.tr/site/tr/genel/detay/1235/uluslararasi-kulucka-merkezi-ve-hizlandirici-destek-programi

Ankara Development Agency (AKA) has been funding entrepreneurs and startups of various sizes with financial and technical support since 2011[21]. Although it is a non-profit organization, AKA generates its sources independently and estimates a 15,000,000 TL in funding in 2018. The main focus of AKA is furthering innovations into product stage as they will be funding two-thirds of their funding in this area. One-third of their resources will be funded by local product funding. AKA is unique in its mission statement as they extend their support program to other non-profit organizations as well as SMEs, universities and entrepreneurs.

There are certain governmental institutions and organizations worth mentioning that offer both grant and reimbursable support programs, benefits, education and consultation to entrepreneurs which do not operate on large scales like TÜBİTAK and KOSGEB.

The Union of Chambers and Commodity Exchanges of Turkey (TOBB) is one of the organizations who offer ABİGEM funding to SMEs in collaboration with European Union (EU) on a €50,000,000 scale[22]. TOBB's main mission is to encourage and enable SMEs into the economy.

Technology Development Foundation of Turkey (TTGV), despite being a non-profit oriented establishment, classifies as a governmental foundation for being installed due to an agreement between World Bank and the Turkish government. TTGV provides grants in various areas including R&D[23].

Türkiye Sınai Kalkınma Bankası (TSKB) is another institution that was founded by an agreement between Turkish Central Bank and World Bank and operates as an investment banking principle. It provides long-term loans to entrepreneurs[24].

[21] http://www.ankaraka.org.tr/tr/genel-bilgiler_46.html

[22] https://www.tobb.org.tr/AvrupaBirligiDairesi/Sayfalar/ABIGEM.php

[23] http://www.ttgv.org.tr/tr/biz-kimiz/ttgv-hakkinda

[24] http://www.tskb.com.tr/tr/yatirim-bankaciligi

KGF is another guarantee fund which provides loans for entrepreneurs including High-Tech industry. KGF also aims to help entrepreneurs who received reimbursable support from government; therefore, it is a strategic partner of KOSGEB, TÜBİTAK, EXIMBANK and TTGV[25].

Development Agencies (KA) operates under Ministry of Development. As of 2018, there are 10 KAs that operate in 26 towns. The purpose of KAs is to minimize the grant inequality between rural and urban SMEs. KAs do not primarily operate as first-hand investors, however, networks SMEs to investors, therefore, creating a significant amount of investment volume. However, it does give grants and reimbursable supports to SMEs for various expenses. Since starting operation in 2008, it funded 505,000,000 TL making it the largest government fund in volume[26].

2.1.2.2. Private Investors

In recent years, private investments by both angel investors (AI) and venture capitalists (VC) who operate in Turkey has been growing significantly, attracting both local and international investors which can be discussed in five main categories: angel investments, pre-seed/seed, early stage, tech accelerator funds and late stage/growth. Criteria of investors whose data have been collected for this study is to be active as of 2018 and to have funded at least one startup.

Angel investors in Turkey invest in nearly all stages of startup development, but their preferred timeline is seed and early stage. Angel investors can be private investors, formations in campuses and techno parks, guilds of businessmen and branches of banks. Significant angel investors whose data have been gathered from their public records or private e-mailing showcases a tendency in technology-based startups and e-commerce. Although their fund pools vary, angel investors tend to grant up to 150,000 TL. Some of the biggest angel investors of Turkey are BIC Angels, E-Tohum Investor

[25] http://www.kgf.com.tr/index.php/tr/

[26] http://www.kalkinma.gov.tr/Pages/Mevzuat.aspx

Club, Galata Business Angels, Keiretsu Forum Türkiye, İstanbul Startup Angels, TR Angels, TEB Melek Yatırım Platformu, Bümed Business Angels.

Investors who focus on the **pre-seed and seed stages** of funding in Turkey, like angel investors, prefer high-tech and e-commerce enterprises as the market is feasible for such startups.

Investors operating in the **early stage** of startups are mostly venture capitalists and invest between 100,000 TL to 500,000 TL. When the operation and data of these investors are examined, their funding focus is seen to be mobile applications, e−commerce and game development.

In Turkey, operations of **late-stage and growth** funding started relatively late compared to other stages. When the origins of these investors are analyzed, the data shows them not to be investment-oriented firms but branches of large cooperation and banks.

2.1.2.3. Incubators and Accelerators

The vast majority of incubation centers and accelerators in Turkey are university/techno park based. They offer office space, office supplies and mentoring which has high feasibility for technology-based startups.

2.2. Definition of Success

This section is dedicated to exploring the definition of success, how does it apply to technology-based startups, the indicators which determine the performance of a new venture and success factors for startups which have been found effective or ineffective. The reason why ineffective factors are also mentioned is mainly to point out a broader spectrum of factors but also to explore their contribution to some of the success factors. This section will lead up and clarify this study's survey design - How literature review affected the chosen factors asked to survey participants.

In a 2008 meta-analysis related to new technology ventures, authors argue because of the high failure rate of new technology ventures, it is vital to identify the factors leading to the success and thereof failure of the said ventures. They criticize the current academic literature that focuses on new technology ventures for "not offering enough insight" and for producing empirical results which are controversial and fragmented. Therefore, in an attempt to make a contribution to technology-based venture literature they present five categories which should be considered/followed in determining definition of success: Integrated quantitative evaluation of the success factors, universal success factors, controversial factors which should be offered a reason to by the moderator, reporting existing high-quality scales of constructs and proposing and providing a future roadmap for future research (Song *et al.*, 2008).

Success, when examined as a generic term, can have a few different definitions. In the broadest sense, it means accomplishing or achieving a goal. Kakati (2003), defines success as "the achievement of something desired, planned or attempted". However, when the sub-definitions of success are studied, a branch of other considerations come into play such as time and specified parameters, making it more complex and relative to the subject at hand. To quote Business Dictionary[27], success is "achievement of an action within a specified period of time or within a specified parameter."

Academic studies regarding success or failure of new ventures do so by considering various metrics which can be grouped into two sections. Both groups often focus on the financial success; however, they can also regard the creation or growth of a new venture. For that reason, this study aims to review both groups metrics as the mere creation of a venture does not necessarily mean success or growth of a firm can be subjective as the "amount" of growth might be debatable in terms of whether it was successful or not.

The first group of metrics are binary metrics which ties the result to a singular parameter such as business launch or maintaining business for a given period of time. Van Gelderen, Thurik and Bosma (2003) followed 517 nascent entrepreneurs over the

[27] (http://www.businessdictionary.com/definition/success.html)

period of three years and success definition was whether they stayed in business or not in this period. Similarly, Gurdon and Samsom (2010), followed up on 17 scientists that were initially interviewed in 1989 and researched if they stayed in business by 2001 as a success condition. Some studies are even broader, like Wang and Lestari (2013), which investigated 55 biopharmaceutical companies and defined "market entry rate" as their success condition.

The second group of metrics is numeric metrics which aims to measure a certain parameter such as sales, profit and growth. A good example to this is the study conducted by Unger *et al.* (2011), in which human capital's effect on growth was measured by creating a formula comprised of a number of samples; sample size, reliability corrected and sample size weighted mean effect size, variance in effect sizes, sampling error variance, statistic based on test for significance of difference in effect sizes, size versus growth, growth versus profitability and profitability versus size. In addition, to determine if an effect size was different from zero, they computed a 95% confidence interval. Another example is a study by Robert *et al.* (2001) who researched three previous studies on venture growth that focused on isolated factors in an attempt to propose a multidimensional model. In order to do so, data was gathered from 307 woodworking companies for 17 theory-based predictors. They later evaluated the accuracy of the raw performance data by checking the agreement of results for the sample sizes of the said studies and found a correlation.

In this thesis, success indicates the performance of technology-based ventures based on sales, profits, the return on investment, market share and growth of the number of users which will be discussed further in survey design. One point that needs to be made concerns the growth of the number of users. Academic literature on this matter is insufficient. However, considering some of the greatest technological inventions took decades to reach millions of users (i.e. television, computer, airplane), the time required to reach users through new technological ventures have dropped significantly in recent years enabling entrepreneurs to monetize the user-base by creating a new revenue model even if the original venture is unsuccessful.

2.3. Performance Indicators for Startups

In literature, the success conditions vary according to startup phase for each of these phases have their own success conditions until they reach the new phase. Since ventures are an economic concept as a whole, performance indicators are of financial nature. These indicators can be grouped into three categories which are launching a business, venture growth and sustaining the business.

2.3.1. Business Launch

The studies which focus on business launch tend to do so by investigating entrepreneur and environment specific factors. In doing this, studies argue new venture creation heavily relies on educational background, experience in respective fields, risk perception, market perception and managerial abilities of the entrepreneur. Therefore, it can be argued that market plays a role in the sense that how entrepreneur views it. In fact, ventures can do arguably well in times of economic crisis (Devece, Peris-Ortiz and Rueda-Armengot, 2016).

2.3.2. Business Growth

Business growth is another success criterion, although studies often point out to limitations to this end. Miner (1997), sets this criterion as “firm grew significantly whereas a meta-analysis of 70 articles by Unger *et al.* (2011) take “profitability” as a sign of growth. The growth of the firm can be also tied to a few other parameters such as the number of employees and market share (Song *et al.*, 2008); however, the financial growth of the firm as opposed to holding it to a numeric standard is the dominant argument.

2.3.3. Sustaining the Business

Last criteria of success in literature are to sustain the business, in other words, staying in business. Studies on this criterion focus on entrepreneurial factors - mainly

motivation, resource management and organizational management style of the entrepreneur. Ventures who target non-dominated markets and sticking to a detailed business plan (Roure and Maidique, 1986) or show motivation and persistence in their plan prior to investing (Khan, 1986) are more likely to stay in business.

2.4. Effective Success Factors for Startups

2.4.1. Entrepreneur Specific Factors

The lead entrepreneur/founder is perhaps the most common and agreed upon factor in literature. A significant number of studies have determined entrepreneur's personality and background traits to be very effective in the success of a startup.

2.4.1.1. Personality

The personality of the entrepreneur affects other significant factors such as motivation, management and strategy. Miner (1997) has determined four types of entrepreneur personalities based on a system which calls 15 scores from 9 tests. This study concludes there is not a "one size fits all" personality in achieving entrepreneurial success, however, each of the personality types have their core strengths and weaknesses that have to determine their strategy in the pursuit of doing so. The main takeaway of the literature is that, as opposed to previous research a wider range of personality types are now believed to be effective in entrepreneurial success. However, all the personality types still share common traits such as opportunity recognition, motivation/ambitiousness and persistence.

2.4.1.2. Risk Perception

The risk perception of the entrepreneur plays a vital role in marketing and product development. Duchesneau and Gartner (1990) found lead entrepreneurs in successful firms were more likely to look to reduce risk. Dvir, Sadeh and Malach-Pines (2010) presented their survey participants with hypothetical risk scenarios and scored them in

three subsections -entrepreneurial, managerial and investment. In conclusion, similar to findings of Miner (1997), certain personality types were prone to be attracted to ventures determined by how much risk they were willing to take. Therefore, risk perception is an important factor, considering the factor is not whether the entrepreneur is willing to take risk or not but more so how much risk the venture presents.

2.4.1.3. Education

Entrepreneur's education/academic background is important, more so in technology-based startups since there they require a certain amount of knowledge of the field. Dvir, Sadeh and Malach-Pines (2010) found the level of education was significantly higher in technology-based startups compared to low technology ventures. Talaia, Pisoni and Onetti (2016) found entrepreneurs who had business degrees or MBAs were much more likely to secure capital investment.

2.4.1.4. Motivation

Olugbola (2017) analyzed entrepreneurial readiness and found motivation to be a core factor alongside opportunity recognition, resources and ability. Cooper, Woo and Dunkelberg (1988), who studied entrepreneurs' perceived chance of success from a sample group of 2,994 new business owners to be exceptionally motivated and optimistic about their business. Study of Khan (1986) is another research that stresses the importance of motivation in entrepreneur's personality and states although motivation on its own cannot be a guarantor of success, it is one of the most common character traits of one.

2.4.2. Organizational Factors

2.4.2.1. Management

Management style plays a crucial role in venture success as it organizes and administers the operation. Ensley, Hmieleski and Pearce (2006) researched vertical

and shared management and leadership styles and found as has been empirically demonstrated in their article, shared leadership processes add substantial insight into the performance of organizations. Further, shared leadership appears to be particularly important in the development and growth of new ventures. This suggests startups which are led by high profile leaders are not the rule but the exception and sharing responsibility in management is important to new venture success. On a different angle Chrisman, Bauerschmidt and Hofer (1998) argued "formation of new ventures is a special case of strategic management theory, and, as a consequence, any model of new venture performance should recognize the critical nature of resources and organizational structure, processes, and systems."

2.4.2.2. Strategy

The implications of strategy have been the subject of many articles and studies in the literature as entrepreneurship started and continued to create massive volume in the economy. Davis and Olson (2008) point to the importance of competitive strategy stating "Whether a company is an established firm or a new startup, having a strategic directive is a critical component in increasing the probability of successfully meeting customer and investor demands." Zahra and Bogner (2000) researched the importance of technology strategy in technology-based startups and found there was a large correlation between technology strategy and success in new ventures pointing out it can be assessed as a success factor. Chrisman, Bauerschmidt and Hofer (1998) note, "once the initial corporate strategy decision is made, the performance of any venture will largely depend upon the business-level strategy selected by the entrepreneur". However, they do emphasize the "strategy is as good as the resources they deploy."

2.4.2.3. Team Size

In a meta-analysis, Song *et al.* (2008) evaluated team size as one of the five factors for venture success and did not find a direct correlation, however they stated "One may control the size of the founding team and collect more experience in the team (indicating that this factor is close to the entrepreneurial team factors) while enlarging

communication requirements and facing power problems." Therefore, the size of the team may very well play a role in affecting management and strategy. Almus and Nerlinger (1999) remarks a different angle on size. After conducting a growth rate comparison and he points out a new venture has to grow into a minimum efficient size in order to become competitive.

2.4.2.4. Human Capital

Unger *et al.* (2011) found a small but significant relationship between human capital and success based on a meta-analysis. The relationship was higher for outcomes of human capital investments (knowledge/skills) than for human capital investments (education/experience), for human capital with high task-relatedness compared to low task-relatedness, for young businesses compared to old businesses, and for the dependent variable size compared to growth or profitability.

2.4.3. Ecological Factors

2.4.3.1. Market

In literature, a significant number of studies link entrepreneurial success to opportunity recognition for its respected market. However, to quote Van Gelderen, Thurik and Bosma (2003), "If the market is really risky, chances of actually getting started are lower, as the nascent entrepreneur will abort the startup process when he learns that the prospects for his firm are poor." Therefore, the state of the market and entrepreneur's perception of it plays a huge role in venture creation and success. Van de Ven, Hudson and Schroeder (1984), in a study conducted between 14 educational software companies found "unlike a few other less successful entrepreneurs who were more private in planning company startup, the more successful entrepreneurs tended to be externally oriented by involving a broader network of potential customers and consultants in developing the market niche and specific products for their firms." Devece, Peris-Ortiz and Rueda-Armengot (2016) researched the venture behavior in economic crisis and found "Entrepreneurial ventures are less numerous during

recessions but can perform better in terms of growth and quality (in terms of size and job creation) if they have certain characteristics."

2.4.3.2. Resources

Wu (2007), after conducting a study amongst high-tech entrepreneurs, found resource management to be essential in new venture success as it created a dynamic capability. Van Gelderen, Thurik and Bosma (2003) stated new ventures who have reduced their capital had a better chance at getting started. Therefore, the importance of human capital, support programs, funds, crowdfunding and other means of resources are easily a key factor in venture success. Since this study focuses on technology-based startups, a detailed list of both governmental and private support programs was included in this study.

2.5. Summary of Literature Review

In the first quarter of 21st-century technology-based startups have proven themselves a force to be reckoned with the economic volume and employment they have created that have peaked the interest of a broad circle of academic studies, public and private funders and media outlets. Although many studies of various sizes have been conducted, a general consensus seems to have not been achieved due to a few factors.

Firstly, technology-based is a broad term. It both applies to dot.com and heavy R&D enterprises which vary greatly in terms of seed money requirement, size, time and profitability. Therefore, the success factors that have been chosen based on these terms generate different results.

Secondly, there have been issues with sample sizes and accessibility. The data that has been collected is either local (a local area or country) or target a specific industry. However, the success factors they aim to measure are universal such as personality, capital requirements, idea and strategy. The ethnic or economic circumstances that affect the results are either absent or not sufficiently evaluated.

Finally, the studies emphasize a limitation in data collection and analysis. Devece, Peris-Ortiz and Rueda-Armengot (2016), conclude a limitation in the reliability of the measurement of the variables depending on the database chosen. Macmillan, Zemann and Subbanarasimha (1987) state, their survey methodology itself caused the problem of the bias. Obschonka *et al.* (2011) point out, their study about entrepreneurial personality which is a common success factor in the literature has an important limitation as due to resource constraints they could not collect data that they considered to be relevant.

Table 2.1: Literature Summary in terms of Performance Indicators

Performance Indicators	Literature
Business Launch	Song *et al.* (2008)
	Olugbola (2017)
	Oe and Mitsuhashi (2013)
	Gartner and Vesper (1994)
	Wang and Lestari (2013)
	Davis and Olson (2008)
	Preston (2001)
Business Growth	Almus and Nerlinger (1999)
	Duchesneau and Gartner (1990)
	Brush (2008)
	Dvir, Sadeh and Malach-Pines (2010)
	Chrisman, Bauerschmidt and Hofer (1998)
	Zahra and Bogner (2000)
	Robert *et al.* (2001)
	Unger *et al.* (2011)
	Miner (1997)
Business Sustainability	Van Gelderen, Thurik and Bosma (2003)
	Kuntze and Matulich (2016)
	Chorev and Anderson (2006)
	Markman and Baron (2003)
	Kakati (2003)
	Macmillan, Zemann and Subbanarasimha (1987)
	Ensley, Hmieleski and Pearce (2006)
	Gurdon and Samsom (2010)
	Roure and Maidique (1986)
	Khan (1986)

There are however some success factors that the majority of the literature has come to an agreement. To further this consensus firstly the criteria in determining the definition of success should be examined which is shown in Table 2.1.

Table 2.1: Literature Summary in terms of Performance Indicators shows the literature grouped into three most common performance indicators. The table below shows the effective factors linked to these performance indicators. It should be included that these are the main factors that have been found in the studies and does not mean they do not account for other factors.

Table 2.2: Literature Summary in terms of Determinant Success Factors

Success Factor	Literature
Entrepreneur Specific Factors	Olugbola (2017)
	Oe and Mitsuhashi (2013)
	Gartner and Vesper (1994)
	Brush (2008)
	Dvir, Sadeh and Malach-Pines (2010)
	Robert *et al.* (2001)
	Miner (1997)
	Kuntze and Matulich (2016)
	Markman and Baron (2003)
	Gurdon and Samsom (2010)
	Khan (1986)
Organizational Factors	Song *et al.* (2008)
	Davis and Olson (2008)
	Preston (2001)
	Almus and Nerlinger (1999)
	Duchesneau and Gartner (1990)
	Chrisman, Bauerschmidt and Hofer (1998)
	Zahra and Bogner (2000)
	Unger *et al.* (2011)
	Van Gelderen, Thurik and Bosma (2003)
	Chorev and Anderson (2006)
	Kakati (2003)
	Macmillan, Zemann and Subbanarasimha (1987)
	Ensley, Hmieleski and Pearce (2006)
	Roure and Maidique (1986)
Ecological Factor	Wang and Lestari (2013)

These two tables draw a few conclusions. Firstly, ecological factors like market and resources, although being mentioned in a lot of the literature do not weight in as a core factor for success. In fact, Almeida and Fernando (2008), in their research on startups' survival of economic crisis concluded startups may indeed survive and even thrive in times of market collapses. Market and resources are of course very important in venture success; however, the literature review shows that it is entrepreneur's and team's perception and skill level are the real factors behind navigating ecological factors which in this study have been catalogued in the first two categories.

Secondly, all of the studies seem to have found both entrepreneurial and organizational factors equally important. However, since some of the organizational factors such as strategy and management are again linked to the entrepreneur itself, it would be a fair conclusion to say entrepreneur-specific factors are the most influential ones. Among the entrepreneurial factors such as personality, education, risk and market perception, personality traits are the factor that has been mentioned the most.

CHAPTER 3

DATA AND METHODOLOGY

3.1. The Data

3.1.1. Data Collection Methodology

The study aims to understand, analyze and determine the reasons for success and failure in technology-based startups from the perspective of the entrepreneurs. For these purposes, "survey" was seen as a suitable data collection methodology. In order to reveal some patterns that lead to success and therefore failure of technology-based enterprises, the survey has been sent out through many different platforms. The survey has been conducted online to make it easier for the participants and has been posted through various social media outlets in which entrepreneurs are known to be active users of. Furthermore, TUBITAK and Republic of Turkey Ministry of Science, Industry and Technology was contacted and requested to send the survey through email to entrepreneurs who have taken Teknogirişim support from TUBITAK and the Ministry of Science, Industry and Technology. The survey is also sent to private investment organizations, incubators and acceleration centers that exist in the innovation ecosystem through email and they are asked to transmit the survey to entrepreneurs in their network. Lastly, the survey was sent to entrepreneurs through LinkedIn. The communication process aimed to reach as many entrepreneurs as possible in order to collect data that is varied which is believed to lead to a strong foundation for further analysis and conclusion. In the end, 111 samples from eligible participants were collected.

An important and distinguishing criterion was set to determine the eligibility of the survey participants. In order to be a valid participant, the entrepreneur was required to have taken a part in a current or past technology-based startup themselves, either as a

founder or partner. Entrepreneurs' perception and perspective on the success of technology-based startups is one of the main focuses of this study and therefore, such an eligibility criterion was set. The survey itself is explained in detail later in 3.2.1-Survey Design.

3.1.2. Why Have Entrepreneurs Been Chosen as The Focus?

The data collection focus of this study is founders or partners of technology-based startups.

As stated in the literature review, a consensus on success factors of technology-based enterprises has not been reached. Not only the literature did not come to a consensus but also, they came up with findings that highly contradict or outright refute one another.

One of the studies that triggered this thesis is study of Kakati in 2003; Success Criteria in High-Tech Ventures. In his study, Kakati (2003) measures and defines success factors with data collected from venture capitalists. Venture capitalists are asked to review their most and least successful ventures and participate in a survey that detail each with success factors hypothesized by Kakati (2003). Another study that influenced this study is by Macmillan, Zemann and Subbanarasimha (1987) titled Criteria Distinguishing Successful from Unsuccessful Ventures. This study focused on venture capitalists themselves as well.

Both studies point to a few success factors that have been missing from unsuccessful ventures. Kakati (2003) finds entrepreneur quality, resource-based capability and competitive strategy to be the most important criteria that influence the success of high-tech new ventures. Macmillan, Zemann and Subbanarasimha (1987) conclude their findings in types of four successful and three unsuccessful types of ventures. The first type of unsuccessful ventures shows a lack of experience or/and staying power, lack of product prototype and lack of clear market demand for the product. The second type consists of new high-tech ventures that face early competition with no staying

power and the last type of unsuccessful ventures are the ones that lack the protection of the product. The successful ventures described in this group have staying power, high level of product protection, are “market makers” and demonstrate great distribution skills.

This study shoots the question of “what makes a venture successful” from the opposite angle by changing the focus group and gathering data from entrepreneurs themselves. This will not only measure whether venture capitalists and entrepreneurs themselves have a similar perspective on their success and failure but also whether their perspective varies according to their success or lack thereof.

The overall literature review suggests the lead entrepreneur to be the core factor of venture success as some of the organizational factors also tie to this core. Therefore, the study, by targeting entrepreneurs as a focus whether experience plays a role or not. To explain further, whether entrepreneurs’ past failures and the reasons they think failed their venture has affected their success in the future. Likewise, it will also investigate whether the changes from their more successful ventures has caused a failure in their later unsuccessful ones. Furthermore, the survey includes some of the other factors and mentions in the literature that are found critical or effective.

In conclusion, whereas many studies confirm, refute or vary in their criteria that influence the success and failure of technology-based startups, this study tries to demonstrate the perception and perspective of the entrepreneurs themselves and therefore measure whether the data will present different results once the focus group has been changed.

3.2. Survey

3.2.1. Survey Design

The survey conducted to gather data for this study is in two parts. In Part A, participants were asked 8 questions about their profile and eligibility for the study. In Part B, participants were asked to evaluate the most and the least successful ventures

that they witnessed the development stages in terms of several criteria presented to them (See APPENDIX E).

Survey participants were required to either be the founder or a partner in a technology-based startup. In Part A of the survey, questions 5, 6 and 7 were designed to verify this qualification. Participants were asked to answer the number of their successful startups, the number of their unsuccessful startups and the number of startups they are currently running. Total of these three numbers accounts for the startup count of the participant, and participants with zero startup count are not evaluated in this study.

Group A of the survey aims to gather background information about the entrepreneur. In this part, participants were asked to provide demographic information such as age, sex, educational status and educational background.

In Part B of the survey, participants were asked to evaluate the ventures they considered to be the most successful and least successful according to factors presented to them. The aforementioned factors and survey design were determined according to criteria which were considered to be influential in the success of technology-based startups.

Criteria considered to be influential on the success factors were gathered into five groups: The Lead Entrepreneur, Team, Business Idea & Market, Strategy and Financial Consideration. The last group of the survey aimed to measure venture's performance, evaluating it in five metrics under the performance measures of sales, profit, return on investment, market share and growth of number of users.

3.2.1.1. The Lead Entrepreneur

In studies conducted both on entrepreneurs and venture capitalists to identify the success factors, the lead entrepreneur's character traits and background were often determined as an important agent. For this reason, the first section of Part B of the survey was dedicated to investigating eight metrics about the lead entrepreneur.

Factors related with the lead entrepreneur and explanations about them are given below.

Studies found motivation for commitment to be crucial and therefore participants were asked whether the entrepreneurs were dedicated **part time or full time** to their ventures to measure the correlation between time and motivation.

In technology-based startups, **technical skills** were considered to be vital and so, a question to appraise lead entrepreneur's technical skills was also asked to determine its impact on the perception of success in the most and least successful ventures.

Studies have shown multiple patterns of management strategies to be effective in a startup's success, however, the lead entrepreneur's **management skills** to execute the said strategy was highly important. Therefore, participants were asked to evaluate the entrepreneur's management skills.

Another success factor of technology-based startups is linked to the **fit between the business idea and the lead entrepreneur's academic and professional background**. Participants were asked to commentate on this relationship according to the most and least successful ventures to determine theoretical and practical experience impact on venture's success.

Innovation by definition requires a certain amount of **creativity** in order to determine a need in the marketplace and come up with a solution/product for that need. For this purpose, the participants were asked to evaluate the founder's creativity.

Another agent regarding motivation is correlated to lead entrepreneur's **enthusiasm and capacity** for the project. As a leader of both the team and the operation, founder's approach regarding these agents was asked to participants.

Lastly, participants were asked to remark lead entrepreneur's **perception of risk**. During the literature review, risk perception and management were observed to be a

very important finding for criteria of success in startups; technology-based and otherwise. Thus, lead entrepreneur's perception of it was considered to be very important.

3.2.1.2. Team

Next to lead entrepreneur is the team around them that plays an active role from idea stage to execution. As well as team's ability and willingness to act as a harmonious unit within the startup, agents in its background and experience play an important role in a venture's success. The second part of Part B of the survey was designed to focus on six metrics investigating the team.

Firstly, participants were asked about the **size of startup team** (including the lead entrepreneur) in the most and least successful ventures that they have witnessed the development stages. The numbers provided were 1-5+, as technology-based startups tend to be within this scale.

For reasons similar to the first group of the survey, the participants were asked about team's overall **industry experience** to measure the correlation between experience and success.

Team's **prior startup experience** was considered to be an agent as startup's cohabitant and the mechanism is significantly different from which of an established business.

Since technology-based startups often undergo a research and development phase, team's **R&D experience** to its respected business idea was also asked to the participants.

Marketing which can be overlooked by the team is a vital step in a technology-based startup's life cycle since they often have to go beyond traditional means of advertising due to budget and time constraints. For this reason, team's understanding and

experience in marketing act as a significant agent of success and participants were asked to evaluate the teams accordingly.

Lastly, participants were asked about the teams' ability and experience in **networking** which in this case was described as "the ability to reach out to people, institutions and establishments of major significance to project" as it is in a startup's interest to attain as many financial, organizational and material resources as possible.

3.2.1.3. Business Idea and Market

The third group of questions of Part B of the survey regarded business idea and market. These factors were considered crucial for entrepreneurial success as not only entrepreneurship by a broad definition is creating solutions for a specific market but also business idea and market are two factors that go hand in hand during startup's idea phase. This part of the survey was divided into six metrics described below.

As local and global ventures require a different set of marketing, organization and management, participants were asked to distinguish the most and least successful ventures to either **local or global**.

Secondly, participants were asked whether they thought the **business idea** of the evaluated startups was **fitting for the market** or not as this perception could not only affect their overall motivation and belief in the success of the project but also whether the awareness of the matter affected the ultimate success of the venture or lack thereof.

The **level of innovation** was the next metric to understand whether the entrepreneur perceives the innovative nature of their business idea in relation to its success.

Next, the participants were asked about the **competitive intensity**. This plays an important role as it determines whether the entrepreneurs consider competition intensity to be a risk factor or not.

The next question was about **time investment**. Participants were asked to rate the amount of time that needed to be spent on the business idea from "too little" to "too much". This metric determines how entrepreneurs perceive the time investment in startup's success and shows how they correlate.

Lastly, the participants were asked about the **capital requirements** of evaluated startups to execute their idea into a final product. Since the startups generally do not have a strong financial power, capital requirements might be a serious barrier to reach the success.

3.2.1.4. Strategy

In the literature review, one of the core characteristics of a successful startup was the strategy followed and the fourth group of questions in Part B of the survey was designed to this end. Strategy on its own is a broad term, so, four metrics were created in an effort to distinguish strategies applied to various steps of the startup creation.

First, participants were asked about the **quality strategy**. A product's or solution's quality affects many different agents the most significant of which are time, price point and production cost. For this reason, the participants were asked whether they were satisfied with the quality strategy's success of the venture.

Second, participants were asked about the **pricing strategies** of the startups. Pricing strategy is one of the basic elements of market strategy as a whole. Participants were asked to rate the success of pricing strategy according to evaluated startups which were the most and the least successful ones.

For the next metric, participants were asked to rate the success of was **innovation strategy**. This metric was added to survey as the innovative nature of a product or solution plays a vital role in its target market and feasibility of that market.

The last question was added to survey to evaluate the cooperation strategy within the startup. For this purpose, participants were asked to rate the success of **partnership strategy** in relation to evaluated ventures.

3.2.1.5. Financial Consideration

Next groups of questions in Part B of the survey was designed to investigate the relationship between financial nature of the startup and its success. Financial resources were divided into 4 metrics in accordance with support programs (both governmental and private) available to technology-based startups.

Firstly, the participants were asked the rate the evaluated startup's **equity availability.** Equity capital plays a crucial role in initial stages of a startup often in the form of time and labor which can mean the team may have to resort to their personal financial resources which can deeply affect motivation, time and risk perception. Therefore, the participants were asked to rate their selection of most and least successful ventures according to their ability to maintain it with equity capital.

After the equity capital was evaluated the participants were asked whether the ventures were aided by a **governmental support program, private investment** or an **incubation or acceleration program** to determine if the type of support they received had an impact on the success of the startup.

3.2.1.6. Performance Measures

The last group of questions in Part B of the survey was created to measure the performance of most and least successful ventures in five success criteria. There are different methodologies used in measuring the performance of enterprises, however, "Sales", "Profit", "Return on Investment" and "Market Share" are common.

Participants were asked if the **sales** generated at the end met the initial expectations. Because the success criteria are not necessarily whether the product sold relatively

well in a reasonable profit margin but also whether it sold in the quantity the entrepreneur predicted in the initial stage.

Next question regarded **profit** and the participants were asked to evaluate the performance of the product in profit creation because although the actual creation of the product or solution is critical, its performance in creating a profit is the main success criteria.

Afterwards, the survey investigated the **return on investment**. Whether it is the return of the equity capital or an outside support, in a startup's case, product's profit performance in not resulting below is the bare minimum for plus value.

The fourth question to this section was added to determine **market share**. Market share is a classic success criterion since an enterprise is often created to overcome a shortcoming in the market or to establish a market share with a niche touch. Therefore, the participants were asked to rate the market share of the evaluated startups acquired with their end product/solution in relation to their initial anticipation.

In addition to these common metrics, the study includes **growth of number of users**. The reason behind adding this particular metric is that technology-based enterprises comprise a high potential for generating vast numbers of users in a relatively quick time. Even if the enterprise cannot monetize this user database right away, startups are known to generate significant income by coming up with different business models in the following periods.

3.2.2. Participant Profile

Participants of the survey study are required to be the founder/partner of a technology-based startup. In order to investigate this issue; a number of successful, unsuccessful and ongoing technology-based startup attempts are questioned in the survey. Total of 113 participants attended to survey and 2 of the participants' total startup count was 0,

which includes the successful, unsuccessful and ongoing technology-based startup attempts. As a result, a total of 111 participants' data is used in the study.

The age distribution of the participant entrepreneurs is given in Figure 3.1. Age of the youngest participant is 22, oldest is 54 and the average age of the participants is 32.2. The densest age group is 25-29 and 45 out of 111 entrepreneurs (40.6%) belong to that age range. The number of entrepreneurs decreases as the age increases.

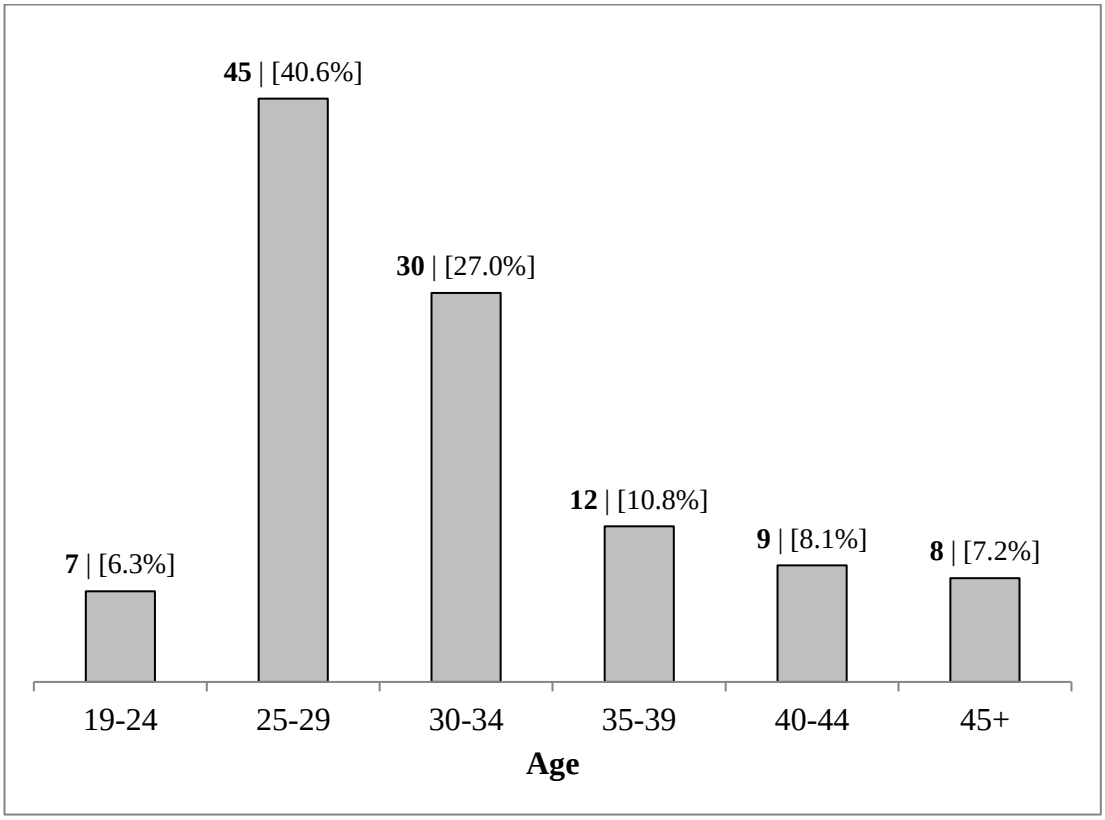

Figure 3.1: Age Distribution of the Survey Participants

According to TÜİK's entrepreneurship study 2014-2016[28], the rate of female entrepreneurs in Turkey is found as 18.7%. In our survey study, the rate of female entrepreneurs is realized as 21.6% (see Figure 3.2).

[28] http://www.tuik.gov.tr/PreHaberBultenleri.do?id=27845

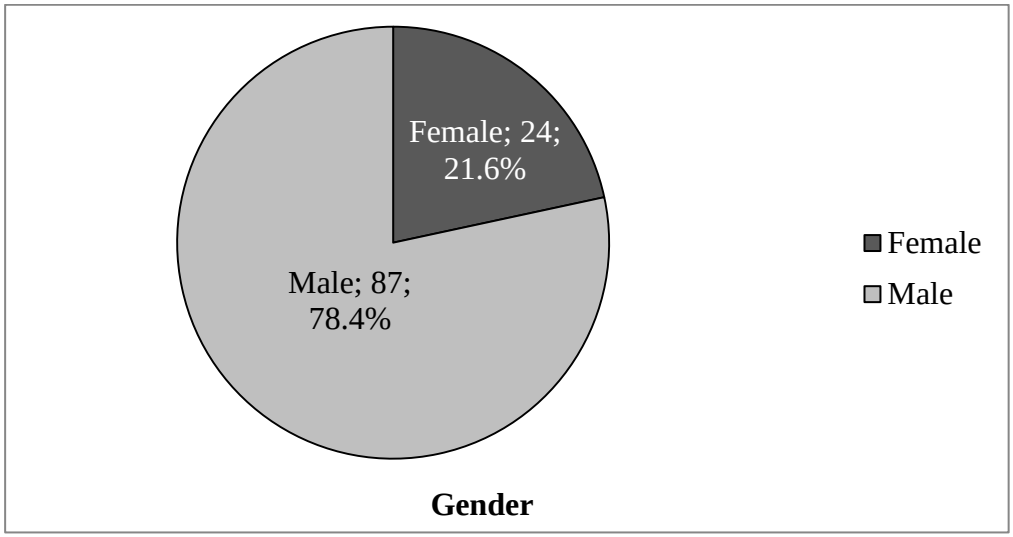

Figure 3.2: Gender Distribution of the Participant Entrepreneurs

Due to academic and technical capability requirements of technology-based businesses, education level of the techno-entrepreneurs is relatively higher than the average of the society. When we look at the education level of the participant entrepreneurs, which is given in Figure 3.3, it can be seen that 74.8% of the entrepreneurs involved in master and doctorate studies. 12.7% of the participants are a doctoral degree holder, 18.0% continues to doctorate studies, 16.2% are master's degree holder and 27.9% continues to master's studies.

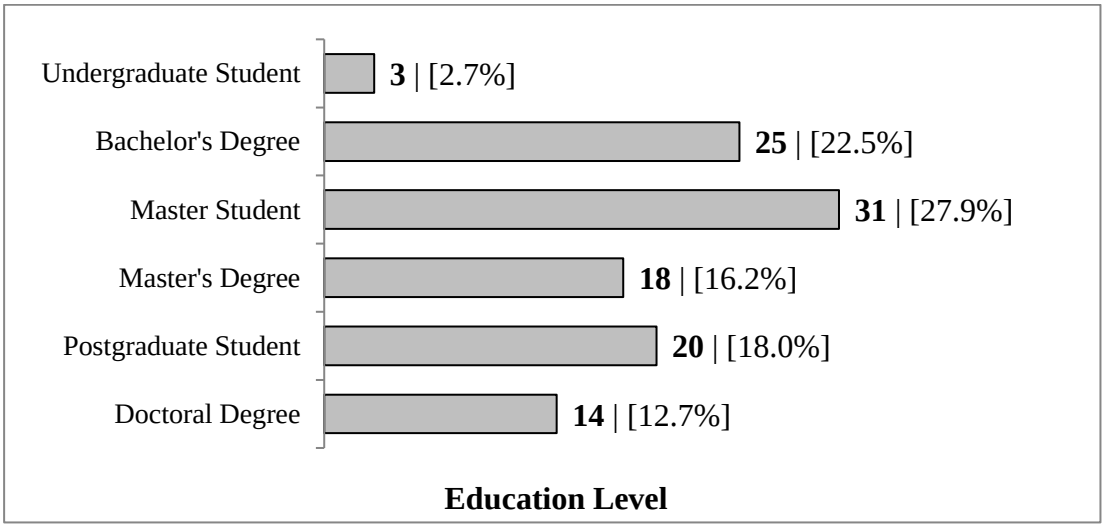

Figure 3.3: Education Level of the Participant Entrepreneurs

Similarly, the technical requirements of technology-based business results in engineer's hegemony in terms of field of education (see Figure 3.4). Almost 70% of the participant entrepreneurs have an engineering academic background. It is followed by economics and administrative sciences (25.2%) and fundamental sciences (17.1%).

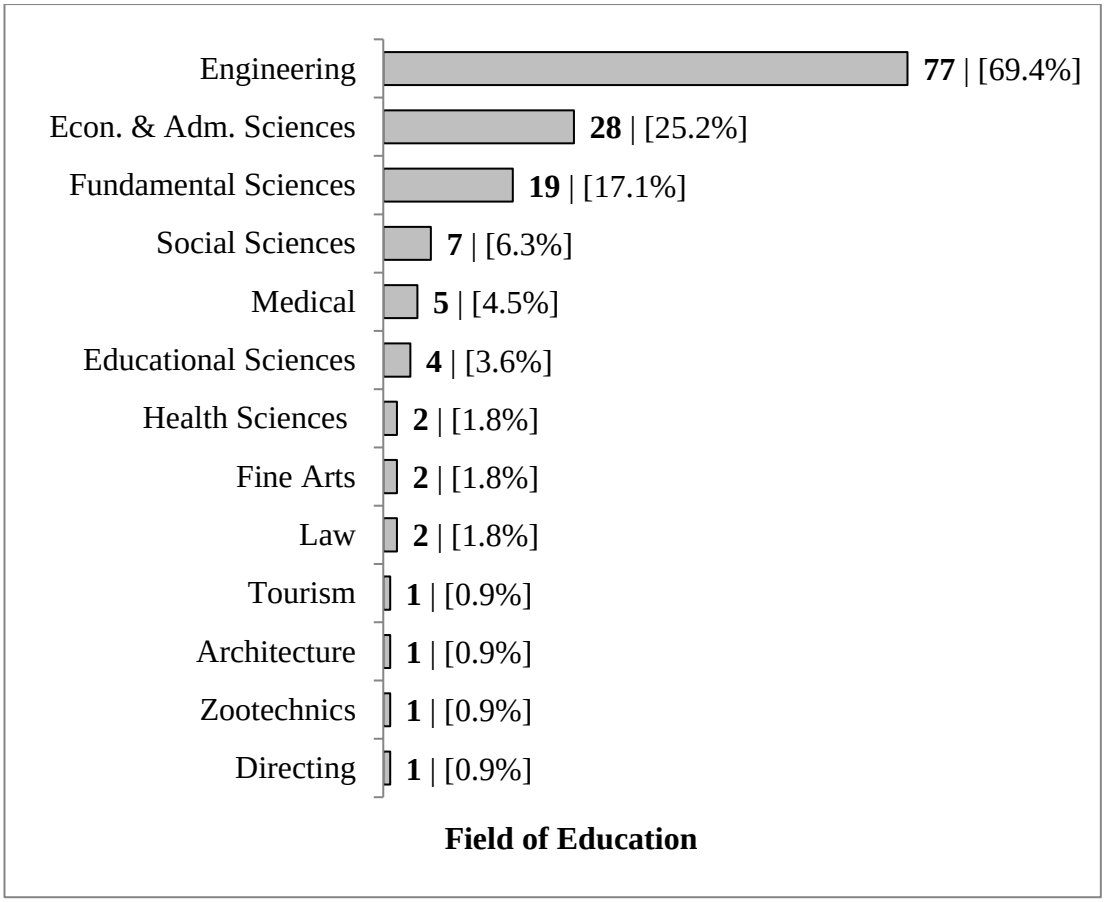

Figure 3.4: Field of Education of Participant Entrepreneurs

When we investigate the participant entrepreneurs' success and failure stories about their previous or current startups, we see that 86.5% are still working as founder or partner currently, and 13.5% of them are abandoned or exit their startups. Our success or failure definition is made by our participants and they evaluate their own technology-based startups. The average number of successful technology-based startups per entrepreneur is 1.03, while this number is 0.64 per entrepreneur for unsuccessful startups. The maximum number of the successful startup is observed as

5 for an entrepreneur. Similarly, the maximum number of failed startup attempts is realized as 5 for an entrepreneur.

73.0% of the entrepreneurs consider that their startup attempts resulted successfully at least once. On the other hand, only 38.7% of our participants tasted failure in their startup attempts. Participant entrepreneurs' success and failure status can be seen in Figure 3.5: Participant Entrepreneurs' Success and Failure Status.

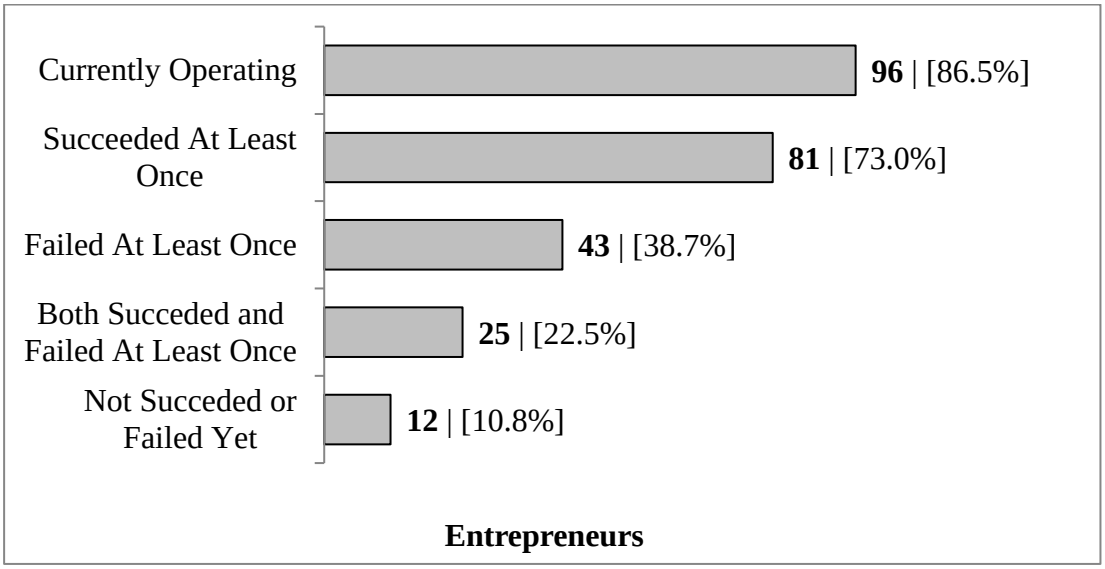

Figure 3.5: Participant Entrepreneurs' Success and Failure Status

Achieving the first sale of the product or service of a startup is an important step for an entrepreneur. Convincing the first customer to pay for a product or service is a substantial milestone on the road of developing a multi-billion company. Nevertheless, a serious amount of startup attempts finishes even before the first sale. In our study, 53.2% of the participants still could not achieve the first sale at the time they attend the survey. Sales status of participant entrepreneurs is given in Figure 3.6: Sales Status of the Participant Entrepreneurs.

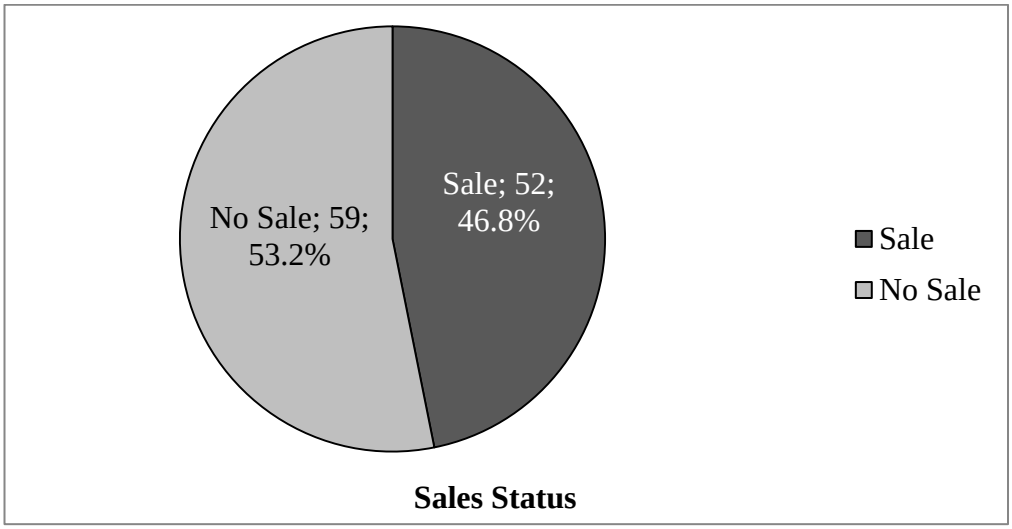

Figure 3.6: Sales Status of the Participant Entrepreneurs

In recent years, Turkish government extended the support programs available to entrepreneurs greatly. 68.5% of the participants in the survey have benefited from such grants (see Figure 3.7 Figure 3.7: Government Grant Status of the Participant Entrepreneurs). One of the advantages of these programs is they are often non-return or partially-retuned, making these grants more alluring to entrepreneurs. These programs are mentioned in detail in 2.1.2.1-Governmental Support Programs.

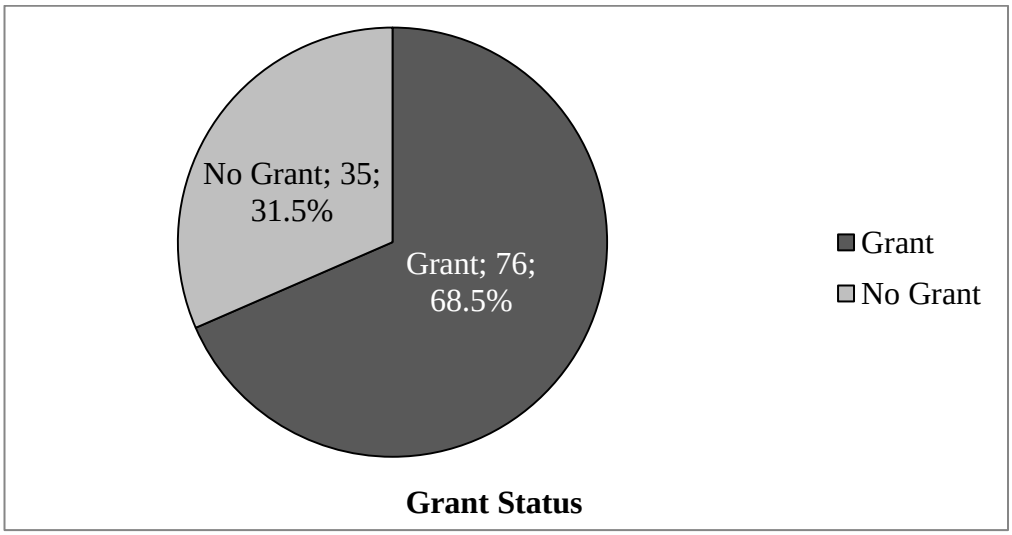

Figure 3.7: Government Grant Status of the Participant Entrepreneurs

Unlike governmental support programs, the private investment scene is not as developed in Turkey compared to North American or European ecosystems. This is mainly because venture capitalists tend to invest in startups that are relatively established, certainly more established than “seed” or “pre-seed” phases of startups. Another reason is that although there are a significant number of Angel Investment networks, the number of actual ventures they invest in is limited. 18.0% of participants in this survey have benefited from investments (see Figure 3.8). Further detail about these investors is mentioned by 2.1.2.2-Private Investors.

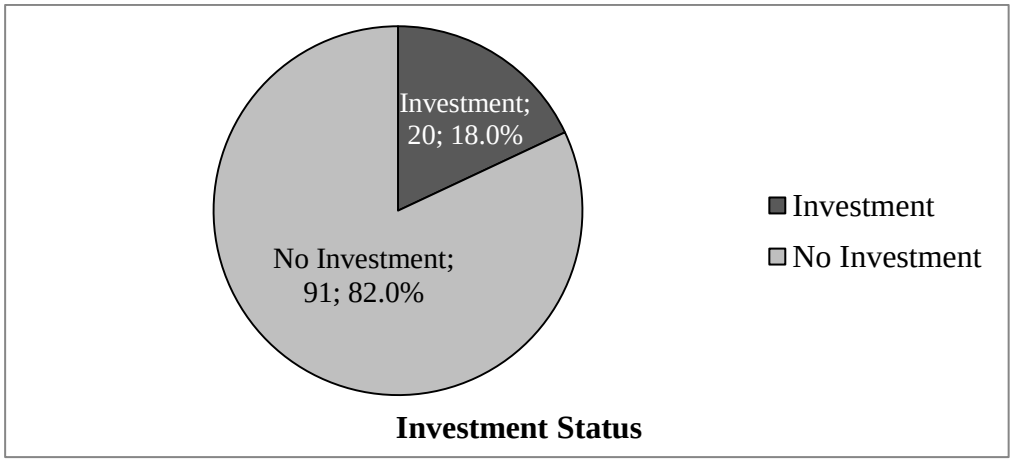

Figure 3.8: Investment Status of the Participant Entrepreneurs

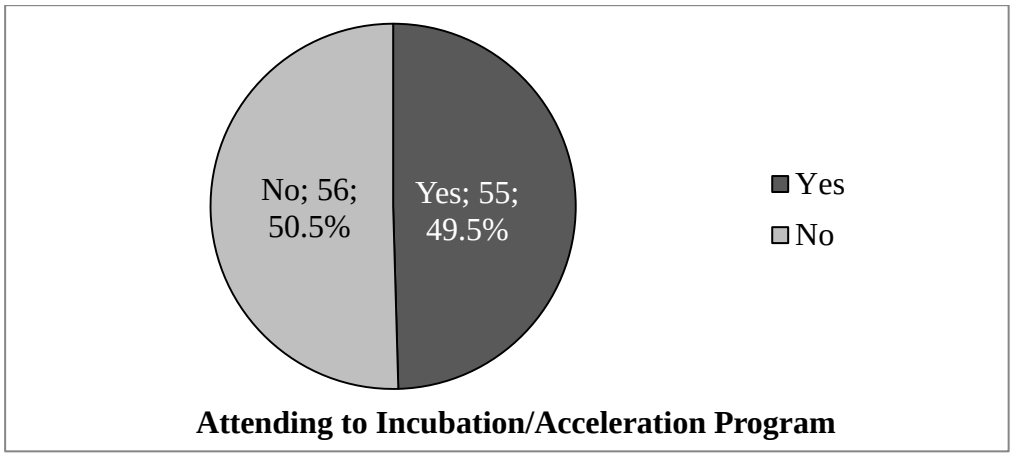

Figure 3.9: Incubation/Acceleration Program Attendance Status

There are a few incubation and acceleration programs available in Turkish entrepreneurship ecosystem in Turkey. They mostly operate linked to universities while a few private incubation centers do exist. These programs might offer office space, equipment and mentorship. 49.5% of the participants have benefited from such a program (see Figure 3.9). Further detail about incubation and acceleration centers can be found in 2.1.2.3-Incubators and Accelerators.

CHAPTER 4

ANALYSIS AND RESULTS

4.1. Methodology

In the study, the data obtained by the survey were analyzed with the SPSS 22.0 program. The scale that was used primarily in the research was subjected to reliability analysis. The validity of a scale is related to the degree to which the scale measures the variant. The validity test does not have a certain coefficient as it is in the reliability test. For this reason, the validity test is conducted with the theoretical analysis. When Table 4.1 is examined, it is understood that the scale used in the research is at the level of "high reliability" (.894> .80) (Kalaycı, 2009).

Table 4.1: Reliability Statistics

Cronbach's Alpha	N of Items
,894	33

Kolmogorov-Smirnov and Shapiro-Wilk tests were performed to determine whether the scale used in the study was normally distributed or not, and the scale value was found as p = 0.000 <0.05. The study also looked at the values of skewness and kurtosis. According to George and Mallery (2010); if the skewness and kurtosis values are between +2.0 and -2.0 and according to Tabachnick and Fidell (2013); +1.5 to -1.5, they stated that the scale is normally distributed and that parametric tests will yield more valid and reliable results. In Table 4.2, statistical, the degree of freedom and significance values of normality tests are given.

Table 4.2: Normality Test

Kolmogorov-Smirnov			Shapiro-Wilk		
Statistic	df	Sig.	Statistic	Df	Sig.
,117	222	,000	,925	222	,000

As a result, a parametric t-test was used, because the scale used in the research was between +2.0 and -2.0 (-.446 and -1.047). In addition, k-means clustering analysis was applied to classify technology-based startups in terms of various criteria. Finally, after clustering analysis, stepwise regression analysis was used to determine the criteria affecting the performance of the technology-based startups.

4.2. T-Test

The survey data consists of information about the demographics and entrepreneurial history of the 111 participants, as well as it contains the evaluations of the participants about the most successful and unsuccessful technology-based ventures (which adds up to 222 startups) that they witnessed the development stages in terms of several criteria.

In order to determine the effective criteria on technology-based ventures' performance, T-test is performed on the whole data set. In Table 4.3, it is shown that 24 out of 28 performance criteria and 5 out of 5 performance metrics are found as significant at 0.01 level. On the other hand, four of the performance criteria, which are "*09.Size*" of the team, "*18.Competition Intensity*" of the target market, need for "*19.Time Investment*" and "*20.Capital Requirements*" found as insignificant to realize the business idea.

In addition to that, the top five leading performance criteria out of 28 according to t-values are "*03.Management Skills*", "*02.Technical Skills*" and "*06.Creativity*" of the lead entrepreneur, the amount of time that the entrepreneur dedicate to his/her company ("*01.Full Time vs Part Time*") and "*23.Innovation Strategy*" of the company.

It is worthy to note that 4 of the top 5 determinant performance criteria are related with the lead entrepreneur and 1 of them is related to the strategies of the company.

Table 4.3: T-Test Results of Whole Data Set

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**01.Full Time vs Part Time** ☆	4,24	1,79	11,50
	02.Technical Skills ☆	3,98	2,32	10,48
	03.Management Skills ☆	3,86	2,13	11,54
	04.Academic BG-Business Idea Fit	3,37	2,41	5,41
	05.Work Experience-Business Idea Fit	3,56	2,35	6,50
	06.Creativity ☆	4,31	2,60	10,06
	07.Enthusiasm/Capacity for Work	4,45	2,75	10,04
	08.Risk Perception	4,06	2,80	7,02
TEAM	**09.Size**	3,29	2,91	1,73
	10.Industry Experience	3,61	2,46	7,10
	11.Prior Startup Experience	3,37	2,22	6,43
	12.R&D Experience	3,54	2,20	7,55
	13.Marketing Experience	3,20	1,78	9,61
	14.Networking	3,67	2,04	10,00
BUSINESS IDEA & MARKET	**15.Local vs Global**	1,73	1,39	4,50
	16.Business Idea - Market Fit	3,94	2,48	8,63
	17.Product Innovation	3,91	2,53	8,13
	18.Competition Intensity	2,85	3,16	-1,60
	19.Time Investment	3,07	3,39	-1,79
	20.Capital Requirements	3,18	3,09	0,52
STRATEGY	**21.Quality Strategy**	3,46	2,44	5,87
	22.Pricing Strategy	3,35	2,56	4,69
	23.Innovation Strategy ☆	3,80	2,13	10,75
	24.Partnership Strategy	3,57	2,05	9,23
FINANCIAL CONSIDER.	**25.Equity Availability**	3,01	2,14	4,99
	26.Governmental Support	3,45	2,19	4,95
	27.Non-Governmental Investment	2,41	1,54	3,86
	28.Incubation/Acceleration Program	3,05	1,97	4,30
PERFORMANCE MEASURES	**01.Sales**	3,46	1,63	11,32
	02.Profit	3,66	1,70	12,47
	03.ROI	3,46	1,57	12,49
	04.Market Share	3,49	1,55	11,83
	05.Number of Users	3,52	1,54	12,41

Significant at 0.01
Significant at 0.05
Insignificant

☆ *Top 5 Criteria with highest T-Score*

In the second phase of the t-test, the data set is split into subgroups in terms of the demography and the entrepreneurial history of the participants and t-test is performed separately for all these subgroups. By doing so, the effect of the profile of the entrepreneur on the perception of success and effecting criteria is investigated in terms of 11 different angles. The summary of the results of these 11 comparisons is presented below and see APPENDIX A for the whole results.

In Comparison-1, entrepreneurs are split according to their previous successes in their business history. See Table 4.4 for the split of the data.

Table 4.4: Comparison-1

Set-1	**Successful Startup Count = 0 (Size = 30)** *The entrepreneurs that did not become successful with his/her startups yet.*
Set-2	**Successful Startup Count ≠ 0 (Size = 81)** *The entrepreneurs that became successful with his/her startups.*

For Set-1, which includes 30 entrepreneurs that did not become successful with his/her startups yet, the top five determinant performance criteria among 0.01 significant ones are; "*24.Partnership Strategy*", "*14.Networking*", "*01.Full Time vs Part Time*" "*02.Technical Skills*" and "*23.Innovation Strategy*", while 8 factors are found as insignificant, which are "*21.Quality Strategy", "15.Local vs Global", "28.Incubation/Acceleration Program", "09.Size", "26.Governmental Support", "20.Capital Requirements", "19.Time Investment"* and *"18.Competition Intensity*".

For Set-2, which includes 81 entrepreneurs that became successful with his/her startups before, the top five determinant performance criteria among 0.01 significant ones are; "*03.Management Skills", "01.Full Time vs Part Time", "07.Enthusiasm/ Capacity for Work", "06.Creativity",* and *"23.Innovation Strategy",* while 5 factors are found as insignificant, which are *"27.Non-Governmental Investment", "09.Size", "20.Capital Requirements", "18.Competition Intensity"* and *"19.Time Investment".*

In Comparison-2, entrepreneurs are split according to their previous failures in their business history. See Table 4.5 for the split of the data.

Table 4.5: Comparison-2

Set-3	**Failed Startup Count = 0 (Size = 68)** *The entrepreneurs that did not taste the failure with his/her startups yet.*
Set-4	**Failed Startup Count ≠ 0 (Size = 43)** *The entrepreneurs that tasted the failure with his/her startups.*

For Set-3, which includes 68 entrepreneurs that did not taste the failure with his/her startups yet, the top five determinant performance criteria among 0.01 significant ones are; "*01. Full Time vs Part Time", "06. Creativity", "16.Business Idea - Market Fit", "03.Management Skills"* and *"23. Innovation Strategy*", while 3 factors are found as insignificant, which are *"20.Capital Requirements","18.Competition Intensity"* and *"19.Time Investment".*

For Set-4, which includes 43 entrepreneurs that tasted the failure with his/her startups before, the top five determinant performance criteria among 0.01 significant ones are; *"03.Management Skills", "02.Technical Skills", "23.Innovation Strategy", "13.Marketing Experience"* and *"14.Networking"*, while 6 factors are found as insignificant, which are "*26.Governmental Support", "22.Pricing Strategy", "09.Size", "20.Capital Requirements", "19.Time Investment"* and *"18.Competition Intensity".*

Table 4.6: Comparison-3

Set-5	**Successful & Failed Startup Count ≠ 0 (Size = 25)** *The entrepreneurs that did not succeed or fail with his/her startups yet.*
Set-6	**Successful & Failed Startup Count= 0 (Size = 12)** *The entrepreneurs that succeeded and failed with his/her startups.*

In Comparison-3, entrepreneurs are split according to their previous success and failures in their business history. See Table 4.6 for the split of the data.

For Set-5, which includes 25 entrepreneurs that did not succeed or fail with his/her startups yet, the top five determinant performance criteria among 0.01 significant ones are; *"03.Management Skills", "07.Enthusiasm/Capacity for Work", "02.Technical Skills", "23.Innovation Strategy"* and *"13.Marketing Experience",* while 6 factors are found as insignificant, which are "*22.Pricing Strategy", "27.Non-Governmental Investment", "09.Size", "20.Capital Requirements", "18.Competition Intensity",* and *"19.Time Investment".*

For Set-6, which includes 12 entrepreneurs that succeeded and failed with his/her startups before, the top five determinant performance criteria among 0.01 significant ones are; *"02. Technical Skills", "06.Creativity", "24.Partnership Strategy", "23.Innovation Strategy"* and *"16.Business Idea - Market Fit"*, while 15 factors are found as insignificant, which are *"21.Quality Strategy", "10.Industry Experience", "25.Equity Availability", "11.Prior Startup Experience", "22.Pricing Strategy", "12.R&D Experience", "27.Non-Governmental Investment", "08.Risk Perception", "26.Governmental Support", "09.Size", "15.Local vs Global", "28.Incubation/ Acceleration Program", "18.Competition Intensity", "20.Capital Requirements"* and *"19.Time Investment".*

In Comparison-4, entrepreneurs are split according to whether they acquired government grant with their startups or not. See Table 4.7 for the split of the data.

Table 4.7: Comparison-4

Set-7	**Government Grant = Yes (Size = 76)** *The entrepreneurs that acquired government grant before.*
Set-8	**Government Grant = No (Size = 35)** *The entrepreneurs that did not acquire government grant before.*

For Set-7, which includes 76 entrepreneurs that acquired government grant before, the top five determinant performance criteria among 0.01 significant ones are; *"01.Full Time vs Part Time", "02.Technical Skills", "07.Enthusiasm/Capacity for Work", "03.Management Skills"* and *"06. Creativity",* while 4 factors are found as insignificant, which are *"09.Size", "20.Capital Requirements", "18.Competition Intensity"* and *"19.Time Investment".*

For Set-8, which includes 35 entrepreneurs that did not acquire government grant before, the top five determinant performance criteria among 0.01 significant ones are; *"23.Innovation Strategy", "24.Partnership Strategy", "03.Management Skills", "14.Networking"* and *"06.Creativity",* while 8 factors are found as insignificant, which are *"05.Work Experience-Business Idea Fit", "15.Local vs Global", "09.Size", "28.Incubation/Acceleration Program", "19.Time Investment", "20.Capital Requirements", "26.Governmental Support"* and *"18.Competition Intensity".*

In Comparison-5, entrepreneurs are split according to whether they acquired non-governmental investment with their startups or not. See Table 4.8 for the split of the data.

Table 4.8: Comparison-5

Set-9	**Non-Governmental Investment = Yes (Size = 20)** *The entrepreneurs that acquired non-governmental investment before.*
Set-10	**Non-Governmental Investment = No (Size = 91)** *The entrepreneurs that did not acquire non-governmental investment before.*

For Set-9, which includes 20 entrepreneurs that acquired non-governmental investment before, the top five determinant performance criteria among 0.01 significant ones are; *"23.Innovation Strategy", "03.Management Skills", "01.Full Time vs Part Time", "07.Enthusiasm/Capacity for Work"* and *"16.Business Idea - Market Fit",* while 11 factors are found as insignificant, which are *"05.Work Experience-Business Idea Fit", "15.Local vs Global", "26.Governmental Support",*

"27.Non-Governmental Investment", "21.Quality Strategy", "25.Equity Availability", "04.Academic BG-Business Idea Fit", "28.Incubation/Acceleration Program", "09.Size", "20.Capital Requirements" and *"19.Time Investment".*

For Set-10, which includes 91 entrepreneurs that did not acquire non-governmental investment before, the top five determinant performance criteria among 0.01 significant ones are; *"01.Full Time vs Part Time", "03.Management Skills", "14.Networking", "02.Technical Skills"* and *"24.Partnership Strategy",* while 4 factors are found as insignificant, which are *"09.Size", "20.Capital Requirements", "19.Time Investment"* and *"18.Competition Intensity".*

In Comparison-6, entrepreneurs are split according to their attendance in incubation/acceleration programs. See Table 4.9 for the split of the data.

Table 4.9: Comparison-6

Set-11	**Incubation/Acceleration Program = Yes (Size = 55)** *The entrepreneurs that attended to incubation/acceleration program before.*
Set-12	**Incubation/Acceleration Program = No (Size = 56)** *The entrepreneurs that did not attended to incubation/acceleration program before.*

For Set-11, which includes 55 entrepreneurs that attended to incubation/acceleration program before, the top five determinant performance criteria among 0.01 significant ones are; "*07.Enthusiasm/Capacity for Work", "03.Management Skills", "06.Creativity", "02.Technical Skills"* and *"13.Marketing Experience"*, while 5 factors are found as insignificant, which are "*27.Non-Governmental Investment", "09.Size", "20.Capital Requirements", "18.Competition Intensity"* and *"19.Time Investment".*

For Set-12, which includes 56 entrepreneurs that did not attend to incubation/acceleration program before, the top five determinant performance criteria

among 0.01 significant ones are; *"01.Full Time vs Part Time", "23.Innovation Strategy", "24.Partnership Strategy", "03.Management Skills"* and *"14.Networking",* while 4 factors are found as insignificant, which are *"20.Capital Requirements", "09.Size", "19.Time Investment"* and *"18.Competition Intensity".*

In Comparison-7, entrepreneurs are split according to whether they achieved the first sale with their service/product or not. See Table 4.10 for the split of the data.

Table 4.10: Comparison-7

Set-13	**Sales = Yes (Size = 52)** *The entrepreneurs that achieved the first sale with his/her service/ product before.*
Set-14	**Sales = No (Size = 59)** *The entrepreneurs that did not achieve the first sale with his/her service/ product before.*

For Set-13, which includes 52 entrepreneurs that achieved the first sale with his/her service/ product before, the top five determinant performance criteria among 0.01 significant ones are; *"03.Management Skills", "07.Enthusiasm/Capacity for Work", "23.Innovation Strategy", "14.Networking"* and *"01.Full Time vs Part Time"*, while 4 factors are found as insignificant, which are *"20. Capital Requirements", "09.Size", "19.Time Investment"* and *"18.Competition Intensity*".

For Set-14, which includes 59 entrepreneurs that did not achieve the first sale with his/her service/ product before, the top five determinant performance criteria among 0.01 significant ones are; *"02.Technical Skills", "23.Innovation Strategy", "24.Partnership Strategy", "03.Management Skills"* and *"14.Networking",* while 4 factors are found as insignificant, which are *"20.Capital Requirements", "09.Size", "18.Competition Intensity"* and *"19.Time Investment".*

In Comparison-8, entrepreneurs are split according to their field of education. See Table 4.11 for the split of the data.

Table 4.11: Comparison-8

Set-15	**Engineer Entrepreneurs (Size = 77)** *The entrepreneurs that took the engineering education.*
Set-16	**Non-Engineer Entrepreneurs (Size = 34)** *The entrepreneurs that did not take the engineering education.*

For Set-15, which includes 77 entrepreneurs that took the engineering education, the top five determinant performance criteria among 0.01 significant ones are; *"01.Full Time vs Part Time", "14.Networking", "03.Management Skills", "07.Enthusiasm/ Capacity for Work"* and *"13.Marketing Experience"*, while 4 factors are found as insignificant, which are *"09. Size", "20.Capital Requirements", "19.Time Investment"* and *"18.Competition Intensity"*.

For Set-16, which includes 34 entrepreneurs that did not take the engineering education, the top five determinant performance criteria among 0.01 significant ones are*; "23.Innovation Strategy", "17.Product Innovation", "03.Management Skills", "16.Business Idea - Market Fit"* and *"02.Technical Skills"*, while 6 factors are found as insignificant, which are *"25.Equity Availability", "09.Size", "28.Incubation/ Acceleration Program", "18.Competition Intensity", "20.Capital Requirements"* and *"19.Time Investment"*.

Table 4.12: Comparison-9

Set-17	**Male Entrepreneurs (Size = 87)** *Male entrepreneurs.*
Set-18	**Female Entrepreneurs (Size = 24)** *Female entrepreneurs.*

In Comparison-9, entrepreneurs are split according to their gender. See Table 4.12 for the split of the data.

For Set-17, which includes 87 male entrepreneurs, the top five determinant performance criteria among 0.01 significant ones are; *"03.Management Skills", "07.Enthusiasm/Capacity for Work", "01.Full Time vs Part Time", "23.Innovation Strategy"* and *"02.Technical Skills",* while 4 factors are found as insignificant, which are *"09.Size", "20.Capital Requirements", "18.Competition Intensity"* and *"19.Time Investment".*

For Set-18, which includes 24 female entrepreneurs, the top five determinant performance criteria among 0.01 significant ones are*; "01.Full Time vs Part Time", "03.Management Skills", "23.Innovation Strategy", "02.Technical Skills"* and *"11.Prior Startup Experience"*, while 5 factors are found as insignificant, which are *"09.Size", "20.Capital Requirements", "25.Equity Availability", "19.Time Investment"* and *"18.Competition Intensity*".

In Comparison-10, entrepreneurs are split according to their age. When we look at our data, we see that age of thirty is around the median and two groups of entrepreneurs have been formed according to their ages. See Table 4.13 for the split of the data.

Table 4.13: Comparison-10

Set-19	**Age < 30 (Size = 52)** *The entrepreneurs whose age is smaller than thirty.*
Set-20	**Age ≥ 30 (Size = 59)** *The entrepreneurs whose age is equal to or greater than thirty.*

For Set-19, which includes 52 entrepreneurs whose age is smaller than thirty, the top five determinant performance criteria among 0.01 significant ones are; *"03.Management Skills", "01.Full Time vs Part Time", "23.Innovation Strategy", "06.Creativity"* and *"24.Partnership Strategy",* while 5 factors are found as

insignificant, which are *"26.Governmental Support", "09.Size", "20.Capital Requirements", "19.Time Investment"* and *"18.Competition Intensity"*.

For Set-20, which includes 59 entrepreneurs whose age is equal to or greater than thirty, the top five determinant performance criteria among 0.01 significant ones are; *"02.Technical Skills", "01.Full Time vs Part Time", "07.Enthusiasm/Capacity for Work", "23.Innovation Strategy"* and *"03.Management Skills"*, while 4 factors are found as insignificant, which are *"09.Size", "20.Capital Requirements", "18.Competition Intensity"* and *"19.Time Investment"*.

In Comparison-11, entrepreneurs are split according to their level of education. Master's degree is selected as the focus for this comparison and the entrepreneurs are divided into two groups accordingly. See Table 4.14 for the split of the data.

Table 4.14: Comparison-11

Set-21	**Education Level < Master's Degree (Size = 59)** *The entrepreneurs whose education level is lower than master's degree.*
Set-22	**Education Level ≥ Master's Degree (Size = 52)** *The entrepreneurs whose education level is equal to or greater than master's degree.*

For Set-21, which includes 59 entrepreneurs whose education level is lower than master's degree, the top five determinant performance criteria among 0.01 significant ones are; *"03.Management Skills", "23.Innovation Strategy", "14.Networking", "13.Marketing Experience"* and *"06.Creativity"*, while 4 factors are found as insignificant, which are "*09.Size", "20.Capital Requirements", "19.Time Investment"* and *"18.Competition Intensity"*.

For Set-22, which includes 52 entrepreneurs whose education level is equal to or greater than master's degree, the top five determinant performance criteria among 0.01 significant ones are; *"01.Full Time vs Part Time", "02.Technical Skills",*

"03.Management Skills", "23.Innovation Strategy" and *"06.Creativity"*, while 4 factors are found as insignificant, which are *"09.Size", "20.Capital Requirements", "18.Competition Intensity"* and *"19.Time Investment".*

4.3. Cluster Analysis

A k-means clustering analysis was applied to classify successful and unsuccessful technology-based ventures in terms of various criteria. In our survey, entrepreneurs were asked to evaluate the most and the least successful technology-based startups that they have witnessed the development stages in terms of 28 factors under the categories of the lead entrepreneur, the team, business idea and market, strategy and financial consideration. Since each entrepreneur has evaluated two ventures, we have total of 222 venture's data. Nonetheless, entrepreneurs could have been selected same ventures in their mind, while filling out the survey. As a result, the number of 222 ventures could have some duplication and actual number of different ventures could be lower than that.

The most prominent feature of this method is that it gives very reliable results (Kalaycı, 2009). Forming some clusters and looking for the reasons why the data points gathered together could give substantial insights about the data set.

In the k-means analysis, iteration numbers and convergence criterion are important. Sources suggest that maximum repetition number must be 10 times and the convergence criterion should be a small number between 0 and 1 whenever possible. As this rate decreases, it is more reliable to assign observations to the clusters.

As a result of the k-means analysis, two clusters are obtained from the data set. The first cluster consists of 66 successful technology-based ventures, while the second cluster consists of only 21 failed attempts. Results of the cluster analysis are given in Table 4.15.

Table 4.15: Results of K-Means Cluster Analysis

Criteria	Cluster 1	Cluster 2	F	Sig.
01.Full Time vs Part Time	4.15	2.33	17.824	.000
02.Technical Skills	4.08	2.52	41.890	.000
03.Management Skills	3.89	2.24	46.371	.000
04.Academic Background-Business Idea Fit	3.48	2.62	8.793	.004
05.Work Experience-Business Idea Fit	3.71	2.29	24.207	.000
06.Creativity	4.33	3.05	33.104	.000
07.Enthusiasm/Capacity for Work	4.53	3.10	36.574	.000
08.Risk Perception	4.27	2.52	68.656	.000
09.Size	3.44	3.14	.883	.350
10.Industry Experience	3.71	2.52	20.177	.000
11.Prior Startup Experience	3.44	2.48	12.886	.001
12.R&D Experience	3.74	2.33	29.453	.000
13.Marketing Experience	3.29	1.76	38.766	.000
14.Networking	3.70	2.00	40.646	.000
15.Local vs Global	1.65	1.33	6.976	.010
16.Business Idea - Market Fit	3.94	2.81	21.883	.000
17.Product Innovation	3.97	2.86	18.518	.000
18.Competition Intensity	2.88	3.29	1.734	.191
19.Time Investment	3.03	3.62	4.746	.032
20.Capital Requirements	3.20	3.19	.001	.981
21.Quality Strategy	3.42	2.57	9.922	.002
22.Pricing Strategy	3.44	2.86	7.081	.009
23.Innovation Strategy	3.79	2.38	37.237	.000
24.Partnership Strategy	3.56	1.95	36.785	.000
25.Equity Availability	3.08	2.00	13.672	.000
26.Governmental Support	3.30	3.10	.171	.680
27.Non-Governmental Investment	2.76	1.57	6.324	.014
28.Incubation/Acceleration Program	3.42	1.76	12.312	.001
01.Sales	3.42	1.24	85.232	.000
02.Profit	3.56	1.57	64.245	.000
03.ROI	3.47	1.38	93.197	.000
04.Market Share	3.41	1.43	58.306	.000
05.Number of Users	3.48	1.38	68.551	.000

4.4. Regression Analysis

After clustering analysis, stepwise regression analysis was used to determine the criteria affecting the performance of the firms. In Stepwise regression analysis, each variable is added in order and the model is evaluated. If the added variable contributes to the model, this variable remains in the model. However, all other variables in the model are retested to assess whether they contribute to the model. If it does not make a significant contribution, it is removed from the model. Thus, the model is explained with least number of variables. Before carrying out the analysis, assumptions of multiple linear regression should be tested, which are as follows;

- Normality,
- Linearity,
- Absence of multicollinearity

Normality assumption is tested in 4.1-Methodology Section. When Table 4.1 is examined, it is understood that the scale used in the research is at the level of "high reliability" (.894> .80) (Kalaycı, 2009). In addition, Kolmogorov-Smirnov and Shapiro-Wilk tests were performed to determine whether the scale used in the study was normally distributed or not, and the scale used in the study was found as normally distributed.

For the linearity, it is assumed that dependent variables show a linear relationship with the independent variables. To test this assumption, observed cumulative probabilities and expected cumulative probabilities are plotted to show the linear relationship between the dependent and independent variables. (See APPENDIX B)

In order to check the absence of multicollinearity assumption, correlation values of independent and dependent variables are determined. Since all of the correlation values are smaller than 0.70, absence of multicollinearity assumption is satisfied. (See APPENDIX C). Results of Multiple Regression Model are given below.

Table 4.16: Results of Multiple Regression Model

Criteria with significant Beta	Performance variables				
	Sales	Profit	ROI	Market Share	Number of Users
24.Partnership Strategy	.433	.372		.230	
27.Non-Governmental Investment	.203			.206	.162
02.Technical Skills	.243				.258
21.Quality Strategy	.203				
07.Enthusiasm/Capacity For Work		.205		.251	
10.Industry Experience		.233			
15.Local vs Global		.460			
18.Competition Intensity		-.177			
23.Innovation Strategy			.232	.420	.365
08.Risk Perception			.276		
17.Product Innovation			.378		
28.Incubation/Acceleration Program			.112		
19.Time Investment			-.185		
06.Creativity					.133
16.Business Idea - Market Fit					.263
R^2	0.505	0.442	0.490	0.543	0.480
F	24.204	15.908	18.319	28.059	17.969
Significant *F*	0.000	0.000	0.000	0.000	0.000

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1. Discussion

When the results of the t-test are investigated, it is seen that the factors related to the lead entrepreneur are the most important. For the whole data set, 4 of the top 5 significant success factors belong to lead entrepreneur factor group. Skills, creativity, the enthusiasm of the lead entrepreneur and the amount of time he/she devotes to his/her startup are determinant factors. On the other hand, the fit between the business idea and educational/professional experience of the lead entrepreneur is not as important as other entrepreneur related factors.

The second most major effective criteria group is found to be the strategy of the startup. Especially, innovation and partnership strategies seem to have significant effects on the performance of the technology-based startups. Quality and pricing strategies are also significant factors; however, they are not as vital as innovation and partnership strategies according to our participant entrepreneurs.

Team related success factors appeared to be the third group that has an effect on the performance of the technology-based startups. It is worthy to note that, quality factors related with the team seem prominent, rather than quantity factors. Size of the team is found as an insignificant factor in the performance of the technology-based startups.

The factors related with financial consideration observed as significant factors, but their effects on the performance of the technology-based startups are limited compared to the factors related with the lead entrepreneur, the strategy of the company and the team.

Lastly, the factors of the business idea and the market seem to be effective on a narrow frame. Half of the factors related with the business idea and the market found as insignificant, which accounts for the %75 of the total insignificant factors.

In order to observe the effects of the entrepreneur profile over the perception of success factors, a series of entrepreneur groups are investigated. The key findings of these groups are given below.

Comparison-1 is focusing on the successful startup count (*Successful Startup Count = 0 vs Successful Startup Count ≠ 0)*. According to entrepreneurs that did not become successful with his/her startups yet, the strategy of the company is more important than the lead entrepreneur's skills, background and experience. On the contrary, the entrepreneurs that became successful with his/her startups think that factors related to the lead entrepreneur are the most determinant factors. According to them, 4 of the top 5 effective performance factors are related with the lead entrepreneur. In addition to that, from the perspective of insignificant factors, besides the intersecting ones (*09.Size, 20.Capital Requirements, 18.Competition Intensity, 19.Time Investment*), four more factors found as (*21.Quality Strategy, 15.Local vs Global, 28.Incubation/ Acceleration Program, 26.Governmental Support*) insignificant.

Comparison-2 is related with failed startup count (*Failed Startup Count = 0 vs Failed Startup Count ≠ 0)*. These two groups of entrepreneurs are sharing the similar opinion about the factors related with the lead entrepreneur and think that they are the most prominent performance factors. On the other hand, while the results of the entrepreneurs that did not taste the failure with his/her startups yet say that strategy of the company has greater importance than the team in the success of the company, the results of the other group of entrepreneurs imply the opposite. Another point of dissent is the factors of "*09.Size*", "*22.Pricing Strategy*" and "*26.Governmental Support*". The first group of entrepreneurs (failed startup count = 0) believes that these factors are significant factors that affect the performance of the technology-based startups. On the contrary, the second group of the entrepreneurs do not agree upon this opinion and their results show that these are insignificant factors according to them.

Comparison-3 *(Successful & Failed Startup Count ≠ 0 vs Successful & Failed Startup Count = 0)* shows similarity to Comparison-2. The lead entrepreneur factor group is the most significant among these two groups of entrepreneurs and strategy and team factor groups are found as interchangeably (the entrepreneurs that did not succeed or fail with his/her startups yet puts the team above the strategy and vice versa). In terms of insignificant factors, these two groups are seriously separated. In addition to 6 common insignificant factors, 9 more factors which are named as *"21.Quality Strategy", "10.Industry Experience", "25.Equity Availability", "11.Prior Startup Experience", "12.R&D Experience", "08.Risk Perception", "26.Governmental Support", "15.Local vs Global"* and *"28.Incubation/Acceleration Program*" are found as insignificant in the second group of entrepreneurs who succeeded and failed with his/her startups before.

In **Comparison-4**, entrepreneurs are split into two categories in term of their government grant status *(Government Grant = Yes vs Government Grant = No).* When we investigate the t-test result of these two groups of entrepreneurs, we see that the entrepreneurs that acquired government grant before giving the most weight on the factors related with the lead entrepreneur, which is followed by the team and strategy factor groups. For the entrepreneurs that did not acquire government grant before, the second group, the order is the strategy, the lead entrepreneur and the team successively. Moreover, it is worthy to note that unlike the first group, the entrepreneurs that did not acquire government grant before thinks that "*26.Governmental Support*" is not a significant factor in the performance of the technology-based startups. Similarly, *"05.Work Experience-Business Idea Fit", "15.Local vs Global"* and *"28.Incubation/Acceleration Program"* are the additional insignificant factors from the perspective of the entrepreneurs that did not acquire government grant before.

Comparison-5 is focusing on non-governmantal investment status of the entrepreneurs *(Non-Governmental Investment = Yes vs Non-Governmental Investment = No).* Whereas the opinions of these two groups about the impact order of criteria groups are similar (excluded "*Financial Consideration*" criteria group), these two groups of entrepreneurs are dissociated in terms of insignificant performance factors.

While only 4 out of 28 factors are found as insignificant for the entrepreneurs that did not acquire non-governmental investment before, 11 out of 28 factors seem to be insignificant for the entrepreneurs that acquired non-governmental investment before. Especially all of the four criteria related to "*Financial Consideration*", which includes also the "*27.Non-Governmental Investment*" criteria are observed as insignificant for the first group (*Non-Governmental Investment = Yes*), and significant for the second group (*Non-Governmental Investment = No*).

Comparison-6 considers the attendance of entrepreneurs to incubation/acceleration programs *(Incubation/Acceleration Program = Yes vs Incubation/Acceleration Program = No).* In terms of the opinions about the effects of incubation/acceleration programs on the performance of the technology-based startups, the entrepreneurs that attended to incubation/acceleration program before gives more weight to this factor. It is found as significant at 0.01 in the first group, while for the non-participating entrepreneurs it is found as significant at 0.05. In addition to that, the first group place more emphasis on the strategy factor group, whereas the second group thinks that factors related with the lead entrepreneur and the team are more determinant than the strategy related ones. Other than that, insignificant factors are almost the same for these two groups of entrepreneurs.

In **Comparison-7**, sales status of entrepreneurs is compared *(Sales = Yes vs Sales = No).* It is remarkable to consider that, achieving the first sale with own service or product does not have a significant effect on the perception of the entrepreneurs about the performance factors of the technology-based startups. Both the entrepreneurs that achieved and could not be achieved the first sale with his/her service/product give consequence to similar success factors.

In **Comparison-8**, entrepreneur groups are formed according to engineering background *(Engineer Entrepreneurs vs Non-Engineer Entrepreneurs).* The entrepreneurs that took the engineering education attach importance to lead entrepreneur and team factor groups. On the other hand, according to non-engineer entrepreneurs, strategy related factors are the most important ones on average. Another

attention-grabbing point is; for non-engineer entrepreneurs, *"02.Technical Skills", "23.Innovation Strategy"* and *"17.Product Innovation"* take place among the top 5 determinant factors, while engineer entrepreneurs give less importance to these factors. Moreover, "*25.Equity Availability"* and *"28.Incubation/ Acceleration Program"* factors stand out as additional insignificant factors for non-engineer entrepreneurs.

In **Comparison-9**, entrepreneurs are divided into two categories in terms of gender *(Male Entrepreneurs vs Female Entrepreneurs)***.** It is worthy to note that, gender has no significant effect on the perception of the entrepreneurs about the performance factors of the technology-based startups.

For **Comparison-10**, attention is on the age of entrepreneurs *(Age < 30 vs Age ≥ 30)*. As the entrepreneurs become older, they show a tendency to put less weight on strategy-based factors. While the strategy factor group observed as the most prominent one for the entrepreneurs whose age is smaller than thirty, it comes after the lead entrepreneur and team related factor in the second group whose age is equal to or greater than thirty.

Last comparison; **Comparison-11**, is made in terms of education level of the entrepreneurs *(Education Level < Master's Degree vs Education Level ≥ Master's Degree).* From the t-test results of these two group of entrepreneurs, it can be seen that education level has no significant effect on the perception of the entrepreneurs about the performance factors of the technology-based startups.

After t-test, cluster analysis is performed and results are given in Table 4 15. The first cluster consists of 66 successful technology-based ventures. For this group/cluster, technical and managerial competence and creativity draw attention. In addition, innovation and partnership strategies and networking capabilities are exceptional. Risk perception, marketing experience and enthusiasm/Capacity for Work are other leading factors for these successful ventures.
The second cluster consists of 21 failed attempts. Entrepreneurs of these enterprises lack technical and managerial competence, creativity, R&D and marketing experience.

Generally, the competition level is higher for these startups. On the other hand, there is not a significant difference in terms of time and capital requirements of the business ideas of the ventures.

It is remarkable that, the first cluster with successful ones has 66 startups, whereas the second cluster, which includes unsuccessful startups has almost one third of the first cluster. Since the successful startups clustered in a much bigger set, it can be concluded that success of technology-based startups has a more generic recipe than failure of them.

Next, we examine the results of stepwise regression analysis to determine the criteria that are meaningful for each performance measure. Most of the performance indicators are explained by the independent variables used in the regression model.

The independent variables used in the regression model accounted for most of the performance indicators. As can be seen from Table 4.16: Results of Multiple Regression Model, 50.5% of the changes in "Sales" are explained by the following four criteria:

- *24.Partnership Strategy,*
- *27.Non-Governmental Investment,*
- *02.Technical Skills,*
- *21.Quality Strategy.*

"*Profit*", the second performance indicator in the study, is explained by 44.2% by given 5 criteria.

- *24.Partnership Strategy,*
- *07.Enthusiasm/Capacity for Work,*
- *10.Industry Experience,*
- *15.Local vs. Global,*
- *18.Competition Intensity.*

Likewise, 49.0% of the change in "*Return on Investment (ROI)*" is explained by:

- *23.Innovation Strategy,*
- *08.Risk Perception,*
- *17.Product Innovation,*
- *28.Incubation/Acceleration Program,*
- *19.Time Investment*.

In other words, the "*19. Time Investment*" criterion has a negative effect on the "*ROI*", but the other criteria positively affect it.

The "*Market Share*" performance indicator is explained by the criteria that affect "*Sales*", "*ROI*" and "*Profitability*". This suggests that there is a high correlation between performance indicators as expected. It is possible to say that 54.3% of the "*Market Share*" change depends on the criteria of:

- *23.Innovation Strategy*
- *07.Enthusiasm/Capacity for Work,*
- *24.Partnership Strategy,*
- *27.Non-Governmental Investment.*

Finally, 48.0% of the change in the "*Number of Users*" is explained by these four criteria;

- *27.Non-Governmental Investment,*
- *02.Technical Skills,*
- *23.Innovation Strategy,*
- *06.Creativity,*
- *16.Business Idea - Market Fit.*

5.2. Conclusion

Success and failure of a technology-based startup is a complex subject, which is affected by many factors. In this study, a total of 28 factors are investigated under five groups as follows: the lead entrepreneur, the team, business idea & market, strategy and financial consideration. Besides that, the performance of the startups is correlated with five performance indicators named as *sales, profit, ROI, market share* and *number of users*.

As indicated in section 2.5-Summary of Literature Review, there are many different factors found as critical in the success of the technology-based ventures. Although a consensus on success factors of technology-based enterprises has not been reached and many studies come up with findings that highly contradict or refute one another; it can be concluded that factors related with the entrepreneur are one step ahead of other success factors, which is followed by organizational factors. In our study, "*Lead Entrepreneur*" criteria group observed as the most significant, which is followed by the "*Strategy*" and "*Team*" criteria groups. The parallelism between the results of our study and the findings of the literature supports our hypothesis, which implies that success and failure factors for technology-based entrepreneurship are not too sensitive to regional or cultural differences. In addition, results of our study show that the profile of the entrepreneurs has significant effects on their perceptions about determinant performance factors of technology-based ventures. For instance, the entrepreneurs that did not acquire government grant before thinks that "*26.Governmental Support*" is not a significant factor in the performance of the technology-based startups. On the other hand, for the ones that acquired, it is a significant factor. Another attention-grabbing point is; for non-engineer entrepreneurs, *"02.Technical Skills", "23.Innovation Strategy"* and *"17.Product Innovation"* take place among the top 5 determinant factors, while engineer entrepreneurs give less importance to these factors. All of these findings show the effects of entrepreneur profile over the perception of success factors and support our second hypothesis.

There is no correlation found between the time and capital requirement of the business idea and the performance of the technology-based venture, which is one of the most noteworthy findings of this study. Besides that, full-time devotion, technical and organizational skills of the lead entrepreneur, network of the team and the strategies of the company shows a strong relationship with the performance of technology-based ventures. In addition, entrepreneur's education level, professional experience, size of the team and the target market (local or global) do not show a strong correlation with success as expected.

Kakati (2003) in his study aiming at identifying success criteria for high-tech ventures suggest five main results:

- Entrepreneurial quality play as critical role as other variables in the success of a new venture.
- Successful ventures followed multiple patterns of strategic behavior.
- Strategy choice should be linked to resource-availability with the firm.
- Development of new technology or product doesn't guarantee commercial success.
- Traditional new venture model should be expanded to include variables related to entrepreneurs, resource capabilities, strategies, industry/market structure, resource availability and strategies relationship, market structure and strategy relationship, and interactive effects of these factors.

Findings of this study echoes Kakati's findings in the core principle. This study, like Kakati found the lead entrepreneur being the vital factor for success. Strategy was also a determinant in both studies. The product being a new technology wasn't found to be a significant in entrepreneurs' perception; however, Kakati includes it does not guarantee commercial success as well. In the literature review we point out that the literature lacks cohesion and should expand to include more factors which are consistent with the findings. Kakati, in addition, names these factors.

Macmillan, Zemann and Subbanarasimha conclude their study on venture capitalist view of successful enterprises as such:

- The study yielded several models of successful and unsuccessful ventures. Each of the unsuccessful ventures had a successful counterpart that differed in only one major criterion.
- Degree of competitive threat and degree of market acceptance of product were not good predictors because venture capitalists already applied them to undesired ventures.
- Their factor analysis evidenced a modest level of convergence between this and other studies.

Results of this study could also be interpreted as showing a level of convergence with the related literature. However, it should be pointed out that the backbone of the survey process was the literature review itself. Therefore, finding results in accordance with the literature to a degree or another should be expected. Our results find more differences, or certainly more than one, between successful and unsuccessful ventures. As far as degree of competitive threat and market acceptance go this study is inconclusive or rather didn't find any results of significance.

When we further analyze the results of our study to gather some useful insights for entrepreneurs, it should be noted that full-time devotion is one of the key success factors for technology-based ventures. Most startups could not achieve to make money immediately after the launching. As a result, entrepreneurs could need another full or part-time job as a source of income besides their ventures, which may cause losing the focus on their ventures. It also decreases the amount of time they could devote to their own ventures. In addition to that, as it can be seen from our results, technical and managerial skills are highly significant factors of startup success. As the entrepreneurs become more competent in technical skills, they could use new technologies or science more effective and creative to come up with innovative ideas. With the help of developments in information and communication technologies, reaching to knowledge becomes easier, faster and cheaper for everyone. Especially online materials are the rising values of education and they help to conventional education systems by

increasing the equality of opportunities. Besides that, in order to enhance the managerial skills, salaried employment for a period time provides great opportunities to entrepreneurs. They can observe many good and bad examples of management styles and could experience some level of management in their work life. Gaining the managerial skills in a salaried job would save time and money for entrepreneurs, compared to learning them in their own ventures. Moreover, as the results of our study states that entrepreneurs should focus on building a team of skilled people, rather than building a big team.

In terms of widespread prejudices about the success of technology-based ventures, this study contains some interesting findings. It could be thought intuitively that time and capital requirements of a business idea are crucial for the success of startups; however, these factors found as insignificant in our study. Moreover, competition intensity in the target market is also found as an insignificant factor for startup success. It should be noted that this study has some limitations which are stated in the next section. As a result, findings do not necessarily refute the importance of these factors, but they might motive entrepreneurs to think about these factors and reevaluate their business ideas within this context.

Presenting the perceptions of the entrepreneurs about the success of technology-based ventures gives the chance to other players of the entrepreneurship ecosystem to compare with their perceptions. Understanding the perceptions about success factors, expectations, and priorities of different stakeholders such as entrepreneurs, investors or government could help to improve the ecosystem.

5.3. Limitations

This study aims at analyzing and identifying the factors that affect the success and failure of technology-based enterprises by focusing on the perspective and perception of the entrepreneurs in the field of technology-based. For data collection methodology, as it has been explained in a detailed manner before (see Section 3.1.1), the survey method has been chosen and applied to the ones who have taken part in

technology-based enterprises as founder or partner. These all set a number of limitations for the study.

Firstly, for people to be able to take part in the survey, a certain criterion was set as that they must be the founder or a partner of a technology-based enterprise. To consider, even if this criterion has been tried to be confirmed by asking as one of the first questions in the survey, it is not possible to confirm the situation in a certain manner. In other words, people who are not qualified as founder or partner in a technology-based startup may have participated in the survey so elimination could not be taken place according to the data. This may lead to a limitation in the results. Secondly, since this study focuses on the perspectives and perceptions of the entrepreneurs themselves in the success and failure of technology-based enterprises, it is possible that the entrepreneurs might have exaggerated the successful technology-based enterprises whereas they might have disparaged the failures. All these possible overstatements may set a set of limitations for the results. Thirdly, survey as a data collection methodology itself has some limitations. As it has been explained in a detailed manner in section 3.1.1., a scaling method has been used in the survey thus, some results might not have 100% adequacy since all perception and perception cannot be reduced to a scale number. Furthermore, since this study does not include in-depth methods such as in-depth interviews, the results might have been limited to a restricted area.

To conclude, three main limitations can be listed for the study. The requirement that has been set for the participants might not have been realized in a full scale. Overstatements of entrepreneurs related to success and failure in technology-based enterprises might have blinded some of the results because the entrepreneurs themselves have been the main focus. Lastly, because of the limitations that result from the survey method itself might have impacted the results.

5.4. Directions for Further Research

In the time when the data were collected, participants were asked to scale/grade the criteria (see Section 3.1.1) that affect the success and failure in the technology-based startups. In order to determine the change in perceptions and perspectives of the entrepreneurs, after a couple of years, a new research or survey can be conducted with the same participants. In this way, change in the criteria or in the grade of the certain criteria can be identified and analyzed. Furthermore, the factors that affect and cause a change in the perceptions and the perspectives of the entrepreneurs can be illustrated.

In this study, the focus group has been the founders and/or partners in the technology-based startups. In order to analyze whether the criteria change when the focus group changes, a different requirement can be set for the participants as the survey can be conducted with the entrepreneurs who take part in a technology-based enterprise for the first time. Since this focus group will not have a past experience, their perspective, perception and the expectations related to the enterprise may differ.

The survey method has been used for data collection methodology in this study. For a more in-depth analysis, a different method can be used to collect data. For example, by conducting in-depth interviews, a new research can be conducted and it can be seen if any results change when the method differs.

This study focuses on the individual perspectives and perceptions since it targets at conducting a survey of entrepreneurs themselves but does not directly include any macro-level systematic analysis. Thus, varied researches can take place by focusing on the macro level factors such as state incentives directly or the situations that alter the economic and financial environment, later this study and other systematic analysis can be converged and more comprehensive and inclusive studies can occur.

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APPENDICES

APPENDIX A: RESULTS OF T-TEST

SET-00: ALL PARTICIPANT ENTREPRENEURS (Size = 111)

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,24	1,79	11,50
	10. Technical Skills	3,98	2,32	10,48
	11. Management Skills	3,86	2,13	11,54
	12. Academic BG-Business Idea Fit	3,37	2,41	5,41
	13. Work Experience-Business Idea Fit	3,56	2,35	6,50
	14. Creativity	4,31	2,60	10,06
	15. Enthusiasm/Capacity for Work	4,45	2,75	10,04
	16. Risk Perception	4,06	2,80	7,02
TEAM	**17. Size**	3,29	2,91	1,73
	18. Industry Experience	3,61	2,46	7,10
	19. Prior Startup Experience	3,37	2,22	6,43
	20. R&D Experience	3,54	2,20	7,55
	21. Marketing Experience	3,20	1,78	9,61
	22. Networking	3,67	2,04	10,00
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,73	1,39	4,50
	24. Business Idea - Market Fit	3,94	2,48	8,63
	25. Product Innovation	3,91	2,53	8,13
	26. Competition Intensity	2,85	3,16	-1,60
	27. Time Investment	3,07	3,39	-1,79
	28. Capital Requirements	3,18	3,09	0,52
STRATEGY	**29. Quality Strategy**	3,46	2,44	5,87
	30. Pricing Strategy	3,35	2,56	4,69
	31. Innovation Strategy	3,80	2,13	10,75
	32. Partnership Strategy	3,57	2,05	9,23
FINANCIAL CONSIDER.	**33. Equity Availability**	3,01	2,14	4,99
	34. Governmental Support	3,45	2,19	4,95
	35. Non-Governmental Investment	2,41	1,54	3,86
	36. Incubation/Acceleration Program	3,05	1,97	4,30
PERFORMANCE MEASURES	**37. Sales**	3,46	1,63	11,32
	38. Profit	3,66	1,70	12,47
	39. ROI	3,46	1,57	12,49
	40. Market Share	3,49	1,55	11,83
	41. Number of Users	3,52	1,54	12,41

Significant at 0.01

Significant at 0.05

Insignificant

SET-01: Successful Startup Count = 0 (Size = 30)

The entrepreneurs that did not become successful with his/her startups yet.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,33	1,80	6,24
	10. Technical Skills	4,14	2,48	6,03
	11. Management Skills	3,74	2,37	4,36
	12. Academic BG-Business Idea Fit	3,41	2,36	2,97
	13. Work Experience-Business Idea Fit	3,40	2,52	2,24
	14. Creativity	4,17	2,74	4,24
	15. Enthusiasm/Capacity for Work	4,43	3,03	4,32
	16. Risk Perception	3,81	2,60	3,64
TEAM	**17. Size**	3,21	2,76	1,11
	18. Industry Experience	3,44	2,70	2,42
	19. Prior Startup Experience	3,44	2,57	2,44
	20. R&D Experience	3,46	2,43	2,78
	21. Marketing Experience	3,30	1,85	4,86
	22. Networking	3,70	1,96	6,42
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,66	1,41	1,76
	24. Business Idea - Market Fit	3,86	2,92	2,84
	25. Product Innovation	3,79	2,64	3,69
	26. Competition Intensity	2,81	3,50	-2,12
	27. Time Investment	2,79	3,33	-1,66
	28. Capital Requirements	2,96	3,25	-1,00
STRATEGY	**29. Quality Strategy**	3,20	2,55	1,97
	30. Pricing Strategy	3,35	2,67	2,09
	31. Innovation Strategy	3,83	2,27	5,57
	32. Partnership Strategy	3,87	1,65	8,11
FINANCIAL CONSIDER.	**33. Equity Availability**	3,34	2,12	4,28
	34. Governmental Support	2,60	2,60	0,00
	35. Non-Governmental Investment	3,00	1,13	4,73
	36. Incubation/Acceleration Program	2,20	1,67	1,22
PERFORMANCE MEASURES	**37. Sales**	3,78	1,40	9,60
	38. Profit	4,00	1,52	9,50
	39. ROI	3,40	1,32	8,64
	40. Market Share	3,39	1,24	8,25
	41. Number of Users	3,58	1,54	7,42

Significant at 0.01

Significant at 0.05

Insignificant

SET-02: Successful Startup Count ≠ 0 (Size = 81)

The entrepreneurs that became successful with his/her startups.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,21	1,79	9,61
	10. Technical Skills	3,93	2,25	8,61
	11. Management Skills	3,90	2,02	11,34
	12. Academic BG-Business Idea Fit	3,35	2,43	4,42
	13. Work Experience-Business Idea Fit	3,61	2,28	6,38
	14. Creativity	4,36	2,53	9,29
	15. Enthusiasm/Capacity for Work	4,46	2,62	9,35
	16. Risk Perception	4,14	2,89	5,80
TEAM	**17. Size**	3,32	2,98	1,27
	18. Industry Experience	3,67	2,36	6,81
	19. Prior Startup Experience	3,34	2,06	6,35
	20. R&D Experience	3,56	2,10	7,19
	21. Marketing Experience	3,17	1,75	8,24
	22. Networking	3,66	2,07	7,82
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,76	1,39	4,16
	24. Business Idea - Market Fit	3,98	2,27	8,82
	25. Product Innovation	3,95	2,47	7,21
	26. Competition Intensity	2,86	3,00	-0,59
	27. Time Investment	3,17	3,42	-1,13
	28. Capital Requirements	3,25	3,02	1,08
STRATEGY	**29. Quality Strategy**	3,54	2,40	5,61
	30. Pricing Strategy	3,35	2,52	4,17
	31. Innovation Strategy	3,79	2,06	9,23
	32. Partnership Strategy	3,47	2,22	6,27
FINANCIAL CONSIDER.	**33. Equity Availability**	2,89	2,15	3,41
	34. Governmental Support	3,77	2,04	6,07
	35. Non-Governmental Investment	2,19	1,69	1,86
	36. Incubation/Acceleration Program	3,37	2,09	4,33
PERFORMANCE MEASURES	**37. Sales**	3,34	1,74	7,66
	38. Profit	3,53	1,80	8,81
	39. ROI	3,48	1,69	9,35
	40. Market Share	3,53	1,70	8,77
	41. Number of Users	3,50	1,53	9,95

Significant at 0.01
Significant at 0.05
Insignificant

SET-03: Failed Startup Count = 0 (Size = 68)

The entrepreneurs that did not taste the failure with his/her startups yet.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,24	1,35	12,17
	10. Technical Skills	3,99	2,07	8,59
	11. Management Skills	3,86	1,95	9,62
	12. Academic BG-Business Idea Fit	3,45	2,33	4,42
	13. Work Experience-Business Idea Fit	3,72	2,20	5,91
	14. Creativity	4,40	2,07	11,09
	15. Enthusiasm/Capacity for Work	4,49	2,33	9,07
	16. Risk Perception	3,95	2,40	6,35
TEAM	**17. Size**	3,32	2,58	2,32
	18. Industry Experience	3,69	2,35	5,57
	19. Prior Startup Experience	3,44	2,03	5,57
	20. R&D Experience	3,65	2,02	6,66
	21. Marketing Experience	3,24	1,64	8,45
	22. Networking	3,75	1,84	8,73
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,75	1,38	3,46
	24. Business Idea - Market Fit	4,06	2,00	10,02
	25. Product Innovation	4,01	2,05	9,14
	26. Competition Intensity	3,02	3,00	0,06
	27. Time Investment	3,16	3,40	-0,95
	28. Capital Requirements	3,28	3,00	1,18
STRATEGY	**29. Quality Strategy**	3,60	2,24	5,57
	30. Pricing Strategy	3,46	2,19	5,71
	31. Innovation Strategy	3,91	1,95	9,34
	32. Partnership Strategy	3,68	2,00	7,69
FINANCIAL CONSIDER.	**33. Equity Availability**	2,83	2,30	2,25
	34. Governmental Support	3,76	1,94	5,95
	35. Non-Governmental Investment	2,12	1,41	2,67
	36. Incubation/Acceleration Program	2,94	1,82	3,56
PERFORMANCE MEASURES	**37. Sales**	3,34	1,62	8,27
	38. Profit	3,58	1,71	8,60
	39. ROI	3,27	1,66	8,24
	40. Market Share	3,37	1,59	8,41
	41. Number of Users	3,42	1,57	8,16

Significant at 0.01

Significant at 0.05

Insignificant

SET-04: Failed Startup Count ≠ 0 (Size = 43)

The entrepreneurs that tasted the failure with his/her startups.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,26	2,49	4,61
	10. Technical Skills	3,98	2,60	6,21
	11. Management Skills	3,85	2,31	7,02
	12. Academic BG-Business Idea Fit	3,24	2,49	3,03
	13. Work Experience-Business Idea Fit	3,29	2,51	2,87
	14. Creativity	4,17	3,21	3,93
	15. Enthusiasm/Capacity for Work	4,40	3,24	5,28
	16. Risk Perception	4,23	3,20	4,19
TEAM	**17. Size**	3,23	3,17	0,20
	18. Industry Experience	3,48	2,56	3,94
	19. Prior Startup Experience	3,27	2,38	3,51
	20. R&D Experience	3,36	2,38	3,80
	21. Marketing Experience	3,14	1,90	5,52
	22. Networking	3,54	2,25	5,37
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,70	1,41	2,68
	24. Business Idea - Market Fit	3,76	2,95	3,08
	25. Product Innovation	3,73	3,00	2,97
	26. Competition Intensity	2,59	3,31	-2,73
	27. Time Investment	2,93	3,38	-1,71
	28. Capital Requirements	3,02	3,17	-0,55
STRATEGY	**29. Quality Strategy**	3,23	2,65	2,35
	30. Pricing Strategy	3,16	2,97	0,82
	31. Innovation Strategy	3,63	2,31	5,76
	32. Partnership Strategy	3,36	2,11	4,93
FINANCIAL CONSIDER.	**33. Equity Availability**	3,28	1,98	4,97
	34. Governmental Support	2,95	2,58	0,86
	35. Non-Governmental Investment	2,86	1,74	2,86
	36. Incubation/Acceleration Program	3,23	2,21	2,45
PERFORMANCE MEASURES	**37. Sales**	3,64	1,63	7,81
	38. Profit	3,78	1,69	8,81
	39. ROI	3,75	1,49	9,53
	40. Market Share	3,68	1,51	8,19
	41. Number of Users	3,67	1,51	9,09

Significant at 0.01
Significant at 0.05
Insignificant

SET-05: Successful & Failed Startup Count ≠ 0 (Size = 25)

The entrepreneurs that did not succeed or fail with his/her startups yet.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	3,88	2,76	2,05
	10. Technical Skills	3,92	2,42	4,98
	11. Management Skills	3,88	2,08	7,30
	12. Academic BG-Business Idea Fit	3,42	2,41	3,47
	13. Work Experience-Business Idea Fit	3,58	2,35	3,83
	14. Creativity	4,24	3,14	3,65
	15. Enthusiasm/Capacity for Work	4,48	3,00	5,36
	16. Risk Perception	4,28	3,58	2,24
TEAM	**17. Size**	3,24	3,38	-0,35
	18. Industry Experience	3,60	2,38	4,10
	19. Prior Startup Experience	3,21	2,17	3,39
	20. R&D Experience	3,38	2,30	3,20
	21. Marketing Experience	3,16	1,96	4,22
	22. Networking	3,40	2,25	3,38
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,74	1,43	2,14
	24. Business Idea - Market Fit	3,76	2,63	3,50
	25. Product Innovation	3,72	2,92	2,38
	26. Competition Intensity	2,52	2,92	-1,11
	27. Time Investment	2,96	3,44	-1,37
	28. Capital Requirements	2,92	3,12	-0,51
STRATEGY	**29. Quality Strategy**	3,20	2,48	2,22
	30. Pricing Strategy	3,13	3,00	0,39
	31. Innovation Strategy	3,58	2,14	4,77
	32. Partnership Strategy	3,13	2,36	2,25
FINANCIAL CONSIDER.	**33. Equity Availability**	3,12	1,83	3,43
	34. Governmental Support	3,40	2,28	2,03
	35. Non-Governmental Investment	2,44	2,28	0,29
	36. Incubation/Acceleration Program	3,72	2,44	2,34
PERFORMANCE MEASURES	**37. Sales**	3,41	1,91	3,93
	38. Profit	3,52	1,95	4,71
	39. ROI	3,90	1,67	6,73
	40. Market Share	3,82	1,76	5,62
	41. Number of Users	3,65	1,62	5,75

Significant at 0.01
Significant at 0.05
Insignificant

SET-06: Successful & Failed Startup Count= 0 (Size = 12)

The entrepreneurs that succeeded and failed with his/her startups.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	3,67	1,33	3,54
	10. Technical Skills	4,25	1,78	5,60
	11. Management Skills	3,64	1,89	3,66
	12. Academic BG-Business Idea Fit	4,00	2,00	3,65
	13. Work Experience-Business Idea Fit	4,18	2,11	3,26
	14. Creativity	4,33	1,80	5,53
	15. Enthusiasm/Capacity for Work	4,67	2,18	4,41
	16. Risk Perception	3,36	2,56	1,30
TEAM	**17. Size**	3,18	2,50	1,00
	18. Industry Experience	3,67	2,38	2,10
	19. Prior Startup Experience	3,60	2,33	1,85
	20. R&D Experience	3,67	2,33	1,67
	21. Marketing Experience	3,60	1,88	3,47
	22. Networking	3,64	1,44	4,91
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,67	1,50	0,63
	24. Business Idea - Market Fit	4,00	2,00	5,21
	25. Product Innovation	3,83	1,78	4,50
	26. Competition Intensity	3,00	2,78	0,36
	27. Time Investment	2,67	3,40	-1,31
	28. Capital Requirements	2,64	3,25	-1,06
STRATEGY	**29. Quality Strategy**	3,09	1,88	2,12
	30. Pricing Strategy	3,50	2,29	1,84
	31. Innovation Strategy	4,00	1,78	5,42
	32. Partnership Strategy	4,00	1,50	5,52
FINANCIAL CONSIDER.	**33. Equity Availability**	3,09	2,00	2,01
	34. Governmental Support	3,00	2,00	1,25
	35. Non-Governmental Investment	2,33	1,33	1,52
	36. Incubation/Acceleration Program	1,67	1,33	0,60
PERFORMANCE MEASURES	**37. Sales**	3,50	1,67	4,04
	38. Profit	3,82	1,80	4,13
	39. ROI	3,20	1,50	4,31
	40. Market Share	3,25	1,43	4,69
	41. Number of Users	3,38	1,88	2,59

Significant at 0.01

Significant at 0.05

Insignificant

SET-07: Government Grant = Yes (Size = 76)

The entrepreneurs that acquired government grant before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,21	1,63	10,34
	10. Technical Skills	4,05	2,21	10,00
	11. Management Skills	3,84	2,11	9,57
	12. Academic BG-Business Idea Fit	3,47	2,48	4,80
	13. Work Experience-Business Idea Fit	3,79	2,32	7,55
	14. Creativity	4,33	2,61	8,44
	15. Enthusiasm/Capacity for Work	4,51	2,59	9,93
	16. Risk Perception	4,07	2,75	6,17
TEAM	**17. Size**	3,21	2,85	1,32
	18. Industry Experience	3,63	2,41	6,72
	19. Prior Startup Experience	3,40	2,02	7,10
	20. R&D Experience	3,69	2,11	7,36
	21. Marketing Experience	3,22	1,77	8,28
	22. Networking	3,76	2,13	7,96
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,77	1,36	4,60
	24. Business Idea - Market Fit	3,96	2,51	7,06
	25. Product Innovation	3,93	2,51	6,97
	26. Competition Intensity	2,79	3,26	-1,97
	27. Time Investment	3,03	3,61	-2,66
	28. Capital Requirements	3,25	3,16	0,39
STRATEGY	**29. Quality Strategy**	3,62	2,55	4,78
	30. Pricing Strategy	3,33	2,68	3,12
	31. Innovation Strategy	3,90	2,24	8,29
	32. Partnership Strategy	3,62	2,22	6,85
FINANCIAL CONSIDER.	**33. Equity Availability**	3,03	2,19	3,76
	34. Governmental Support	4,16	2,37	6,19
	35. Non-Governmental Investment	2,16	1,58	2,18
	36. Incubation/Acceleration Program	3,47	2,11	4,49
PERFORMANCE MEASURES	**37. Sales**	3,63	1,69	9,39
	38. Profit	3,73	1,68	10,36
	39. ROI	3,59	1,71	9,38
	40. Market Share	3,65	1,63	9,89
	41. Number of Users	3,62	1,50	10,87

Significant at 0.01
Significant at 0.05
Insignificant

SET-08: Government Grant = No (Size = 35)

The entrepreneurs that did not acquire government grant before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,31	2,14	5,38
	10. Technical Skills	3,82	2,55	4,24
	11. Management Skills	3,91	2,18	6,30
	12. Academic BG-Business Idea Fit	3,15	2,26	2,58
	13. Work Experience-Business Idea Fit	3,00	2,42	1,45
	14. Creativity	4,26	2,57	5,38
	15. Enthusiasm/Capacity for Work	4,31	3,07	3,84
	16. Risk Perception	4,03	2,89	3,45
TEAM	**17. Size**	3,43	3,00	1,14
	18. Industry Experience	3,56	2,56	2,95
	19. Prior Startup Experience	3,31	2,56	2,12
	20. R&D Experience	3,22	2,37	2,69
	21. Marketing Experience	3,17	1,79	4,98
	22. Networking	3,47	1,86	6,03
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,64	1,45	1,32
	24. Business Idea - Market Fit	3,91	2,41	4,86
	25. Product Innovation	3,85	2,56	4,12
	26. Competition Intensity	2,97	2,92	0,15
	27. Time Investment	3,15	2,96	0,59
	28. Capital Requirements	3,03	2,92	0,37
STRATEGY	**29. Quality Strategy**	3,12	2,23	3,36
	30. Pricing Strategy	3,38	2,29	4,02
	31. Innovation Strategy	3,58	1,92	7,11
	32. Partnership Strategy	3,45	1,65	7,01
FINANCIAL CONSIDER.	**33. Equity Availability**	2,97	2,04	3,36
	34. Governmental Support	1,91	1,80	0,29
	35. Non-Governmental Investment	2,94	1,46	3,66
	36. Incubation/Acceleration Program	2,14	1,69	1,13
PERFORMANCE MEASURES	**37. Sales**	3,15	1,52	6,32
	38. Profit	3,52	1,74	6,70
	39. ROI	3,22	1,35	8,55
	40. Market Share	3,19	1,42	6,41
	41. Number of Users	3,32	1,60	6,15

Significant at 0.01

Significant at 0.05

Insignificant

SET-9: Non-Governmental Investment = Yes (Size = 20)

The entrepreneurs that acquired non-governmental investment before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,60	2,40	4,25
	10. Technical Skills	3,95	2,60	3,36
	11. Management Skills	3,85	2,27	4,70
	12. Academic BG-Business Idea Fit	2,95	2,38	1,27
	13. Work Experience-Business Idea Fit	3,16	2,15	2,02
	14. Creativity	4,50	3,00	3,52
	15. Enthusiasm/Capacity for Work	4,55	2,73	4,07
	16. Risk Perception	4,26	3,36	2,11
TEAM	**17. Size**	3,82	3,64	0,34
	18. Industry Experience	3,45	2,57	2,23
	19. Prior Startup Experience	2,95	2,08	2,46
	20. R&D Experience	3,15	2,07	3,05
	21. Marketing Experience	2,89	2,00	2,42
	22. Networking	3,50	2,50	2,27
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,80	1,46	1,98
	24. Business Idea - Market Fit	3,95	2,33	3,77
	25. Product Innovation	4,25	2,53	3,72
	26. Competition Intensity	3,11	2,27	2,32
	27. Time Investment	3,00	3,13	-0,28
	28. Capital Requirements	3,05	3,13	-0,16
STRATEGY	**29. Quality Strategy**	3,16	2,47	1,59
	30. Pricing Strategy	3,44	2,50	2,96
	31. Innovation Strategy	3,89	2,00	4,78
	32. Partnership Strategy	3,53	2,47	2,21
FINANCIAL CONSIDER.	**33. Equity Availability**	2,53	1,93	1,42
	34. Governmental Support	3,20	2,00	1,98
	35. Non-Governmental Investment	3,80	2,60	1,95
	36. Incubation/Acceleration Program	3,60	2,80	1,26
PERFORMANCE MEASURES	**37. Sales**	3,16	2,15	2,07
	38. Profit	3,30	2,21	2,45
	39. ROI	3,55	1,86	4,12
	40. Market Share	3,53	1,86	3,71
	41. Number of Users	3,35	1,93	2,87

Significant at 0.01

Significant at 0.05

Insignificant

SET-10: Non-Governmental Investment = No (Size = 91)

The entrepreneurs that did not acquire non-governmental investment before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,16	1,66	10,80
	10. Technical Skills	3,99	2,26	9,99
	11. Management Skills	3,86	2,10	10,48
	12. Academic BG-Business Idea Fit	3,46	2,41	5,40
	13. Work Experience-Business Idea Fit	3,65	2,39	6,33
	14. Creativity	4,27	2,51	9,51
	15. Enthusiasm/Capacity for Work	4,43	2,76	9,11
	16. Risk Perception	4,01	2,68	6,80
TEAM	**17. Size**	3,18	2,73	1,91
	18. Industry Experience	3,65	2,43	6,78
	19. Prior Startup Experience	3,47	2,25	6,00
	20. R&D Experience	3,63	2,22	7,00
	21. Marketing Experience	3,27	1,74	9,46
	22. Networking	3,71	1,94	10,15
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,71	1,38	4,04
	24. Business Idea - Market Fit	3,94	2,51	7,71
	25. Product Innovation	3,83	2,52	7,22
	26. Competition Intensity	2,79	3,36	-2,62
	27. Time Investment	3,08	3,45	-1,87
	28. Capital Requirements	3,21	3,08	0,70
STRATEGY	**29. Quality Strategy**	3,53	2,43	5,76
	30. Pricing Strategy	3,33	2,57	3,84
	31. Innovation Strategy	3,78	2,16	9,54
	32. Partnership Strategy	3,58	1,95	9,69
FINANCIAL CONSIDER.	**33. Equity Availability**	3,11	2,18	4,86
	34. Governmental Support	3,51	2,23	4,52
	35. Non-Governmental Investment	2,10	1,31	3,61
	36. Incubation/Acceleration Program	2,93	1,79	4,24
PERFORMANCE MEASURES	**37. Sales**	3,54	1,51	12,43
	38. Profit	3,75	1,58	13,74
	39. ROI	3,44	1,49	12,29
	40. Market Share	3,49	1,46	11,94
	41. Number of Users	3,57	1,43	13,93

Significant at 0.01

Significant at 0.05

Insignificant

SET-11: Incubation/Acceleration Program = Yes (Size = 55)

The entrepreneurs that attended to incubation/acceleration program before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,27	2,02	7,12
	10. Technical Skills	4,07	2,33	7,80
	11. Management Skills	3,83	2,02	9,02
	12. Academic BG-Business Idea Fit	3,57	2,52	4,41
	13. Work Experience-Business Idea Fit	3,78	2,51	4,97
	14. Creativity	4,27	2,48	8,00
	15. Enthusiasm/Capacity for Work	4,58	2,54	9,48
	16. Risk Perception	4,31	2,81	6,55
TEAM	**17. Size**	3,30	2,90	1,35
	18. Industry Experience	3,75	2,51	5,44
	19. Prior Startup Experience	3,38	2,26	5,07
	20. R&D Experience	3,67	2,26	5,74
	21. Marketing Experience	3,40	1,88	7,70
	22. Networking	3,91	2,27	7,38
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,77	1,42	3,53
	24. Business Idea - Market Fit	3,98	2,45	6,83
	25. Product Innovation	4,00	2,48	6,46
	26. Competition Intensity	2,85	3,09	-0,90
	27. Time Investment	3,08	3,63	-2,40
	28. Capital Requirements	3,20	3,28	-0,32
STRATEGY	**29. Quality Strategy**	3,50	2,49	4,19
	30. Pricing Strategy	3,35	2,77	2,64
	31. Innovation Strategy	3,87	2,29	7,10
	32. Partnership Strategy	3,58	2,19	5,76
FINANCIAL CONSIDER.	**33. Equity Availability**	3,04	2,38	2,54
	34. Governmental Support	3,84	2,24	4,54
	35. Non-Governmental Investment	2,31	1,73	1,76
	36. Incubation/Acceleration Program	4,35	2,75	4,75
PERFORMANCE MEASURES	**37. Sales**	3,59	1,74	7,62
	38. Profit	3,66	1,76	8,67
	39. ROI	3,57	1,72	8,28
	40. Market Share	3,57	1,67	7,96
	41. Number of Users	3,63	1,71	8,16

Significant at 0.01

Significant at 0.05

Insignificant

SET-12: Incubation/Acceleration Program = No (Size = 56)

The entrepreneurs that did not attended to incubation/acceleration program before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,21	1,57	9,26
	10. Technical Skills	3,89	2,31	7,00
	11. Management Skills	3,89	2,26	7,30
	12. Academic BG-Business Idea Fit	3,18	2,27	3,48
	13. Work Experience-Business Idea Fit	3,35	2,20	4,32
	14. Creativity	4,35	2,73	6,24
	15. Enthusiasm/Capacity for Work	4,32	2,98	5,17
	16. Risk Perception	3,80	2,79	3,67
TEAM	**17. Size**	3,27	2,91	1,08
	18. Industry Experience	3,47	2,39	4,64
	19. Prior Startup Experience	3,36	2,18	4,13
	20. R&D Experience	3,41	2,13	5,00
	21. Marketing Experience	3,02	1,67	6,20
	22. Networking	3,42	1,77	7,18
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,69	1,36	2,93
	24. Business Idea - Market Fit	3,91	2,50	5,35
	25. Product Innovation	3,81	2,58	4,99
	26. Competition Intensity	2,85	3,25	-1,40
	27. Time Investment	3,06	3,13	-0,25
	28. Capital Requirements	3,15	2,86	1,13
STRATEGY	**29. Quality Strategy**	3,42	2,38	4,13
	30. Pricing Strategy	3,34	2,28	4,28
	31. Innovation Strategy	3,73	1,94	8,33
	32. Partnership Strategy	3,54	1,88	7,87
FINANCIAL CONSIDER.	**33. Equity Availability**	2,98	1,90	4,71
	34. Governmental Support	3,07	2,14	2,56
	35. Non-Governmental Investment	2,50	1,36	3,77
	36. Incubation/Acceleration Program	1,79	1,21	2,32
PERFORMANCE MEASURES	**37. Sales**	3,35	1,50	8,68
	38. Profit	3,66	1,64	9,00
	39. ROI	3,36	1,39	10,03
	40. Market Share	3,41	1,39	9,33
	41. Number of Users	3,40	1,36	9,48

Significant at 0.01

Significant at 0.05

Insignificant

SET-13: Sales = Yes (Size = 52)

The entrepreneurs that achieved the first sale with his/her service/ product before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,38	2,23	6,56
	10. Technical Skills	3,83	2,48	5,63
	11. Management Skills	3,84	2,00	8,05
	12. Academic BG-Business Idea Fit	3,02	2,39	2,56
	13. Work Experience-Business Idea Fit	3,36	2,25	4,00
	14. Creativity	4,29	2,78	6,36
	15. Enthusiasm/Capacity for Work	4,52	2,88	7,09
	16. Risk Perception	4,27	3,03	5,11
TEAM	**17. Size**	3,35	3,24	0,38
	18. Industry Experience	3,62	2,54	4,51
	19. Prior Startup Experience	3,30	2,34	3,74
	20. R&D Experience	3,29	2,23	4,38
	21. Marketing Experience	3,06	1,71	6,44
	22. Networking	3,58	1,98	6,69
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,71	1,39	3,10
	24. Business Idea - Market Fit	3,86	2,35	6,38
	25. Product Innovation	3,92	2,69	4,96
	26. Competition Intensity	2,80	3,23	-1,56
	27. Time Investment	3,10	3,34	-0,98
	28. Capital Requirements	3,08	2,82	0,99
STRATEGY	**29. Quality Strategy**	3,27	2,51	3,32
	30. Pricing Strategy	3,27	2,76	2,28
	31. Innovation Strategy	3,64	2,14	7,08
	32. Partnership Strategy	3,43	2,18	5,28
FINANCIAL CONSIDER.	**33. Equity Availability**	2,98	2,08	3,74
	34. Governmental Support	3,31	2,31	2,62
	35. Non-Governmental Investment	2,54	1,77	2,19
	36. Incubation/Acceleration Program	3,31	2,15	3,07
PERFORMANCE MEASURES	**37. Sales**	3,42	1,59	7,93
	38. Profit	3,51	1,58	9,50
	39. ROI	3,54	1,46	10,96
	40. Market Share	3,53	1,52	8,90
	41. Number of Users	3,53	1,40	10,01

Significant at 0.01
Significant at 0.05
Insignificant

SET-14: Sales = No (Size = 59)

The entrepreneurs that did not achieve the first sale with his/her service/ product before.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	3,92	1,61	7,68
	10. Technical Skills	4,12	2,20	9,47
	11. Management Skills	3,86	2,19	8,59
	12. Academic BG-Business Idea Fit	3,65	2,39	5,06
	13. Work Experience-Business Idea Fit	3,81	2,38	5,91
	14. Creativity	4,36	2,47	7,95
	15. Enthusiasm/Capacity for Work	4,42	2,58	7,92
	16. Risk Perception	3,87	2,63	4,81
TEAM	**17. Size**	3,06	2,81	0,81
	18. Industry Experience	3,70	2,41	5,78
	19. Prior Startup Experience	3,44	2,20	4,93
	20. R&D Experience	3,79	2,24	6,40
	21. Marketing Experience	3,30	1,83	6,88
	22. Networking	3,80	2,02	8,02
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,73	1,41	3,06
	24. Business Idea - Market Fit	3,93	2,50	5,87
	25. Product Innovation	3,88	2,27	7,34
	26. Competition Intensity	2,83	3,11	-0,99
	27. Time Investment	3,09	3,45	-1,39
	28. Capital Requirements	3,33	3,07	1,14
STRATEGY	**29. Quality Strategy**	3,60	2,26	5,41
	30. Pricing Strategy	3,32	2,46	3,53
	31. Innovation Strategy	3,85	2,02	8,82
	32. Partnership Strategy	3,75	1,90	8,66
FINANCIAL CONSIDER.	**33. Equity Availability**	3,14	2,16	4,02
	34. Governmental Support	3,44	2,02	4,15
	35. Non-Governmental Investment	2,22	1,41	2,81
	36. Incubation/Acceleration Program	2,76	1,88	2,59
PERFORMANCE MEASURES	**37. Sales**	3,62	1,70	8,11
	38. Profit	3,79	1,78	8,76
	39. ROI	3,46	1,66	7,92
	40. Market Share	3,58	1,53	8,89
	41. Number of Users	3,57	1,68	8,30

Significant at 0.01
Significant at 0.05
Insignificant

SET-15: Engineer Entrepreneurs (Size = 77)

The entrepreneurs that took the engineering education.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,32	1,83	9,84
	10. Technical Skills	4,04	2,43	8,34
	11. Management Skills	3,84	2,16	9,15
	12. Academic BG-Business Idea Fit	3,49	2,49	4,85
	13. Work Experience-Business Idea Fit	3,68	2,40	5,96
	14. Creativity	4,28	2,65	7,79
	15. Enthusiasm/Capacity for Work	4,48	2,75	8,86
	16. Risk Perception	3,99	2,84	5,38
TEAM	**17. Size**	3,26	3,03	0,91
	18. Industry Experience	3,64	2,46	6,01
	19. Prior Startup Experience	3,42	2,28	5,55
	20. R&D Experience	3,62	2,32	6,28
	21. Marketing Experience	3,35	1,84	8,77
	22. Networking	3,81	2,06	9,26
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,68	1,39	3,33
	24. Business Idea - Market Fit	3,91	2,64	6,15
	25. Product Innovation	3,89	2,69	5,83
	26. Competition Intensity	2,64	3,21	-2,48
	27. Time Investment	3,04	3,49	-2,21
	28. Capital Requirements	3,13	3,07	0,33
STRATEGY	**29. Quality Strategy**	3,41	2,50	4,37
	30. Pricing Strategy	3,31	2,57	3,81
	31. Innovation Strategy	3,77	2,30	7,85
	32. Partnership Strategy	3,57	2,10	7,30
FINANCIAL CONSIDER.	**33. Equity Availability**	3,09	2,14	4,65
	34. Governmental Support	3,65	2,40	4,04
	35. Non-Governmental Investment	2,30	1,52	2,95
	36. Incubation/Acceleration Program	3,34	2,04	4,29
PERFORMANCE MEASURES	**37. Sales**	3,57	1,64	10,58
	38. Profit	3,68	1,80	10,10
	39. ROI	3,52	1,61	11,19
	40. Market Share	3,52	1,60	10,54
	41. Number of Users	3,54	1,64	10,37

Significant at 0.01
Significant at 0.05
Insignificant

SET-16: Non-Engineer Entrepreneurs (Size = 34)

The entrepreneurs that did not take the engineering education.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,06	1,71	5,93
	10. Technical Skills	3,85	2,04	6,74
	11. Management Skills	3,91	2,05	7,54
	12. Academic BG-Business Idea Fit	3,09	2,15	2,80
	13. Work Experience-Business Idea Fit	3,29	2,21	2,97
	14. Creativity	4,38	2,46	6,54
	15. Enthusiasm/Capacity for Work	4,38	2,75	4,74
	16. Risk Perception	4,23	2,67	4,61
TEAM	**17. Size**	3,35	2,40	1,96
	18. Industry Experience	3,55	2,44	3,90
	19. Prior Startup Experience	3,24	2,00	3,48
	20. R&D Experience	3,34	1,79	4,72
	21. Marketing Experience	2,83	1,56	4,85
	22. Networking	3,36	1,95	4,50
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,82	1,41	2,95
	24. Business Idea - Market Fit	4,03	2,00	7,43
	25. Product Innovation	3,94	2,00	7,69
	26. Competition Intensity	3,37	3,00	1,06
	27. Time Investment	3,13	3,05	0,19
	28. Capital Requirements	3,28	3,15	0,37
STRATEGY	**29. Quality Strategy**	3,60	2,24	4,28
	30. Pricing Strategy	3,43	2,53	2,80
	31. Innovation Strategy	3,88	1,65	9,03
	32. Partnership Strategy	3,55	1,89	5,80
FINANCIAL CONSIDER.	**33. Equity Availability**	2,82	2,14	2,02
	34. Governmental Support	3,00	1,71	2,96
	35. Non-Governmental Investment	2,65	1,59	2,51
	36. Incubation/Acceleration Program	2,41	1,82	1,35
PERFORMANCE MEASURES	**37. Sales**	3,19	1,54	4,63
	38. Profit	3,61	1,33	9,04
	39. ROI	3,29	1,38	6,16
	40. Market Share	3,41	1,22	6,83
	41. Number of Users	3,46	1,00	10,22

Significant at 0.01

Significant at 0.05

Insignificant

SET-17: Male Entrepreneurs (Size = 87)

Male entrepreneurs.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,17	1,92	8,94
	10. Technical Skills	4,01	2,41	8,73
	11. Management Skills	3,82	2,21	9,53
	12. Academic BG-Business Idea Fit	3,30	2,44	4,21
	13. Work Experience-Business Idea Fit	3,59	2,38	5,80
	14. Creativity	4,34	2,68	8,40
	15. Enthusiasm/Capacity for Work	4,51	2,75	9,37
	16. Risk Perception	4,10	2,93	5,85
TEAM	**17. Size**	3,30	3,03	1,12
	18. Industry Experience	3,58	2,56	5,39
	19. Prior Startup Experience	3,35	2,35	4,85
	20. R&D Experience	3,53	2,31	6,15
	21. Marketing Experience	3,22	1,80	8,30
	22. Networking	3,63	2,06	8,30
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,71	1,39	3,91
	24. Business Idea - Market Fit	3,92	2,50	7,15
	25. Product Innovation	3,92	2,55	7,06
	26. Competition Intensity	2,80	3,04	-1,14
	27. Time Investment	2,99	3,43	-2,25
	28. Capital Requirements	3,05	3,08	-0,15
STRATEGY	**29. Quality Strategy**	3,36	2,44	4,83
	30. Pricing Strategy	3,31	2,60	3,87
	31. Innovation Strategy	3,76	2,21	8,77
	32. Partnership Strategy	3,54	2,15	7,47
FINANCIAL CONSIDER.	**33. Equity Availability**	3,04	2,06	4,93
	34. Governmental Support	3,34	2,24	3,79
	35. Non-Governmental Investment	2,33	1,55	3,10
	36. Incubation/Acceleration Program	2,98	1,92	3,75
PERFORMANCE MEASURES	**37. Sales**	3,36	1,61	9,66
	38. Profit	3,64	1,75	10,55
	39. ROI	3,44	1,61	10,76
	40. Market Share	3,45	1,57	10,31
	41. Number of Users	3,42	1,58	10,23

Significant at 0.01
Significant at 0.05
Insignificant

SET-18: Female Entrepreneurs (Size = 24)

Female entrepreneurs.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,50	1,33	8,81
	10. Technical Skills	3,88	2,00	6,31
	11. Management Skills	4,00	1,81	7,09
	12. Academic BG-Business Idea Fit	3,61	2,28	3,60
	13. Work Experience-Business Idea Fit	3,43	2,27	2,91
	14. Creativity	4,21	2,32	5,71
	15. Enthusiasm/Capacity for Work	4,25	2,78	3,74
	16. Risk Perception	3,90	2,15	4,81
TEAM	**17. Size**	3,23	2,36	1,63
	18. Industry Experience	3,71	2,06	5,78
	19. Prior Startup Experience	3,47	1,62	6,29
	20. R&D Experience	3,58	1,75	4,76
	21. Marketing Experience	3,14	1,67	4,96
	22. Networking	3,82	1,94	5,91
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,78	1,42	2,12
	24. Business Idea - Market Fit	4,04	2,38	5,21
	25. Product Innovation	3,88	2,43	4,02
	26. Competition Intensity	3,05	3,71	-1,56
	27. Time Investment	3,40	3,15	0,54
	28. Capital Requirements	3,71	3,14	1,61
STRATEGY	**29. Quality Strategy**	3,86	2,45	3,17
	30. Pricing Strategy	3,48	2,36	2,64
	31. Innovation Strategy	3,95	1,79	7,00
	32. Partnership Strategy	3,67	1,67	5,96
FINANCIAL CONSIDER.	**33. Equity Availability**	2,91	2,44	1,26
	34. Governmental Support	3,83	2,00	3,50
	35. Non-Governmental Investment	2,67	1,50	2,36
	36. Incubation/Acceleration Program	3,33	2,17	2,09
PERFORMANCE MEASURES	**37. Sales**	3,89	1,69	6,02
	38. Profit	3,73	1,50	7,31
	39. ROI	3,57	1,30	7,28
	40. Market Share	3,67	1,45	5,69
	41. Number of Users	4,00	1,30	9,45

Significant at 0.01

Significant at 0.05

Insignificant

SET-19: Age < 30 (Size = 52)

The entrepreneurs whose age is smaller than thirty.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,46	2,08	7,61
	10. Technical Skills	3,94	2,53	6,20
	11. Management Skills	3,96	2,16	8,31
	12. Academic BG-Business Idea Fit	3,18	2,58	2,35
	13. Work Experience-Business Idea Fit	3,30	2,49	3,05
	14. Creativity	4,31	2,60	6,94
	15. Enthusiasm/Capacity for Work	4,46	2,96	6,02
	16. Risk Perception	4,02	2,89	4,20
TEAM	**17. Size**	3,18	2,89	0,98
	18. Industry Experience	3,64	2,50	4,95
	19. Prior Startup Experience	3,26	2,31	3,60
	20. R&D Experience	3,40	2,14	5,07
	21. Marketing Experience	3,13	1,83	6,27
	22. Networking	3,60	2,07	6,83
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,69	1,39	2,82
	24. Business Idea - Market Fit	4,00	2,68	5,32
	25. Product Innovation	3,86	2,53	5,44
	26. Competition Intensity	2,76	3,30	-1,98
	27. Time Investment	2,94	3,24	-1,24
	28. Capital Requirements	3,04	3,12	-0,32
STRATEGY	**29. Quality Strategy**	3,50	2,38	4,63
	30. Pricing Strategy	3,60	2,48	4,47
	31. Innovation Strategy	3,88	2,27	7,25
	32. Partnership Strategy	3,62	1,97	6,86
FINANCIAL CONSIDER.	**33. Equity Availability**	3,08	2,15	3,81
	34. Governmental Support	3,38	2,62	1,98
	35. Non-Governmental Investment	2,62	1,46	3,52
	36. Incubation/Acceleration Program	2,92	2,00	2,49
PERFORMANCE MEASURES	**37. Sales**	3,67	1,56	9,65
	38. Profit	3,80	1,68	9,80
	39. ROI	3,66	1,61	9,91
	40. Market Share	3,72	1,56	10,03
	41. Number of Users	3,69	1,63	8,86

Significant at 0.01
Significant at 0.05
Insignificant

SET-20: Age ≥ 30 (Size = 59)

The entrepreneurs whose age is equal to or greater than thirty.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,05	1,54	8,75
	10. Technical Skills	4,02	2,08	8,89
	11. Management Skills	3,78	2,11	7,99
	12. Academic BG-Business Idea Fit	3,54	2,18	5,59
	13. Work Experience-Business Idea Fit	3,78	2,18	6,22
	14. Creativity	4,31	2,59	7,28
	15. Enthusiasm/Capacity for Work	4,44	2,52	8,54
	16. Risk Perception	4,09	2,69	5,74
TEAM	**17. Size**	3,39	2,93	1,39
	18. Industry Experience	3,59	2,40	4,99
	19. Prior Startup Experience	3,47	2,10	5,60
	20. R&D Experience	3,65	2,26	5,40
	21. Marketing Experience	3,27	1,71	7,13
	22. Networking	3,72	2,00	7,00
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,77	1,40	3,43
	24. Business Idea - Market Fit	3,90	2,24	7,19
	25. Product Innovation	3,95	2,51	5,91
	26. Competition Intensity	2,93	3,00	-0,26
	27. Time Investment	3,18	3,57	-1,44
	28. Capital Requirements	3,29	3,05	0,91
STRATEGY	**29. Quality Strategy**	3,43	2,50	3,64
	30. Pricing Strategy	3,13	2,63	2,23
	31. Innovation Strategy	3,73	1,97	8,10
	32. Partnership Strategy	3,53	2,13	6,12
FINANCIAL CONSIDER.	**33. Equity Availability**	2,95	2,13	3,25
	34. Governmental Support	3,51	1,81	5,13
	35. Non-Governmental Investment	2,22	1,61	1,99
	36. Incubation/Acceleration Program	3,17	1,95	3,55
PERFORMANCE MEASURES	**37. Sales**	3,26	1,71	6,50
	38. Profit	3,53	1,73	7,86
	39. ROI	3,28	1,52	8,05
	40. Market Share	3,27	1,54	6,95
	41. Number of Users	3,36	1,41	9,53

Significant at 0.01

Significant at 0.05

Insignificant

SET-21: Education Level < Master Degree (Size = 59)

The entrepreneurs whose education level is lower than master's degree.

		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,25	1,95	7,61
	10. Technical Skills	3,97	2,26	7,97
	11. Management Skills	3,87	1,96	9,79
	12. Academic BG-Business Idea Fit	3,31	2,34	3,89
	13. Work Experience-Business Idea Fit	3,42	2,32	4,27
	14. Creativity	4,43	2,53	8,17
	15. Enthusiasm/Capacity for Work	4,53	2,65	8,13
	16. Risk Perception	4,24	2,76	6,20
TEAM	**17. Size**	3,39	2,84	1,92
	18. Industry Experience	3,69	2,41	6,09
	19. Prior Startup Experience	3,50	2,24	5,17
	20. R&D Experience	3,58	2,02	6,98
	21. Marketing Experience	3,25	1,59	8,46
	22. Networking	3,63	1,85	8,65
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,66	1,42	2,32
	24. Business Idea - Market Fit	3,95	2,24	7,58
	25. Product Innovation	4,00	2,27	7,66
	26. Competition Intensity	2,88	3,30	-1,52
	27. Time Investment	2,95	3,27	-1,23
	28. Capital Requirements	3,11	2,93	0,69
STRATEGY	**29. Quality Strategy**	3,37	2,19	5,23
	30. Pricing Strategy	3,40	2,48	4,27
	31. Innovation Strategy	3,74	1,93	9,09
	32. Partnership Strategy	3,53	1,86	8,15
FINANCIAL CONSIDER.	**33. Equity Availability**	2,95	2,02	3,88
	34. Governmental Support	3,24	2,02	3,52
	35. Non-Governmental Investment	2,42	1,61	2,59
	36. Incubation/Acceleration Program	2,90	1,81	3,22
PERFORMANCE MEASURES	**37. Sales**	3,43	1,60	8,04
	38. Profit	3,69	1,62	9,72
	39. ROI	3,43	1,46	9,37
	40. Market Share	3,41	1,50	8,83
	41. Number of Users	3,45	1,58	7,88

Significant at 0.01

Significant at 0.05

Insignificant

SET-22: Education Level ≥ Master Degree (Size = 52)

The entrepreneurs whose education level is equal to or greater than master's degree.

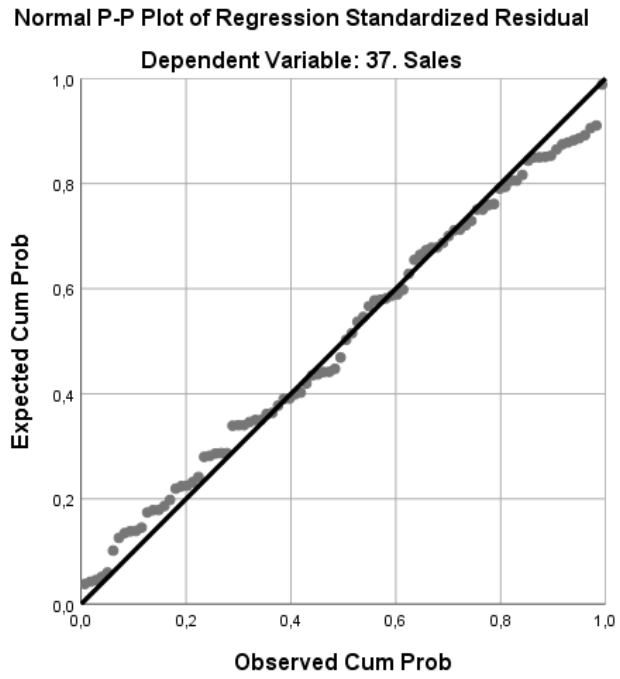
		Mean of Successful	Mean of Unsuccessful	t-Stat
LEAD ENTREPRENEUR	**09. Full Time vs Part Time**	4,23	1,62	8,74
	10. Technical Skills	4,00	2,40	6,74
	11. Management Skills	3,85	2,34	6,59
	12. Academic BG-Business Idea Fit	3,43	2,47	3,72
	13. Work Experience-Business Idea Fit	3,71	2,40	4,89
	14. Creativity	4,17	2,67	5,99
	15. Enthusiasm/Capacity for Work	4,37	2,88	5,97
	16. Risk Perception	3,86	2,86	3,73
TEAM	**17. Size**	3,16	3,00	0,47
	18. Industry Experience	3,52	2,52	3,86
	19. Prior Startup Experience	3,23	2,19	3,99
	20. R&D Experience	3,49	2,42	3,79
	21. Marketing Experience	3,15	2,03	5,00
	22. Networking	3,71	2,28	5,48
BUSINESS IDEA & MARKET	**23. Local vs Global**	1,80	1,37	4,14
	24. Business Idea - Market Fit	3,94	2,78	4,58
	25. Product Innovation	3,80	2,83	3,86
	26. Competition Intensity	2,81	2,97	-0,62
	27. Time Investment	3,20	3,54	-1,37
	28. Capital Requirements	3,25	3,28	-0,12
STRATEGY	**29. Quality Strategy**	3,57	2,76	3,08
	30. Pricing Strategy	3,29	2,68	2,26
	31. Innovation Strategy	3,87	2,39	6,10
	32. Partnership Strategy	3,61	2,30	4,96
FINANCIAL CONSIDER.	**33. Equity Availability**	3,08	2,27	3,13
	34. Governmental Support	3,69	2,38	3,49
	35. Non-Governmental Investment	2,38	1,46	2,88
	36. Incubation/Acceleration Program	3,23	2,15	2,86
PERFORMANCE MEASURES	**37. Sales**	3,51	1,67	8,04
	38. Profit	3,62	1,83	7,71
	39. ROI	3,50	1,71	8,15
	40. Market Share	3,62	1,63	7,77
	41. Number of Users	3,62	1,48	10,65

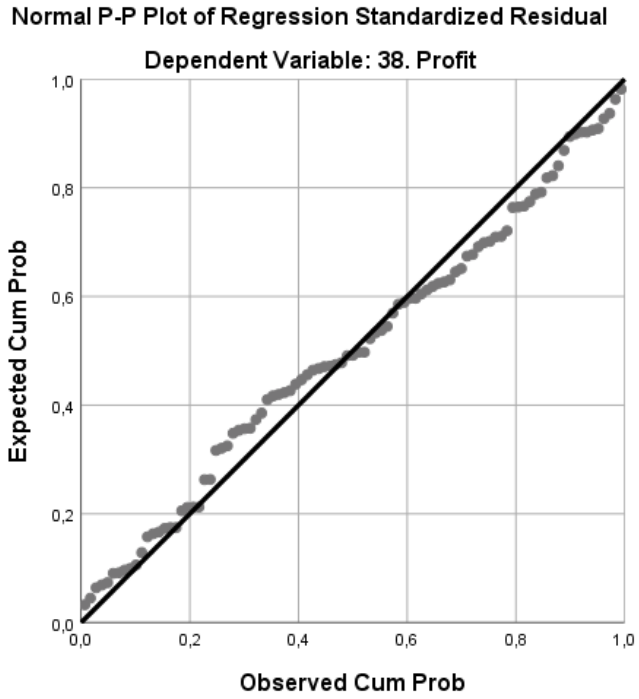
Significant at 0.01

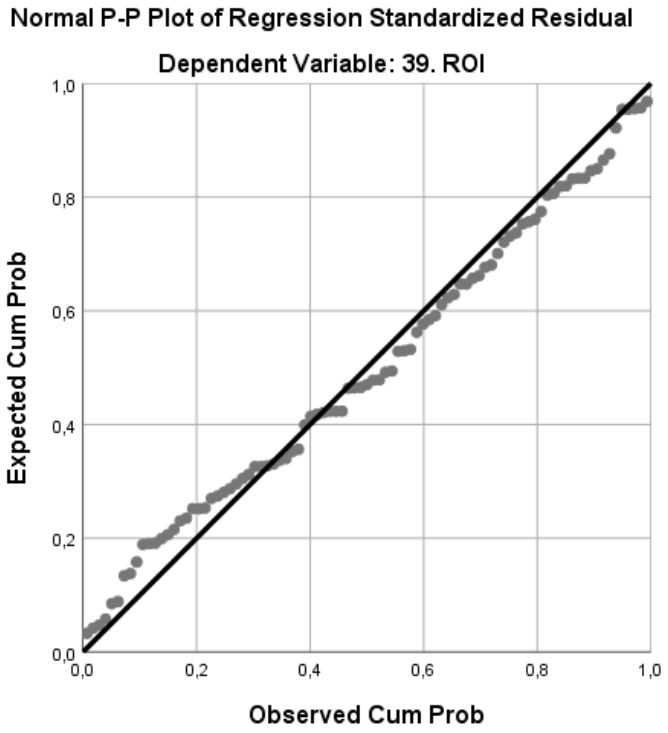
Significant at 0.05

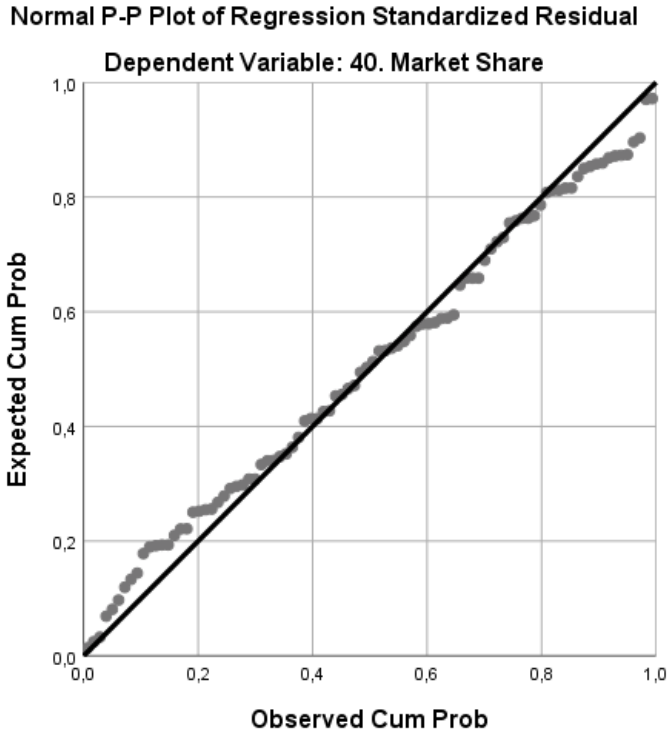
Insignificant

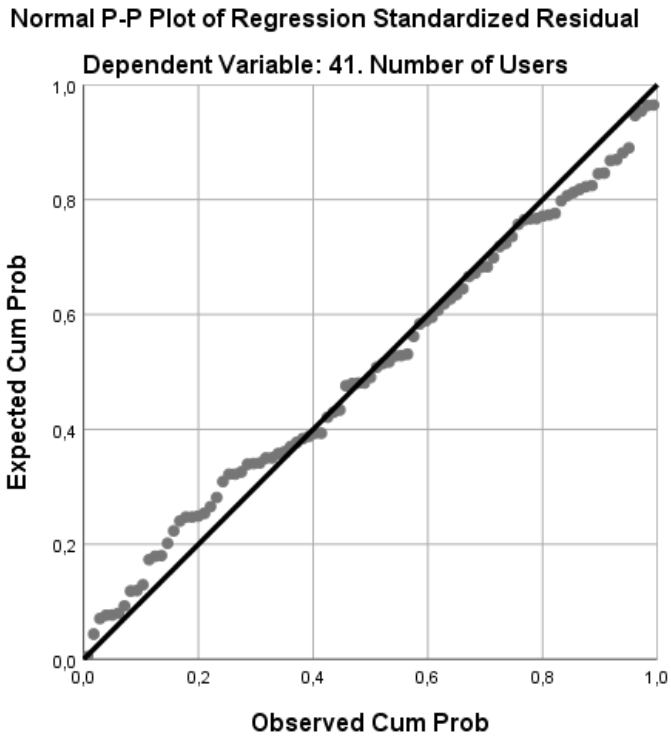
APPENDIX B: TESTING OF LINEARITY ASSUMPTION






Normal P-P Plot of Regression Standardized Residual
Dependent Variable: 39. ROI
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: 40. Market Share
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: 41. Number of Users
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0

APPENDIX C: TESTING OF ABSENCE OF MULTICOLLINEARITY

	37	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37. Sales		0,331	0,440	0,469	0,134	0,293	0,416	0,499	0,398	0,098	0,267	0,271	0,318	0,441	0,453	0,235	0,420	0,415	-0,102	-0,262	0,109	0,420	0,369	0,422	0,611	0,242	-0,070	0,361	0,212
09. Full Time vs Part Time	0,331		0,364	0,386	0,133	0,102	0,301	0,261	0,404	0,186	0,184	0,205	0,143	0,311	0,345	0,159	0,180	0,277	-0,044	-0,149	0,079	0,166	0,160	0,295	0,261	0,143	0,080	0,166	0,258
10. Technical Skills	0,440	0,364		0,524	0,580	0,605	0,520	0,471	0,330	0,119	0,551	0,560	0,581	0,417	0,390	0,194	0,345	0,410	-0,047	-0,281	-0,047	0,235	0,216	0,462	0,378	0,474	0,051	0,086	0,324
11. Management Skills	0,469	0,386	0,524		0,256	0,407	0,592	0,630	0,405	-0,062	0,492	0,284	0,403	0,471	0,540	0,123	0,438	0,393	-0,062	-0,179	0,088	0,401	0,521	0,544	0,538	0,377	0,174	-0,001	0,151
12. Academic Background-Business Idea Fit	0,134	0,133	0,580	0,256		0,619	0,296	0,243	0,117	-0,036	0,490	0,408	0,414	0,116	0,168	0,032	0,270	0,174	0,002	-0,202	-0,032	0,085	0,100	0,241	0,154	0,143	0,204	-0,155	0,266
13. Work Experience-Business Idea Fit	0,293	0,102	0,605	0,407	0,619		0,379	0,402	0,302	-0,046	0,609	0,609	0,543	0,465	0,429	0,139	0,275	0,235	-0,053	-0,130	0,093	0,125	0,185	0,330	0,352	0,369	0,116	-0,108	0,251
14. Creativity	0,416	0,301	0,520	0,592	0,296	0,379		0,698	0,344	-0,051	0,399	0,383	0,393	0,386	0,443	0,166	0,653	0,647	0,000	-0,154	0,119	0,443	0,492	0,552	0,502	0,305	0,244	0,099	0,120
15. Enthusiasm/ Capacity For Work	0,499	0,261	0,471	0,630	0,243	0,402	0,698		0,460	-0,001	0,382	0,332	0,345	0,531	0,548	0,288	0,483	0,552	-0,145	-0,063	0,193	0,414	0,404	0,641	0,492	0,285	0,253	0,112	0,172
16. Risk Perception	0,398	0,404	0,330	0,405	0,117	0,302	0,344	0,460		-0,043	0,342	0,210	0,304	0,419	0,418	0,230	0,351	0,374	-0,186	-0,097	0,072	0,181	0,179	0,441	0,406	0,204	-0,036	0,240	0,225
17. Size	0,098	0,186	0,119	-0,062	-0,036	-0,046	-0,051	-0,001	-0,043		-0,004	0,106	0,157	0,061	0,128	0,098	-0,085	0,133	-0,090	0,001	0,128	0,051	-0,071	0,011	0,083	0,079	-0,136	0,119	-0,046
18. Industry Experience	0,267	0,184	0,551	0,492	0,490	0,609	0,399	0,382	0,342	-0,004		0,616	0,613	0,305	0,365	0,056	0,410	0,382	0,003	-0,112	0,037	0,141	0,330	0,404	0,294	0,325	0,069	-0,035	0,201
19. Prior Start-Up Experience	0,271	0,205	0,560	0,284	0,408	0,609	0,383	0,332	0,210	0,106	0,616		0,582	0,494	0,349	0,104	0,287	0,414	0,001	-0,113	0,072	0,181	0,149	0,300	0,312	0,426	0,032	-0,008	0,089
20. R&D Experience	0,318	0,143	0,581	0,403	0,414	0,543	0,393	0,345	0,304	0,157	0,613	0,582		0,362	0,317	0,129	0,353	0,368	-0,012	-0,177	0,106	0,211	0,315	0,439	0,399	0,320	0,086	0,003	0,198
21. Marketing Experience	0,441	0,311	0,417	0,471	0,116	0,465	0,386	0,531	0,419	0,061	0,305	0,494	0,362		0,627	0,093	0,283	0,293	-0,214	-0,084	0,076	0,374	0,238	0,364	0,413	0,421	0,125	0,123	0,166
22. Networking	0,453	0,345	0,390	0,540	0,168	0,429	0,443	0,548	0,418	0,128	0,365	0,349	0,317	0,627		0,153	0,319	0,355	-0,213	-0,109	0,046	0,448	0,314	0,445	0,537	0,476	0,263	0,008	0,302
23. Local vs Global	0,235	0,159	0,194	0,123	0,032	0,139	0,166	0,288	0,230	0,098	0,056	0,104	0,129	0,093	0,153		0,184	0,199	-0,115	0,045	0,106	0,094	0,101	0,299	0,095	-0,011	-0,017	0,321	0,223
24. Business Idea - Market Fit	0,420	0,180	0,345	0,438	0,270	0,275	0,653	0,483	0,351	-0,085	0,410	0,287	0,353	0,283	0,319	0,184		0,619	-0,118	-0,101	0,142	0,278	0,373	0,394	0,400	0,135	0,087	0,186	0,144
25. Product Innovation	0,415	0,277	0,410	0,393	0,174	0,235	0,647	0,552	0,374	0,133	0,382	0,414	0,368	0,293	0,355	0,199	0,619		-0,139	0,063	0,222	0,413	0,368	0,649	0,430	0,153	0,110	0,081	0,086
26. Competition Intensity	-0,102	-0,044	-0,047	-0,062	0,002	-0,053	0,000	-0,145	-0,186	-0,090	0,003	0,001	-0,012	-0,214	-0,213	-0,115	-0,118	-0,139		0,067	0,120	0,025	0,032	-0,076	-0,020	0,077	-0,079	-0,122	-0,151
27. Time Investment	-0,262	-0,149	-0,281	-0,179	-0,202	-0,130	-0,154	-0,063	-0,097	0,001	-0,112	-0,113	-0,177	-0,084	-0,109	0,045	-0,101	0,063	0,067		0,464	0,098	-0,104	-0,042	-0,200	-0,217	0,072	-0,211	0,014
28. Capital Requirements	0,109	0,079	-0,047	0,088	-0,032	0,093	0,119	0,193	0,072	0,128	0,037	0,072	0,106	0,076	0,046	0,106	0,142	0,222	0,120	0,464		0,260	0,103	0,051	0,082	-0,137	0,114	0,026	-0,048
29. Quality Strategy	0,420	0,166	0,235	0,401	0,085	0,125	0,443	0,414	0,181	0,051	0,141	0,181	0,211	0,374	0,448	0,094	0,278	0,413	0,025	0,098	0,260		0,425	0,532	0,478	0,324	0,294	-0,011	0,109
30. Pricing Strategy	0,369	0,160	0,216	0,521	0,100	0,185	0,492	0,404	0,179	-0,071	0,330	0,149	0,315	0,238	0,314	0,101	0,373	0,368	0,032	-0,104	0,103	0,425		0,423	0,415	0,239	0,017	0,085	0,054
31. Innovation Strategy	0,422	0,295	0,462	0,544	0,241	0,330	0,552	0,641	0,441	0,011	0,404	0,300	0,439	0,364	0,445	0,299	0,394	0,649	-0,076	-0,042	0,051	0,532	0,423		0,483	0,243	0,332	0,022	0,318
32. Partnership Strategy	0,611	0,261	0,378	0,538	0,154	0,352	0,502	0,492	0,406	0,083	0,294	0,312	0,399	0,413	0,537	0,095	0,400	0,430	-0,020	-0,200	0,082	0,478	0,415	0,483		0,332	0,100	0,121	0,081
33. Equity Availability	0,242	0,143	0,474	0,377	0,143	0,369	0,305	0,285	0,204	0,079	0,325	0,426	0,320	0,421	0,476	-0,011	0,135	0,153	0,077	-0,217	-0,137	0,324	0,239	0,243	0,332		0,035	0,027	0,208
34. Governmental Support	-0,070	0,080	0,051	0,174	0,204	0,116	0,244	0,253	-0,036	-0,136	0,069	0,032	0,086	0,125	0,263	-0,017	0,087	0,110	-0,079	0,072	0,114	0,294	0,017	0,332	0,100	0,035		-0,241	0,309
35. Non-Governmental Investment	0,361	0,166	0,086	-0,001	-0,155	-0,108	0,099	0,112	0,240	0,119	-0,035	-0,008	0,003	0,123	0,008	0,321	0,186	0,081	-0,122	-0,211	0,026	-0,011	0,085	0,022	0,121	0,027	-0,241		0,175
36. Incubation/ Acceleration Program	0,212	0,258	0,324	0,151	0,266	0,251	0,120	0,172	0,225	-0,046	0,201	0,089	0,198	0,166	0,302	0,223	0,144	0,086	-0,151	0,014	-0,048	0,109	0,054	0,318	0,081	0,208	0,309	0,175	

	38	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
38. Profit		0,188	0,428	0,473	0,265	0,321	0,377	0,521	0,430	0,056	0,403	0,391	0,389	0,369	0,449	0,308	0,419	0,431	-0,203	-0,157	0,097	0,336	0,394	0,495	0,543	0,247	0,024	0,141	0,216
09. Full Time vs Part Time	0,188		0,343	0,353	0,116	0,094	0,288	0,249	0,379	0,173	0,161	0,191	0,138	0,276	0,336	0,155	0,168	0,263	-0,059	-0,125	0,077	0,163	0,148	0,279	0,263	0,150	0,078	0,176	0,236
10. Technical Skills	0,428	0,343		0,523	0,584	0,609	0,525	0,476	0,336	0,108	0,557	0,565	0,584	0,429	0,393	0,206	0,356	0,420	-0,024	-0,287	-0,033	0,244	0,224	0,471	0,382	0,442	0,066	0,077	0,329
11. Management Skills	0,473	0,353	0,523		0,242	0,397	0,597	0,632	0,426	-0,032	0,482	0,301	0,400	0,476	0,549	0,130	0,449	0,383	-0,027	-0,175	0,095	0,398	0,501	0,527	0,522	0,343	0,180	0,016	0,132
12. Academic Background-Business Idea Fit	0,265	0,116	0,584	0,242		0,631	0,299	0,244	0,114	-0,068	0,503	0,418	0,431	0,141	0,165	0,054	0,280	0,202	0,024	-0,217	-0,010	0,101	0,122	0,272	0,175	0,107	0,222	-0,175	0,289
13. Work Experience-Business Idea Fit	0,321	0,094	0,609	0,397	0,631		0,386	0,405	0,301	-0,070	0,615	0,619	0,561	0,474	0,429	0,162	0,292	0,260	-0,025	-0,140	0,115	0,143	0,201	0,357	0,373	0,326	0,141	-0,117	0,264
14. Creativity	0,377	0,288	0,525	0,597	0,299	0,386		0,690	0,356	-0,047	0,401	0,400	0,404	0,395	0,453	0,179	0,661	0,646	0,024	-0,155	0,132	0,449	0,489	0,554	0,506	0,277	0,257	0,102	0,117
15. Enthusiasm/ Capacity For Work	0,521	0,249	0,476	0,632	0,244	0,405	0,690		0,468	0,003	0,383	0,345	0,352	0,534	0,554	0,295	0,491	0,551	-0,122	-0,064	0,202	0,419	0,401	0,636	0,492	0,263	0,261	0,115	0,167
16. Risk Perception	0,430	0,379	0,336	0,426	0,114	0,301	0,356	0,468		-0,024	0,340	0,229	0,309	0,426	0,430	0,235	0,365	0,370	-0,154	-0,097	0,081	0,186	0,174	0,434	0,401	0,180	-0,023	0,246	0,210
17. Size	0,056	0,173	0,108	-0,032	-0,068	-0,070	-0,047	0,003	-0,024		-0,020	0,091	0,127	0,052	0,133	0,081	-0,085	0,104	-0,086	0,011	0,112	0,038	-0,089	-0,018	0,057	0,090	-0,146	0,139	-0,073
18. Industry Experience	0,403	0,161	0,557	0,482	0,503	0,615	0,401	0,383	0,340	-0,020		0,612	0,611	0,322	0,359	0,069	0,414	0,394	0,024	-0,129	0,049	0,150	0,341	0,417	0,296	0,293	0,082	-0,054	0,219
19. Prior Start-Up Experience	0,391	0,191	0,565	0,301	0,418	0,619	0,400	0,345	0,229	0,091	0,612		0,603	0,503	0,366	0,134	0,318	0,429	0,041	-0,115	0,100	0,201	0,158	0,327	0,341	0,368	0,067	-0,003	0,093
20. R&D Experience	0,389	0,138	0,584	0,400	0,431	0,561	0,404	0,352	0,309	0,127	0,611	0,603		0,374	0,329	0,159	0,376	0,389	0,022	-0,178	0,134	0,232	0,322	0,463	0,428	0,268	0,120	0,001	0,204
21. Marketing Experience	0,369	0,276	0,429	0,476	0,141	0,474	0,395	0,534	0,426	0,052	0,322	0,503	0,374		0,621	0,108	0,299	0,307	-0,175	-0,103	0,090	0,379	0,248	0,378	0,411	0,378	0,140	0,105	0,180
22. Networking	0,449	0,336	0,393	0,549	0,165	0,429	0,453	0,554	0,430	0,133	0,359	0,366	0,329	0,621		0,166	0,335	0,355	-0,185	-0,102	0,059	0,452	0,307	0,444	0,540	0,446	0,273	0,024	0,283
23. Local vs Global	0,308	0,155	0,206	0,130	0,054	0,162	0,179	0,295	0,235	0,081	0,069	0,134	0,159	0,108	0,166		0,203	0,218	-0,090	0,039	0,124	0,111	0,111	0,319	0,123	-0,035	0,007	0,311	0,227
24. Business Idea - Market Fit	0,419	0,168	0,356	0,449	0,280	0,292	0,661	0,491	0,365	-0,085	0,414	0,318	0,376	0,299	0,335	0,203		0,623	-0,082	-0,104	0,161	0,291	0,373	0,409	0,415	0,101	0,111	0,185	0,143
25. Product Innovation	0,431	0,263	0,420	0,383	0,202	0,260	0,646	0,551	0,370	0,104	0,394	0,429	0,389	0,307	0,355	0,218	0,623		-0,112	0,048	0,238	0,423	0,379	0,661	0,444	0,121	0,131	0,065	0,105
26. Competition Intensity	-0,203	-0,059	-0,024	-0,027	0,024	-0,025	0,024	-0,122	-0,154	-0,086	0,024	0,041	0,022	-0,175	-0,185	-0,090	-0,082	-0,112		0,053	0,136	0,041	0,042	-0,044	0,004	0,045	-0,054	-0,120	-0,137
27. Time Investment	-0,157	-0,125	-0,287	-0,175	-0,217	-0,140	-0,155	-0,064	-0,097	0,011	-0,129	-0,115	-0,178	-0,103	-0,102	0,039	-0,104	0,048	0,053		0,452	0,092	-0,116	-0,055	-0,192	-0,199	0,066	-0,185	-0,008
28. Capital Requirements	0,097	0,077	-0,033	0,095	-0,010	0,115	0,132	0,202	0,081	0,112	0,049	0,100	0,134	0,090	0,059	0,124	0,161	0,238	0,136	0,452		0,272	0,112	0,076	0,108	-0,155	0,133	0,024	-0,038
29. Quality Strategy	0,336	0,163	0,244	0,398	0,101	0,143	0,449	0,419	0,186	0,038	0,150	0,201	0,232	0,379	0,452	0,111	0,291	0,423	0,041	0,092	0,272		0,428	0,540	0,488	0,298	0,307	-0,011	0,114
30. Pricing Strategy	0,394	0,148	0,224	0,501	0,122	0,201	0,489	0,401	0,174	-0,089	0,341	0,158	0,322	0,248	0,307	0,111	0,373	0,379	0,042	-0,116	0,112	0,428		0,433	0,415	0,218	0,029	0,066	0,073
31. Innovation Strategy	0,495	0,279	0,471	0,527	0,272	0,357	0,554	0,636	0,434	-0,018	0,417	0,327	0,463	0,378	0,444	0,319	0,409	0,661	-0,044	-0,055	0,076	0,540	0,433		0,500	0,200	0,352	0,006	0,330
32. Partnership Strategy	0,543	0,263	0,382	0,522	0,175	0,373	0,506	0,492	0,401	0,057	0,296	0,341	0,428	0,411	0,540	0,123	0,415	0,444	0,004	-0,192	0,108	0,488	0,415	0,500		0,289	0,129	0,120	0,086
33. Equity Availability	0,247	0,150	0,442	0,343	0,107	0,326	0,277	0,263	0,180	0,090	0,293	0,368	0,268	0,378	0,446	-0,035	0,101	0,121	0,045	-0,199	-0,155	0,298	0,218	0,200	0,289		0,009	0,033	0,186
34. Governmental Support	0,024	0,078	0,066	0,180	0,222	0,141	0,257	0,261	-0,023	-0,146	0,082	0,067	0,120	0,140	0,273	0,007	0,111	0,131	-0,054	0,066	0,133	0,307	0,029	0,352	0,129	0,009		-0,236	0,310
35. Non-Governmental Investment	0,141	0,176	0,077	0,016	-0,175	-0,117	0,102	0,115	0,246	0,139	-0,054	-0,003	0,001	0,105	0,024	0,311	0,185	0,065	-0,120	-0,185	0,024	-0,011	0,066	0,006	0,120	0,033	-0,236		0,140
36. Incubation/ Acceleration Program	0,216	0,236	0,329	0,132	0,289	0,264	0,117	0,167	0,210	-0,073	0,219	0,093	0,204	0,180	0,283	0,227	0,143	0,105	-0,137	-0,008	-0,038	0,114	0,073	0,330	0,086	0,186	0,310	0,140	

	39	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
39. ROI		0,300	0,428	0,404	0,207	0,236	0,486	0,482	0,541	0,104	0,287	0,287	0,295	0,344	0,429	0,283	0,417	0,557	-0,110	-0,193	0,025	0,327	0,375	0,582	0,438	0,170	0,050	0,196	0,305
09. Full Time vs Part Time	0,300		0,305	0,329	0,081	0,065	0,234	0,213	0,398	0,161	0,126	0,147	0,090	0,267	0,321	0,113	0,120	0,217	-0,068	-0,146	0,032	0,120	0,100	0,221	0,228	0,147	0,033	0,156	0,217
10. Technical Skills	0,428	0,305		0,497	0,571	0,580	0,476	0,426	0,369	0,100	0,520	0,532	0,542	0,377	0,363	0,164	0,308	0,348	-0,068	-0,295	-0,060	0,209	0,176	0,423	0,357	0,413	0,017	0,048	0,308
11. Management Skills	0,404	0,329	0,497		0,237	0,397	0,562	0,613	0,443	-0,104	0,473	0,261	0,381	0,465	0,529	0,095	0,412	0,360	-0,059	-0,199	0,063	0,376	0,488	0,519	0,526	0,330	0,151	-0,039	0,133
12. Academic Background-Business Idea Fit	0,207	0,081	0,571	0,237		0,603	0,266	0,205	0,154	-0,061	0,477	0,395	0,394	0,102	0,142	0,018	0,246	0,142	-0,009	-0,205	-0,040	0,058	0,064	0,225	0,131	0,084	0,196	-0,187	0,263
13. Work Experience-Business Idea Fit	0,236	0,065	0,580	0,397	0,603		0,351	0,368	0,339	-0,073	0,603	0,606	0,542	0,471	0,415	0,139	0,253	0,221	-0,038	-0,149	0,067	0,096	0,128	0,306	0,329	0,329	0,083	-0,149	0,226
14. Creativity	0,486	0,234	0,476	0,562	0,266	0,351		0,673	0,394	-0,099	0,354	0,342	0,345	0,354	0,422	0,123	0,631	0,603	-0,019	-0,173	0,093	0,419	0,454	0,506	0,488	0,247	0,210	0,057	0,085
15. Enthusiasm/ Capacity For Work	0,482	0,213	0,426	0,613	0,205	0,368	0,673		0,520	-0,025	0,338	0,290	0,295	0,495	0,528	0,270	0,449	0,507	-0,182	-0,064	0,182	0,394	0,356	0,615	0,473	0,224	0,216	0,072	0,138
16. Risk Perception	0,541	0,398	0,369	0,443	0,154	0,339	0,394	0,520		-0,040	0,380	0,245	0,338	0,450	0,451	0,246	0,400	0,416	-0,140	-0,128	0,090	0,213	0,217	0,484	0,440	0,201	-0,023	0,236	0,241
17. Size	0,104	0,161	0,100	-0,104	-0,061	-0,073	-0,099	-0,025	-0,040		-0,033	0,078	0,130	0,040	0,109	0,065	-0,131	0,108	-0,117	0,015	0,106	0,017	-0,098	-0,019	0,064	0,072	-0,139	0,125	-0,048
18. Industry Experience	0,287	0,126	0,520	0,473	0,477	0,603	0,354	0,338	0,380	-0,033		0,604	0,597	0,294	0,346	0,036	0,386	0,345	0,010	-0,134	0,017	0,111	0,285	0,368	0,271	0,270	0,033	-0,082	0,176
19. Prior Start-Up Experience	0,287	0,147	0,532	0,261	0,395	0,606	0,342	0,290	0,245	0,078	0,604		0,571	0,492	0,332	0,090	0,262	0,389	0,016	-0,138	0,052	0,153	0,098	0,263	0,291	0,371	0,000	-0,053	0,066
20. R&D Experience	0,295	0,090	0,542	0,381	0,394	0,542	0,345	0,295	0,338	0,130	0,597	0,571		0,365	0,299	0,118	0,327	0,339	0,009	-0,208	0,076	0,180	0,255	0,398	0,376	0,272	0,040	-0,048	0,162
21. Marketing Experience	0,344	0,267	0,377	0,465	0,102	0,471	0,354	0,495	0,450	0,040	0,294	0,492	0,365		0,615	0,101	0,270	0,281	-0,170	-0,122	0,051	0,354	0,178	0,333	0,389	0,368	0,080	0,067	0,130
22. Networking	0,429	0,321	0,363	0,529	0,142	0,415	0,422	0,528	0,451	0,109	0,346	0,332	0,299	0,615		0,144	0,293	0,340	-0,223	-0,112	0,023	0,429	0,271	0,428	0,521	0,447	0,240	-0,019	0,284
23. Local vs Global	0,283	0,113	0,164	0,095	0,018	0,139	0,123	0,270	0,246	0,065	0,036	0,090	0,118	0,101	0,144		0,161	0,176	-0,096	0,023	0,079	0,067	0,064	0,270	0,078	-0,038	-0,039	0,299	0,210
24. Business Idea - Market Fit	0,417	0,120	0,308	0,412	0,246	0,253	0,631	0,449	0,400	-0,131	0,386	0,262	0,327	0,270	0,293	0,161		0,607	-0,132	-0,109	0,117	0,241	0,326	0,365	0,376	0,079	0,063	0,155	0,128
25. Product Innovation	0,557	0,217	0,348	0,360	0,142	0,221	0,603	0,507	0,416	0,108	0,345	0,389	0,339	0,281	0,340	0,176	0,607		-0,125	0,028	0,198	0,395	0,309	0,603	0,413	0,094	0,045	0,022	0,032
26. Competition Intensity	-0,110	-0,068	-0,068	-0,059	-0,009	-0,038	-0,019	-0,182	-0,140	-0,117	0,010	0,016	0,009	-0,170	-0,223	-0,096	-0,132	-0,125		0,051	0,093	0,000	-0,021	-0,080	-0,041	0,047	-0,094	-0,155	-0,159
27. Time Investment	-0,193	-0,146	-0,295	-0,199	-0,205	-0,149	-0,173	-0,064	-0,128	0,015	-0,134	-0,138	-0,208	-0,122	-0,112	0,023	-0,109	0,028	0,051		0,476	0,109	-0,082	-0,064	-0,196	-0,207	0,070	-0,198	0,008
28. Capital Requirements	0,025	0,032	-0,060	0,063	-0,040	0,067	0,093	0,182	0,090	0,106	0,017	0,052	0,076	0,051	0,023	0,079	0,117	0,198	0,093	0,476		0,243	0,100	0,041	0,070	-0,175	0,129	0,024	-0,033
29. Quality Strategy	0,327	0,120	0,209	0,376	0,058	0,096	0,419	0,394	0,213	0,017	0,111	0,153	0,180	0,354	0,429	0,067	0,241	0,395	0,000	0,109	0,243		0,398	0,527	0,463	0,289	0,293	-0,027	0,105
30. Pricing Strategy	0,375	0,100	0,176	0,488	0,064	0,128	0,454	0,356	0,217	-0,098	0,285	0,098	0,255	0,178	0,271	0,064	0,326	0,309	-0,021	-0,082	0,100	0,398		0,398	0,388	0,171	0,004	0,066	0,046
31. Innovation Strategy	0,582	0,221	0,423	0,519	0,225	0,306	0,506	0,615	0,484	-0,019	0,368	0,263	0,398	0,333	0,428	0,270	0,365	0,603	-0,080	-0,064	0,041	0,527	0,398		0,475	0,171	0,308	-0,026	0,300
32. Partnership Strategy	0,438	0,228	0,357	0,526	0,131	0,329	0,488	0,473	0,440	0,064	0,271	0,291	0,376	0,389	0,521	0,078	0,376	0,413	-0,041	-0,196	0,070	0,463	0,388	0,475		0,294	0,085	0,101	0,070
33. Equity Availability	0,170	0,147	0,413	0,330	0,084	0,329	0,247	0,224	0,201	0,072	0,270	0,371	0,272	0,368	0,447	-0,038	0,079	0,094	0,047	-0,207	-0,175	0,289	0,171	0,171	0,294		-0,026	0,008	0,152
34. Governmental Support	0,050	0,033	0,017	0,151	0,196	0,083	0,210	0,216	-0,023	-0,139	0,033	0,000	0,040	0,080	0,240	-0,039	0,063	0,045	-0,094	0,070	0,129	0,293	0,004	0,308	0,085	-0,026		-0,271	0,298
35. Non-Governmental Investment	0,196	0,156	0,048	-0,039	-0,187	-0,149	0,057	0,072	0,236	0,125	-0,082	-0,053	-0,048	0,067	-0,019	0,299	0,155	0,022	-0,155	-0,198	0,024	-0,027	0,066	-0,026	0,101	0,008	-0,271		0,152
36. Incubation/ Acceleration Program	0,305	0,217	0,308	0,133	0,263	0,226	0,085	0,138	0,241	-0,048	0,176	0,066	0,162	0,130	0,284	0,210	0,128	0,032	-0,159	0,008	-0,033	0,105	0,046	0,300	0,070	0,152	0,298	0,152	

	40	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
40. Market Share		0,345	0,420	0,493	0,151	0,251	0,518	0,585	0,398	0,058	0,217	0,227	0,311	0,390	0,435	0,387	0,426	0,503	-0,126	-0,279	0,104	0,427	0,426	0,609	0,532	0,128	0,104	0,344	0,310
09. Full Time vs Part Time	0,345		0,361	0,361	0,127	0,096	0,304	0,260	0,386	0,154	0,146	0,181	0,135	0,272	0,310	0,180	0,174	0,264	-0,043	-0,112	0,098	0,198	0,145	0,284	0,282	0,190	0,101	0,183	0,253
10. Technical Skills	0,420	0,361		0,514	0,582	0,608	0,521	0,471	0,337	0,105	0,565	0,574	0,584	0,428	0,407	0,202	0,357	0,417	-0,032	-0,300	-0,058	0,250	0,229	0,467	0,383	0,447	0,059	0,092	0,359
11. Management Skills	0,493	0,361	0,514		0,241	0,392	0,592	0,630	0,425	-0,051	0,492	0,292	0,385	0,477	0,556	0,123	0,447	0,378	-0,040	-0,193	0,063	0,417	0,519	0,523	0,523	0,363	0,174	0,026	0,178
12. Academic Background-Business Idea Fit	0,151	0,127	0,582	0,241		0,632	0,299	0,243	0,117	-0,068	0,507	0,429	0,436	0,139	0,176	0,054	0,285	0,200	0,023	-0,220	-0,020	0,105	0,123	0,271	0,180	0,104	0,224	-0,168	0,301
13. Work Experience-Business Idea Fit	0,251	0,096	0,608	0,392	0,632		0,382	0,400	0,298	-0,075	0,622	0,622	0,558	0,474	0,434	0,158	0,289	0,256	-0,031	-0,147	0,104	0,144	0,204	0,353	0,371	0,332	0,136	-0,119	0,283
14. Creativity	0,518	0,304	0,521	0,592	0,299	0,382		0,698	0,350	-0,050	0,415	0,395	0,394	0,398	0,463	0,166	0,658	0,648	0,008	-0,173	0,110	0,448	0,501	0,551	0,498	0,279	0,244	0,099	0,140
15. Enthusiasm/ Capacity For Work	0,585	0,260	0,471	0,630	0,243	0,400	0,698		0,465	0,000	0,393	0,340	0,343	0,536	0,564	0,288	0,487	0,550	-0,136	-0,077	0,186	0,420	0,409	0,633	0,487	0,266	0,253	0,115	0,188
16. Risk Perception	0,398	0,386	0,337	0,425	0,117	0,298	0,350	0,465		-0,028	0,351	0,217	0,299	0,430	0,428	0,228	0,356	0,370	-0,167	-0,109	0,073	0,180	0,179	0,433	0,392	0,188	-0,035	0,237	0,225
17. Size	0,058	0,154	0,105	-0,051	-0,068	-0,075	-0,050	0,000	-0,028		-0,033	0,082	0,120	0,044	0,115	0,090	-0,089	0,098	-0,081	0,018	0,113	0,055	-0,092	-0,024	0,059	0,109	-0,142	0,149	-0,060
18. Industry Experience	0,217	0,146	0,565	0,492	0,507	0,622	0,415	0,393	0,351	-0,033		0,629	0,625	0,317	0,359	0,087	0,431	0,393	0,040	-0,116	0,056	0,179	0,338	0,421	0,319	0,314	0,102	-0,036	0,230
19. Prior Start-Up Experience	0,227	0,181	0,574	0,292	0,429	0,622	0,395	0,340	0,217	0,082	0,629		0,596	0,509	0,352	0,126	0,305	0,431	0,032	-0,128	0,093	0,201	0,164	0,324	0,329	0,392	0,057	-0,025	0,113
20. R&D Experience	0,311	0,135	0,584	0,385	0,436	0,558	0,394	0,343	0,299	0,120	0,625	0,596		0,375	0,322	0,149	0,366	0,387	0,010	-0,194	0,117	0,231	0,331	0,459	0,418	0,281	0,109	-0,010	0,233
21. Marketing Experience	0,390	0,272	0,428	0,477	0,139	0,474	0,398	0,536	0,430	0,044	0,317	0,509	0,375		0,628	0,115	0,304	0,304	-0,172	-0,099	0,088	0,399	0,248	0,377	0,422	0,392	0,148	0,119	0,193
22. Networking	0,435	0,310	0,407	0,556	0,176	0,434	0,463	0,564	0,428	0,115	0,359	0,352	0,322	0,628		0,177	0,334	0,356	-0,185	-0,100	0,066	0,484	0,312	0,448	0,552	0,491	0,288	0,012	0,309
23. Local vs Global	0,387	0,180	0,202	0,123	0,054	0,158	0,166	0,288	0,228	0,090	0,087	0,126	0,149	0,115	0,177		0,191	0,221	-0,114	0,019	0,107	0,087	0,121	0,318	0,101	-0,049	-0,017	0,303	0,242
24. Business Idea - Market Fit	0,426	0,174	0,357	0,447	0,285	0,289	0,658	0,487	0,356	-0,089	0,431	0,305	0,366	0,304	0,334	0,191		0,627	-0,100	-0,121	0,150	0,282	0,384	0,407	0,402	0,105	0,095	0,171	0,160
25. Product Innovation	0,503	0,264	0,417	0,378	0,200	0,256	0,648	0,550	0,370	0,098	0,393	0,431	0,387	0,304	0,356	0,221	0,627		-0,114	0,049	0,234	0,437	0,380	0,660	0,449	0,128	0,133	0,073	0,120
26. Competition Intensity	-0,126	-0,043	-0,032	-0,040	0,023	-0,031	0,008	-0,136	-0,167	-0,081	0,040	0,032	0,010	-0,172	-0,185	-0,114	-0,100	-0,114		0,034	0,120	0,017	0,051	-0,050	-0,020	0,034	-0,079	-0,141	-0,132
27. Time Investment	-0,279	-0,112	-0,300	-0,193	-0,220	-0,147	-0,173	-0,077	-0,109	0,018	-0,116	-0,128	-0,194	-0,099	-0,100	0,019	-0,121	0,049	0,034		0,446	0,071	-0,109	-0,061	-0,219	-0,215	0,045	-0,208	0,000
28. Capital Requirements	0,104	0,098	-0,058	0,063	-0,020	0,104	0,110	0,186	0,073	0,113	0,056	0,093	0,117	0,088	0,066	0,107	0,150	0,234	0,120	0,446		0,267	0,122	0,064	0,089	-0,171	0,115	0,031	-0,010
29. Quality Strategy	0,427	0,198	0,250	0,417	0,105	0,144	0,448	0,420	0,180	0,055	0,179	0,201	0,231	0,399	0,484	0,087	0,282	0,437	0,017	0,071	0,267		0,446	0,550	0,478	0,287	0,288	-0,039	0,115
30. Pricing Strategy	0,426	0,145	0,229	0,519	0,123	0,204	0,501	0,409	0,179	-0,092	0,338	0,164	0,331	0,248	0,312	0,121	0,384	0,380	0,051	-0,109	0,122	0,446		0,437	0,431	0,226	0,038	0,074	0,071
31. Innovation Strategy	0,609	0,284	0,467	0,523	0,271	0,353	0,551	0,633	0,433	-0,024	0,421	0,324	0,459	0,377	0,448	0,318	0,407	0,660	-0,050	-0,061	0,064	0,550	0,437		0,501	0,205	0,351	0,009	0,351
32. Partnership Strategy	0,532	0,282	0,383	0,523	0,180	0,371	0,498	0,487	0,392	0,059	0,319	0,329	0,418	0,422	0,552	0,101	0,402	0,449	-0,020	-0,219	0,089	0,478	0,431	0,501		0,293	0,107	0,099	0,104
33. Equity Availability	0,128	0,190	0,447	0,363	0,104	0,332	0,279	0,266	0,188	0,109	0,314	0,392	0,281	0,392	0,491	-0,049	0,105	0,128	0,034	-0,215	-0,171	0,287	0,226	0,205	0,293		-0,004	0,037	0,184
34. Governmental Support	0,104	0,101	0,059	0,174	0,224	0,136	0,244	0,253	-0,035	-0,142	0,102	0,057	0,109	0,148	0,288	-0,017	0,095	0,133	-0,079	0,045	0,115	0,288	0,038	0,351	0,107	-0,004		-0,264	0,328
35. Non-Governmental Investment	0,344	0,183	0,092	0,026	-0,168	-0,119	0,099	0,115	0,237	0,149	-0,036	-0,025	-0,010	0,119	0,012	0,303	0,171	0,073	-0,141	-0,208	0,031	-0,039	0,074	0,009	0,099	0,037	-0,264		0,137
36. Incubation/ Acceleration Program	0,310	0,253	0,359	0,178	0,301	0,283	0,140	0,188	0,225	-0,060	0,230	0,113	0,233	0,193	0,309	0,242	0,160	0,120	-0,132	0,000	-0,010	0,115	0,071	0,351	0,104	0,184	0,328	0,137	

	41	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
41. Number of Users		0,333	0,504	0,463	0,207	0,264	0,538	0,494	0,452	0,002	0,315	0,307	0,361	0,429	0,362	0,300	0,514	0,465	0,026	-0,281	0,102	0,384	0,315	0,534	0,505	0,198	-0,007	0,291	0,200
09. Full Time vs Part Time	0,333		0,362	0,363	0,153	0,110	0,285	0,258	0,391	0,162	0,142	0,179	0,126	0,260	0,295	0,185	0,162	0,233	-0,031	-0,120	0,096	0,202	0,157	0,253	0,280	0,184	0,107	0,176	0,259
10. Technical Skills	0,504	0,362		0,512	0,598	0,611	0,516	0,472	0,330	0,097	0,567	0,574	0,564	0,408	0,383	0,203	0,332	0,378	-0,020	-0,312	-0,054	0,243	0,253	0,422	0,379	0,418	0,062	0,101	0,353
11. Management Skills	0,463	0,363	0,512		0,259	0,401	0,580	0,629	0,427	-0,044	0,489	0,291	0,379	0,467	0,543	0,126	0,437	0,356	-0,029	-0,201	0,062	0,418	0,525	0,502	0,522	0,356	0,178	0,022	0,182
12. Academic Background-Business Idea Fit	0,207	0,153	0,598	0,259		0,638	0,304	0,254	0,134	-0,054	0,515	0,437	0,436	0,134	0,159	0,078	0,274	0,193	0,025	-0,211	-0,018	0,110	0,144	0,259	0,178	0,102	0,244	-0,156	0,317
13. Work Experience-Business Idea Fit	0,264	0,110	0,611	0,401	0,638		0,382	0,405	0,306	-0,065	0,625	0,625	0,561	0,470	0,422	0,171	0,284	0,253	-0,029	-0,144	0,104	0,148	0,213	0,349	0,369	0,330	0,149	-0,116	0,293
14. Creativity	0,538	0,285	0,516	0,580	0,304	0,382		0,696	0,334	-0,066	0,410	0,390	0,375	0,386	0,459	0,146	0,646	0,620	0,024	-0,203	0,111	0,442	0,511	0,515	0,503	0,257	0,226	0,099	0,121
15. Enthusiasm/ Capacity For Work	0,494	0,258	0,472	0,629	0,254	0,405	0,696		0,461	-0,002	0,393	0,340	0,336	0,529	0,555	0,285	0,477	0,538	-0,128	-0,088	0,187	0,418	0,416	0,619	0,487	0,255	0,251	0,116	0,186
16. Risk Perception	0,452	0,391	0,330	0,427	0,134	0,306	0,334	0,461		-0,013	0,345	0,214	0,297	0,422	0,416	0,235	0,350	0,359	-0,160	-0,108	0,070	0,187	0,182	0,423	0,388	0,190	-0,025	0,227	0,234
17. Size	0,002	0,162	0,097	-0,044	-0,054	-0,065	-0,066	-0,002	-0,013		-0,037	0,078	0,124	0,042	0,108	0,100	-0,086	0,096	-0,078	0,026	0,109	0,064	-0,091	-0,025	0,057	0,120	-0,127	0,137	-0,045
18. Industry Experience	0,315	0,142	0,567	0,489	0,515	0,625	0,410	0,393	0,345	-0,037		0,629	0,616	0,307	0,348	0,084	0,418	0,369	0,051	-0,131	0,057	0,176	0,350	0,394	0,320	0,299	0,098	-0,033	0,225
19. Prior Start-Up Experience	0,307	0,179	0,574	0,291	0,437	0,625	0,390	0,340	0,214	0,078	0,629		0,589	0,501	0,342	0,124	0,295	0,413	0,041	-0,140	0,094	0,199	0,175	0,300	0,329	0,379	0,055	-0,024	0,111
20. R&D Experience	0,361	0,126	0,564	0,379	0,436	0,561	0,375	0,336	0,297	0,124	0,616	0,589		0,369	0,317	0,144	0,361	0,371	0,021	-0,204	0,115	0,233	0,329	0,446	0,418	0,279	0,104	-0,020	0,229
21. Marketing Experience	0,429	0,260	0,408	0,467	0,134	0,470	0,386	0,529	0,422	0,042	0,307	0,501	0,369		0,627	0,105	0,300	0,294	-0,166	-0,108	0,086	0,398	0,242	0,369	0,422	0,388	0,138	0,111	0,185
22. Networking	0,362	0,295	0,383	0,543	0,159	0,422	0,459	0,555	0,416	0,108	0,348	0,342	0,317	0,627		0,164	0,333	0,361	-0,184	-0,105	0,065	0,478	0,300	0,455	0,550	0,486	0,275	0,007	0,296
23. Local vs Global	0,300	0,185	0,203	0,126	0,078	0,171	0,146	0,285	0,235	0,100	0,084	0,124	0,144	0,105	0,164		0,181	0,196	-0,104	0,014	0,105	0,093	0,130	0,294	0,100	-0,049	-0,008	0,294	0,249
24. Business Idea - Market Fit	0,514	0,162	0,332	0,437	0,274	0,284	0,646	0,477	0,350	-0,086	0,418	0,295	0,361	0,300	0,333	0,181		0,632	-0,095	-0,127	0,148	0,282	0,372	0,405	0,401	0,105	0,087	0,161	0,153
25. Product Innovation	0,465	0,233	0,378	0,356	0,193	0,253	0,620	0,538	0,359	0,096	0,369	0,413	0,371	0,294	0,361	0,196	0,632		-0,097	0,025	0,234	0,445	0,374	0,642	0,458	0,119	0,107	0,052	0,097
26. Competition Intensity	0,026	-0,031	-0,020	-0,029	0,025	-0,029	0,024	-0,128	-0,160	-0,078	0,051	0,041	0,021	-0,166	-0,184	-0,104	-0,095	-0,097		0,044	0,122	0,019	0,053	-0,032	-0,019	0,039	-0,069	-0,135	-0,123
27. Time Investment	-0,281	-0,120	-0,312	-0,201	-0,211	-0,144	-0,203	-0,088	-0,108	0,026	-0,131	-0,140	-0,204	-0,108	-0,105	0,014	-0,127	0,025	0,044		0,444	0,074	-0,112	-0,085	-0,222	-0,214	0,041	-0,221	-0,002
28. Capital Requirements	0,102	0,096	-0,054	0,062	-0,018	0,104	0,111	0,187	0,070	0,109	0,057	0,094	0,115	0,086	0,065	0,105	0,148	0,234	0,122	0,444		0,265	0,124	0,058	0,089	-0,174	0,113	0,032	-0,013
29. Quality Strategy	0,384	0,202	0,243	0,418	0,110	0,148	0,442	0,418	0,187	0,064	0,176	0,199	0,233	0,398	0,478	0,093	0,282	0,445	0,019	0,074	0,265		0,440	0,560	0,476	0,291	0,293	-0,045	0,122
30. Pricing Strategy	0,315	0,157	0,253	0,525	0,144	0,213	0,511	0,416	0,182	-0,091	0,350	0,175	0,329	0,242	0,300	0,130	0,372	0,374	0,053	-0,112	0,124	0,440		0,426	0,429	0,215	0,048	0,084	0,079
31. Innovation Strategy	0,534	0,253	0,422	0,502	0,259	0,349	0,515	0,619	0,423	-0,025	0,394	0,300	0,446	0,369	0,455	0,294	0,405	0,642	-0,032	-0,085	0,058	0,560	0,426		0,507	0,201	0,330	-0,016	0,334
32. Partnership Strategy	0,505	0,280	0,379	0,522	0,178	0,369	0,503	0,487	0,388	0,057	0,320	0,329	0,418	0,422	0,550	0,100	0,401	0,458	-0,019	-0,222	0,089	0,476	0,429	0,507		0,289	0,105	0,100	0,102
33. Equity Availability	0,198	0,184	0,418	0,356	0,102	0,330	0,257	0,255	0,190	0,120	0,299	0,379	0,279	0,388	0,486	-0,049	0,105	0,119	0,039	-0,214	-0,174	0,291	0,215	0,201	0,289		-0,005	0,022	0,185
34. Governmental Support	-0,007	0,107	0,062	0,178	0,244	0,149	0,226	0,251	-0,025	-0,127	0,098	0,055	0,104	0,138	0,275	-0,008	0,087	0,107	-0,069	0,041	0,113	0,293	0,048	0,330	0,105	-0,005		-0,269	0,334
35. Non-Governmental Investment	0,291	0,176	0,101	0,022	-0,156	-0,116	0,099	0,116	0,227	0,137	-0,033	-0,024	-0,020	0,111	0,007	0,294	0,161	0,052	-0,135	-0,221	0,032	-0,045	0,084	-0,016	0,100	0,022	-0,269		0,128
36. Incubation/ Acceleration Program	0,200	0,259	0,353	0,182	0,317	0,293	0,121	0,186	0,234	-0,045	0,225	0,111	0,229	0,185	0,296	0,249	0,153	0,097	-0,123	-0,002	-0,013	0,122	0,079	0,334	0,102	0,185	0,334	0,128	

APPENDIX D: HUMAN SUBJECTS ETHICS COMMITTEE APPROVAL

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
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11 MAYIS 2018

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Doç. Dr. Adil ORAN

Danışmanlığını yaptığınız yüksek lisans öğrencisi A.Sercenk HIZAL'ın **"Teknoloji Tabanlı Girişimler İçin Başarı ve Başarısızlık Faktörleri: Türk Girişimcilerin Algısı "** başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **2018-SOS-082** protokol numarası ile **11.05.2018 - 30.07.2018** tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Ş. Halil TURAN
Başkan V

Prof. Dr. Ayhan SOL
Üye

Prof. Dr. Ayhan Gürbüz DEMİR
Üye

Doç. Dr. Yaşar KONDAKÇI
Üye

Doç. Dr. Zana ÇITAK
Üye

Doç. Dr. Emre SELÇUK
Üye

Dr. Öğr. Üyesi Pınar KAYGAN
Üye

APPENDIX E: SURVEY QUESTIONS

Teknoloji Tabanlı Girişimler İçin Başarı ve Başarısızlık Faktörleri: Türk Girişimcilerin Algısı Tez Çalışması

Bölüm-A | KİŞİSEL BİLGİLER

[1/41] Yaşınız

Yanıtınız

[2/41] Cinsiyetiniz

- ◯ Kadın
- ◯ Erkek
- ◯ Diğer:

[3/41] Eğitim Durumunuz

- ◯ Lisans Öğrencisi
- ◯ Lisans Mezunu
- ◯ Yüksek Lisans Öğrencisi
- ◯ Yüksek Lisans Mezunu
- ◯ Doktora Öğrencisi
- ◯ Doktora Mezunu
- ◯ Diğer:

[4/41] Eğitim Gördüğünüz Alan(lar) (Birden fazla seçenek işaretleyebilirsiniz)

- [ ] Mühendislik
- [ ] İktisadi ve İdari Bilimler
- [ ] Sosyal Bilimler
- [ ] Temel Bilimler
- [ ] Eğitim Bilimleri
- [ ] Hukuk
- [ ] Tıp
- [ ] Diğer:

[5/41] "Kurucu" veya "ortak" olarak yer aldığınız ve "başarılı" olarak değerlendirebileceğiniz teknoloji tabanlı girişim sayısı

Yanıtınız

[6/41] "Kurucu" veya "ortak" olarak yer aldığınız ve "başarısız" olarak değerlendirebileceğiniz teknoloji tabanlı girişim sayısı

Yanıtınız

[7/41] Hali hazırda devam eden girişim sayınız

Yanıtınız

[8/41] Sizin için uygun olan seçenekleri işaretleyiniz. (Birden fazla seçenek işaretleyebilirsiniz.)

- [ ] Girişim(ler)im ile ürettiğim ürün/hizmetler ile henüz satış gerçekleştiremedim.
- [ ] Girişim(ler)im ile ürettiğim ürün/hizmetler ile satış gerçekleştirdim.
- [ ] Girişim(ler)im ile devlet desteği/teşviki aldım.
- [ ] Girişim(ler)ime yatırım yapıldı.
- [ ] Girişim(ler)imle hızlandırma/kuluçka programlarına dahil oldum.

Bölüm B | DEGERLENDIRME

Değerli Girişimci,

Bu bölümde, şimdiye kadar gelişimine şahit olduğunuz teknoloji tabanlı girişimler içinden en başarılı ve en başarısız iki girişimi aşağıda verilen kriterlere göre değerlendirmeniz beklenmektedir.

Lider Girişimcinin Özellikleri [1/6]

[9/41] Girişimcinin girişimine ayırdığı mesai

	Bilgim Yok	Girişimci, girişimine "tam zamanlı" olarak vakit ayırmaktadır.	Girişimci, girişimine "yarı zamanlı" olarak vakit ayırmaktadır.
En Başarılı Girişim	○	○	○
En Başarısız Girişim	○	○	○

[10/41] Girişimcinin teknik konulardaki yetkinliği

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[11/41] Girişimcinin yönetsel konulardaki yetkinliği

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[12/41] Girişimcinin akademik geçmişi ile iş fikrinin uyumluluğu

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[13/41] Girişimcinin geçmiş iş tecrübeleri ile iş fikrinin uyumluluğu

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[14/41] Girişimcinin yaratıcı ve özgün düşünme yetkinliği

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[15/41] Girişimcinin çalışma konusundaki istekliliği ve azmi

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[16/41] Girişimcinin risklere karşı genel tutumu

	Bilgim Yok	1-Risklerden mümkün olduğunca kaçınan	2-Risklerden kısmen kaçınan	3-Nötr	4-Kısmen risk alan	5-Mümkün olduğunca risk alan
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

Girişim Ekibinin Özellikleri [2/6]

[17/41] Girişim ekibinin büyüklüğü (Lider girişimci dahil)

	Bilgim Yok	1 Kişi	2 Kişi	3 Kişi	4 Kişi	5 Kişi ve Üzeri
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[18/41] Girişim ekibinin iş fikrinin ilgili olduğu sektöre ilişkin tecrübe seviyesi

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[19/41] Girişim ekibinin teknoloji tabanlı girişimlerdeki daha önceki iş tecrübesi seviyesi

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[20/41] Girişim ekibinin iş fikriyle ilgili arge faaliyetleri konusundaki tecrübe seviyesi

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[21/41] Girişim ekibinin pazarlama konusundaki tecrübe seviyesi

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[22/41] Girişim ekibinin, iş fikriyle ilgili kritik kişi, kurum ve kuruluşlara ulaşabilme kapasitesi

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

İş Fikri ve Pazara İlişkin Özellikler [3/6]

[23/41] Girişim fikri sonucunda üretilecek ürün/hizmetin hitap ettiği pazar

	Bilgim Yok	1-Lokal	2-Global
En Başarılı Girişim	○	○	○
En Başarısız Girişim	○	○	○

[24/41] Girişim fikri sonucunda üretilecek ürün/hizmetin, pazarın ihtiyaçlarına cevap verebilme potansiyeli

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[25/41] Girişim fikri sonucunda üretilecek ürün/hizmetin yenilikçilik seviyesi

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[26/41] Girişim fikri sonucunda üretilecek ürün/hizmetin hedef pazarındaki rekabet yoğunluğu

	Bilgim Yok	1-Oldukça düşük rekabet	2-Ortalamanın altında rekabet	3-Ortalama seviyede rekabet	4-Ortalamanın üzerinde rekabet	5-Oldukça yüksek rekabet
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[27/41] Girişim fikri ile üretilecek ürün/hizmetin pazara çıkabilmesi için gereken süre

	Bilgim Yok	1-Oldukça kısa süre	2-Ortalamadan biraz kısa süre	3-Ortalama süre	4-Ortalamadan biraz uzun süre	5-Oldukça uzun süre
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[28/41] Girişim fikri ile üretilecek ürün/hizmetin pazara çıkabilmesi için gereken yatırım tutarı

	Bilgim Yok	1-Oldukça düşük yatırım tutarı	2-Ortalamanın biraz altında yatırım tutarı	3-Ortalama yatırım tutarı	4-Ortalamanın biraz üzerinde yatırım tutarı	5-Oldukça yüksek yatırım tutarı
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

Firma Stratejisine İlişkin Özellikler [4/6]

[29/41] Firmanın, ürettiği ürün/hizmetlere ilişkin yürüttüğü kalite stratejisinin başarısı

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[30/41] Firmanın, ürettiği ürün/hizmetlere ilişkin yürüttüğü fiyat stratejisinin başarısı

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[31/41] Firmanın, ürettiği ürün/hizmetlere ilişkin yürüttüğü yenilikçilik stratejisinin başarısı

	Bilgim Yok	1-Beklentilerin oldukça altında	2-Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4-Beklentilerin biraz üstünde	5-Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[32/41] Firmanın, ürettiği ürün/hizmetlere ilişkin yürüttüğü işbirliği stratejisinin başarısı

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

Finansal Özellikler [5/6]

[33/41] Firmanın, faaliyetlerini özkaynakları ile yürütebilme kapasitesi

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[34/41] Firma devlet desteği/teşviki aldı mı?

	Bilgim Yok	Evet	Hayır
En Başarılı Girişim	○	○	○
En Başarısız Girişim	○	○	○

[35/41] Firma yatırımcı kişi/kuruluşlardan yatırım aldı mı?

	Bilgim Yok	Evet	Hayır
En Başarılı Girişim	○	○	○
En Başarısız Girişim	○	○	○

[36/41] Firma kuluçka/hızlandırma programlarına dahil oldu mu?

	Bilgim Yok	Evet	Hayır
En Başarılı Girişim	○	○	○
En Başarısız Girişim	○	○	○

Performans Metrikleri [6/6]

[37/41] Firmanın ürettiği ürün/hizmetlerin satış performansı

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[38/41] Firmanın ürettiği ürün/hizmetlerin kâr yaratma performansı

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[39/41] Firmanın, ürün/hizmetler için yaptığı yatırımın geri dönüş performansı

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[40/41] Firmanın, ürün/hizmetleri ile elde ettiği pazar payı

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

[41/41] Firmanın, ürün/hizmetleri ile elde ettiği kullanıcı sayısı

	Bilgim Yok	1- Beklentilerin oldukça altında	2- Beklentilerin biraz altında	3-Beklentileri karşılayacak düzeyde	4- Beklentilerin biraz üstünde	5- Beklentilerin oldukça üstünde
En Başarılı Girişim	○	○	○	○	○	○
En Başarısız Girişim	○	○	○	○	○	○

APPENDIX F: TURKISH SUMMARY / TÜRKÇE ÖZET

Teknoloji tabanlı girişimcilik; yarattığı değer ve ekonomiye sağladığı katkılar ile önemi hızla artan bir kavramdır. Bu furyadan, gelişmiş ülkelerin bir adım geriden gelmekle birlikte Türkiye de etkilenmiştir. Ülkemizde de gelişmekte olan teknoloji tabanlı girişimler ar-ge çalışmalarından e-ticaret sitelerine uzanan geniş bir yelpazede ve bilgi işlemden ağır sanayiye kadar değişik sektörlerde faaliyet göstermektedir. Bu çalışmada Türkiye'de teknoloji alanında faaliyet gösteren, temel olarak teknoloji tabanlı girişimlerin başarı ve başarısızlığını etkileyen faktörler, girişimcisinin algısı açısından incelenmiştir.

Bu çalışmanın beklediği temel sonuçlar şunlardır:

- Girişimde tam zamanlı çalışmak, girişimin başarısını olumlu etkileyecektir.
- Daha az zaman ve kaynak gerektiren girişimler tezatlarına göre daha başarılı olacaktır.
- Takımın kişi, kurum ve organizasyonlarla olan iletişim ağları ile girişimin başarısı doğru orantılıdır.
- Girişimcinin teknik ve yönetsel becerileri girişimin başarısına katkı sağlayacaktır.
- Girişimcinin eğitimi ile iş ve ar-ge tecrübesinin iş fikriyle bağlantılı olması girişimin başarısı için kritiktir.
- Girişimin yerel ya da global olması, girişimin performansını direkt olarak etkilemeyecektir.
- Takımın büyüklüğü, takımın başarısına önemli bir katkı sunmayacaktır.
- Girişimin izlediği organizasyon ve/veya finansal stratejileri, girişimin başarısına önemli katkılar sağlayacaktır.

Beklenen sonuçlar sunulduktan sonra bir literatür çalışmasına ihtiyaç duyulmuştur. Bu anlamda, öncelikle Türkiye'deki girişimcilik ekosistemi incelenmiştir.

Türkiye'deki girişimci ekosistemi, özel yatırımların hacminin sürekli büyümesine karşılık, halen büyük ölçüde devlet teşvikleriyle yola devam etmektedir. Tezin ekosistemi inceleyen kısmında yoğunlukla Türkiye İstatistik Kurumu (TÜİK) verilerinden ve Global Entrepreneurship Monitor (GEM)'in yayınladığı Türkiye raporundan faydalanılmıştır. GEM'in raporu, Türkiye'de girişimcilik ekosisteminin oldukça elverişli olduğu yönünde veriler sunmuştur. GEM ayrıca girişimciliğin Türk toplumunda finansal olarak yükselmek için geçerli bir meslek olarak görüldüğünü ve bu alana yönlendirilmemekle birlikte girişimcilerin toplumdaki statülerinin düşük olmadığını belirtmektedir. Bununla birlikte girişimcilik eğitimlerinin yetersiz olduğu vurgulanmıştır. GEM raporunun dikkat çeken başka bir nokta ise 90'lardan itibaren KOBİ'lere verilen önemin altının çizilmesi olmuştur. TÜİK verileri de benzer doğrultudadır. Teknoloji tabanlı girişimciliğin sürekli geliştiği ve devletin bunu teşvik ettiği raporlarda vurgulanmaktadır. 2012, 2014 ve 2016 raporları hem devlet hem özel sektörlerde ar-ge yatırımlarının arttığını ve teknoloji tabanlı girişimciliğin yaygınlaştığını göstermiştir.

Türkiye'de devlet KOBİ'lere ve girişimcilere çok çeşitli destekler sunmaktadır. Bu desteklerin önemli bir kısmı KOSGEB ve TÜBİTAK kurumları aracılığıyla gerçekleştirilmektedir. Bu kurumların sektör ve büyüklüğe göre kategorize ettiği bir çok programı bulunmaktadır. Geri ödemeli, kısmen geri ödemeli ve hibe şeklinde bir çok opsiyonun bulunması ve devlet güvencesi ile verilmesi bu destekleri oldukça cazip hale getirmektedir. Kurumların sadece teknoloji tabanlı girişimler için olan ve bazıları patent desteği içeren programları da bulunmaktadır. Desteğin türüne ve sektörüne göre bazı ön şartları olmakla birlikte bu şartlar genellikle iş fikrini destekler eğitim ve tecrübeyi kapsamaktadır. KOSGEB ve TÜBİTAK dışında devlet girişimciliğe bankalar ve kuruluşlar aracılığıyla kredi ve teşvik çıkarmaktadır. Bunların en önemlileri TOBB. TTGV, TSKB ve EXİMBANK'tır.

Türkiye'de özel sektör yatırımcılığı da giderek artmaktadır. Bu yatırımlar çoğunlukla melek yatırım sınıfında olmakla birlikte özel yatırım şirketleri de özellikle e-ticaret alanında faaldirler. Ayrıca risk sermayesi şirketleri de az da olsa ekosistemde vardırlar. Teknoloji tabanlı girişimler ve özellikle internet tabanlı girişimler diğer sektörlere göre

(ilaç, silah vb) daha az kaynak gerektirdikleri için özel yatırımcıların ilgisini çekmektedir.

Ekosistemde faal olan bir diğer paydaş da kuluçka merkezleridir. Genellikle üniversitelerin kampüslerinin teknoparkları aracılığıyla faaliyet gösteren ancak bağımsız olarak da varlık gösteren kuluçka merkezleri, ofis alanı, danışmanlık ve ekipman gibi konularda girişimcilere destek olmaktadır.

Ekosistem incelenmesinden sonra girişimcilere değinilmiştir. Literatür, girişim başarısında en temel faktörün girişimcinin kendi geçmişi, vizyonu ve motivasyonu olduğunu göstermiştir. Diğer bir deyişle başarılı girişim, girişimcisinin aynasıdır.

Türkiye'de yürütülen teknolojik girişimlerin önemli bir kısmı devlet desteğiyle başlatılan kuluçka çalışmalarıdır. Bu tip kuluçkalar girişimcilerin kendi kaynaklarını da sermaye olarak kullandıkları ufak gruplar şeklinde vuku bulmaktadır. Bu nedenle özellikle Türkiye'de teknoloji tabanlı girişimler inceleneceği zaman, bu ufak grupların liderleri, operasyonun yürümesi açısından en önemli faktörlerden biri durumuna gelmektedir.

Bu iki veri göz önüne alındığında, Türkiye'deki teknoloji tabanlı girişimlerin başarısının incelenmesinde girişimciyi odak noktası haline getirmenin önemi ortaya çıkmıştır.

Burdan sonra tez daha derin bir literatür çalışmasına girmiştir. Literatür çalışmasında yoğunlukla dünya konjonktüründe girişim başarısını ele alan çalışmalar incelenerek bazı hipotezler oluşturulmasına çalışılmıştır. Literatür çalışmasının diğer bir odağı da başarı kavramı ve girişim başarısını kavramsal inceleyen çalışmalar olmuştur.

Başarı kavramı literatürde enine boyuna incelenmiş bir konudur. Girişim başarısı üzerine de literatür yer yer birbiriyle çelişmesine karşın, yetersiz olduğu söylenemez. Başarı tanımında Kakati (2003), Van Gelderen, Thurik ve Bosma (2003), Michael A. Gurdon, Karel J. Samsom (2009), Kung-Jeng Wang, Yuliani Dwi Lestari (2013), Jens

M. Unger, Andreas Rauch, Michael Frese ve Nina Rosenbusch (2009) ve J. Robert Baum, Edwin A. Locke ve Ken G. Smith (2001)'in başarı tanımlarından ve başarıyı etkileyen faktörlerlerle ilgili verilerinden yararlanılmıştır. Bu bağlamda tezin ileri sürdüğü ve kullandığı başarı tanımı, "Türkiye'deki teknoloji tabanlı girişimlerin satış, kâr, yatırım geri dönüşü, pazar payı ve kullanıcı sayısının artışı kategorilerindeki performansı" şeklinde anlaşılmalıdır.

Performance Göstergeleri	**Literatür**
Girişimin Başlatılması	Song *et al.* (2008)
	Olugbola (2017)
	Oe and Mitsuhashi (2013)
	Gartner and Vesper (1994)
	Wang and Lestari (2013)
	Davis and Olson (2008)
	Preston (2001)
Girişimin Büyümesi	Almus and Nerlinger (1999)
	Duchesneau and Gartner (1990)
	Brush (2008)
	Dvir, Sadeh and Malach-Pines (2010)
	Chrisman, Bauerschmidt and Hofer (1998)
	Zahra and Bogner (2000)
	Robert *et al.* (2001)
	Unger *et al.* (2011)
	Miner (1997)
Girişimin Sürdürülmesi	Van Gelderen, Thurik and Bosma (2003)
	Kuntze and Matulich (2016)
	Chorev and Anderson (2006)
	Markman and Baron (2003)
	Kakati (2003)
	Macmillan, Zemann and Subbanarasimha (1987)
	Ensley, Hmieleski and Pearce (2006)
	Gurdon and Samsom (2010)
	Roure and Maidique (1986)
	Khan (1986)

Literatürde girişim başarısını belirleyen kriterler konusunda bir uzlaşma bulunmamaktadır. Ancak yapılan çalışmaların üç ana başlık altında gruplandırılması mümkündür: Girişimin faaliyete geçmesi, girişimin büyümesi ve girişimin sürdürülebilirliği. Başarıyı bu kriterlere göre bölerek kendi içlerinde inceleyen çalışmalar yukarıda verilen tablodaki gibidir.

Bundan sonra, literatür çalışması başarıyı etkileyen faktörler ile performansı belirleyen kriterlere odaklanmıştır. Tablodan da anlaşılacağı gibi literatür başarı faktörleri konusunda üç temel gruba ayrılmıştır: Girişimin faaliyete geçmesi, girişimin büyümesi ve girişimin devamlılığı.

Girişimin faaliyete geçmesini başarı kriteri olarak kabul edilen çalışmaların daha çok girişimcinin kendisine (eğitimine, tecrübesine vb) odaklandığı görülmüştür. Bu çalışmalar, girişimcinin algısının diğer tüm faktörleri de aynı yönde etkilemesinden dolayı, başarı kriterini etkileyen faktörleri de girişimciye bağlamışlardır. Girişimin büyümesini başarı kriteri olarak kabul eden çalışmalar ise bir sınırlamaya dikkat çekmektedirler. Bu "büyüme" kavramının kendisiyle ilgilidir keza büyüme çalışan sayısından pazar payına kadar bir çok alana işaret edebilir. Ancak genel anlayış finansal büyüme yönündedir. Girişimin sürekliliğini başarı kriteri olarak kabul eden çalışmalar ise organizasyon ve strateji yönetimi gibi konuları öne çıkarmaktadır.

Bu ana gruplandırma yapıldıktan sonra başarı kriterleri daha detaylı incelenmiş ve "girişimci temelli", "organizasyon temelli" ve "çevresel" olarak üç ayrı kategoride incelenmiştir. Girişimin başarısında girişimci temelli olan kriterler kişilik, risk algısı, eğitim ve motivasyon olarak belirlenmiştir. Girişimcinin kişiliği; motivasyon, yönetim ve strateji gibi diğer önemli kriterlere de etki etmesi açısından önemli görülmüştür. Risk algısı da aynı şekilde pazarlama ve ürün geliştirmeye etki etmesinden dolayı girişimci temelli kriterlerden biridir. Girişimcinin eğitimi özellikle teknoloji tabanlı girişimler belirli bir teknik bilgi ve beceri gerektirmesinden dolayı önem teşkil eder. Girişimci temelli son kriter motivasyondur, literatürde birçok çalışma motivasyon eksikliğinin diğer tüm faktörlere etki ettiğini bildirir. Organizasyon temelli kriterler; yönetim, strateji, büyüklük ve beşeri sermaye olarak

ayrılmıştır. İdare kriteri literatürde incelendiğinde, kişisel karizma sahibi ve lider vasıflı kişilerin baskın olduğu yönetim şekillerinin başarısızlığa götürmemekle birlikte istisnai olduğu, yönetimde sorumlulukların ve yetkinin paylaşılmasının başarıya katkısı vurgulanır. Literatür, başarı kriteri olarak ayrılsa da stratejinin önemi konusunda uzlaşır. Girişim hangi aşamada olursa olsun, kısa, orta ve ileri vadede bir vizyona sahip olması ve bu vizyonu destekler stratejilerin izlenmesinin başarıya çok önemli faydalar sağladığı gösterilmiştir. Girişimin yahut girişimci takımın büyüklüğü izlenecek metot ve stratejilere yön vermesi bakımından bir faktördür ve bir girişimin rekabet etme durumuna gelmesi için belirli bir büyüklüğe ulaşması gerektiğinin altı çizilmiştir. Beşeri sermaye, diğer bir deyişle girişimcinin yahut girişim ekibinin girişime getirdiği bilgi ve becerinin özellikle de yeni ve küçük girişimlerin başarısına yadsınmaz bir katkı sağladığı bir meta-analiz ile gösterilmiştir. Son kategori olan çevresel faktörler, pazar ve kaynakları kapsar. Pazar, literatürde, girişim başarısı açısından incelenen ve belirtilen en kayda değer faktörlerden biridir. Bir girişim, bir soruna çözüm getirmek ya da varolan çözümü daha basit ve etkili hale getirmek için doğar. Bu anlamda girişim, pazarın ihtiyacını karşılayabildiği ölçüde başarıya ulaşacaktır. Aynı şekilde literatür daha başarılı girişimcilerin, pazar payı yüksek olan ve daha geniş kitlelere hitap eden girişimler yaratarak riski azalttığını bildirir. Diğer çevresel faktör, kaynak yönetimidir. Kaynak yönetimini iyi yapan girişimler daha dinamik bir kabiliyete sahiptir. Bu nedenle insan kaynağı, öz sermaye, teşvik ve destekler gibi kaynaklara sahip olan ya da olmak için iletişim ağlarını kullanan girişimciler daha başarılı olmaktadır.

Literatür çalışmasını özetlemek gerektiğinde belirtilmesi gereken ilk husus, araştırmaların çokluğu ve çeşitliliğine rağmen bir uzlaşmaya varılamamış olmasıdır. Öyle ki, kimi çalışmalar birbirleriyle çelişen ve hatta tezat olan sonuçlara varmışlardır. Bu durumun nedenleri çeşitlidir, ancak çalışmalarda kullanılan verilerin küçük anket havuzlarından gelmesi ve kimi çalışmaların niş alanlara yönelmesi zıtlaşmasının muhtemel nedenidir. Bu duruma ek olarak, teknoloji tabanlı girişimler ve bu girişimlerin başarısı düşünüldüğünde "teknoloji tabanlı" kavramı bir sorun teşkil eder çünkü daha önce de belirtildiği üzere kavram fazla geniştir. Büyük istihdam sağlayan ar-ge kuruluşlarından, küçük takımların geliştirdiği internet tabanlı girişimlere kadar

uzanan bir yelpazeyi kapsar. Büyüklük, pazar payı gibi kavramların başarı ölçütü olarak kullanıldığı düşünüldüğünde bu yelpazenin uçlarının ölçütlere değişik veriler vereceği ve sonuçlar çıkaracağı aşikardır. Literatür çalışmasıyla ilgili ilgi çekici olan diğer hususların bir tanesi, çevresel faktörler olan piyasa koşulları ve kaynak kullanımının literatürde hemen her çalışmada şu ya da bu şekilde geçmesine karşılık ana başarı faktörü olarak bulunmamasıdır. Daha ziyade, piyasa algısının ve kaynak kullanımının girişimci tarafından nasıl yönetildiğinin önemine dikkat çekilmektedir. Diğer bir husus, girişimci temelli ve organizasyon temelli faktörlerin aynı ölçüde önemli görülmesidir. Ancak organizasyonla alakalı faktörlerin yönetimi de girişimci ya da girişim ekibinin kararlarına ve yönetimine bağlı olduğundan, literatür çalışmasının ana sonucunun girişimcinin kişiliğinin, becerilerinin ve özgeçmişinin başarıya etki eden en önemli faktör olduğu söylenebilir.

Tezin bir sonraki kısmı veri toplanmasıyla ilgilidir. Çalışmanın girişimcilerin başarı algısını ölçmeyi istemesi sebebiyle toplayabileceği en çok veriyi toplayıp bazı örüntülere ulaşması gerektiğine karar verilmiştir. Dolayısıyla bu veritabanının en kolay bir anket yardımıyla oluşturulacağı düşünülmüştür. Katılımcılara ulaşmak için değişik platformlarla iletişime geçilmiştir. Girişimcilere TÜBİTAK Teknogirişim veritabanından, özel yatırımcı ve kuluçka merkezlerine ise sosyal medya araçları üzerinden ulaşılmıştır. Neticede 111 geçerli anket sonucuna ulaşılmıştır. Bu geçerlilik kriteri teknoloji tabanlı bir girişimde kurucu ya da ortak olarak yer almış olmaktır. Anketin A kısmının A-5, A-6 ve A-7 soruları bu geçerliliği ölçmek üzere tasarlanmıştır. A kısmının diğer soruları girişimcinin profilini değerlendirmek üzerinedir. Girişimciye yaş, cinsiyet ve eğitimiyle ilgili sorular sorulmuştur ki bunun sebebi, çalışma kapsamında girişimcinin profili ile başarı algısı arasında bir korelasyon olup olmadığının incelenmek istenmesidir.

Anketin B kısmında katılımcılardan gelişimine şahit oldukları, en başarılı ve en başarısız iki girişim ile ilgili, onlara verilen faktörler üzerinden bir değerlendirme yapmaları istenmiştir. Lider girişimci, girişim ekibi, iş fikri ve pazar, strateji ve finansal değerlendirme kategorileri altında 28 faktör sunulmuş ve performans

değerlendirmesi için de satış, kâr, yatırımın geri dönüşü, pazar payı ve kullanıcı sayısı göstergeleri kullanılmıştır.

Lider girişimci kategorisinde katılımcılara, hem motivasyon hem de kaynak kullanımıyla ilgisinden dolayı girişimcilerin girişimlerinde tam zamanlı mı yoksa yarı zamanlı mı çalıştıkları sorulmuştur. Teknoloji tabanlı girişimlerde teknik bilginin öneminden dolayı katılımcılardan girişimcilerin teknik yetkinliklerini değerlendirmeleri istenmiştir. Benzer şekilde, yönetsel yeteneklerin başarıya etkisini ölçmek için katılımcılardan girişimcilerin yönetsel yetkinliklerini değerlendirmeleri istenmiştir. Girişimcilerin eğitim ve iş geçmişlerinin iş fikirleriyle uyumu sorulmuştur. Son olarak lider girişimcinin motivasyon ve hevesini, ayrıca risk algısını da değerlendirmeleri istenmiştir. Girişim ekibi kategorisinde başarıya etki olarak gösterilebilecek bazı örüntülerin araştırılması için katılımcılara değerlendirdikleri ekipte kaç kişinin olduğu, ekip üyelerinin ilgili sektör tecrübelerinin olup olmadığı, daha önce bir girişimde faaliyet gösterip göstermedikleri, ar-ge tecrübelerinin bulunup bulunmadığı, bir girişim pazarlama konusunda faaliyet gösterip göstermedikleri ve iletişim ağlarının yeterli olup olmadığı gibi sorular sorulmuştur. İş fikri ve pazar kategorisinde katılımcılardan, değerlendirdikleri başarılı ve başarısız girişimleri; iş fikirlerinin pazara uygunluğu, inovatif olup olmamaları, hedef pazarlarındaki rekabetin yoğunluğu, iş fikrinin zaman ve kaynak gereksinimleri açısından değerlendirmeleri istenmiştir. Ayrıca girişimlerin yerele mi yoksa globale mi hitap ettiği sorulmuştur. Anketin strateji kısmında katılımcılara değerlendirdikleri girişimlerde uygulanan çeşitli stratejiler ile ilgili sorular yöneltilmiştir. Bu stratejiler; kalite, fiyatlandırma, inovasyon ve ortaklık stratejileridir. Strateji ve lider girişimcinin strateji yönetiminin önemi literatürde sıkça vurgulanmıştır. Bu nedenle anket, bir girişimin varoluş evrelerinde izlenen değişik stratejileri gruplayıp, hem değişik strateji kategorilerinin daha önemli olup olmadığını; hem de girişimcinin bu konusundaki algısında örüntüler aramayı hedeflemiştir. Finansal değerlendirme kategorisinde katılımcılara değerlendirdikleri girişimlerin iş fikirlerini hayata geçirebilmek için özkaynaklarının yeterli olıp olmadığı; girişimlerini finanse edebilmek için bir devlet desteği veya yatırım alıp almadıkları ile kuluçka merkezlerinden ya da hızlandırma programlarından yararlanıp yararlanmadıkları sorulmuştur. Performans ölçütleri

kategorisinin amacı ise girişimin, literatürdeki performans kriterleriyle, girişimcinin algısına göre uyumunu incelemektir. Bu kategoride katılımcılara değerlendirdikleri girişimin satışları, kârı, yatırımlarının geri dönüşü, pazar payları ve kullanıcı sayıları ile ilgili sorular sorulmuştur. Kullanıcı sayısı literatürde bir başarı kriteri olarak belirtilmemektedir ancak bu çalışmada incelenmiştir. Sebebi ise gündelik hayatımızın genel geçer parçaları olan bazı teknolojilerin var olan kullanıcı sayısına ulaşmaları yıllar hatta on yıllar alırken, küreselleşen dünyada bu zaman oldukça kısalmıştır. Girişim ana hedefine ulaşamasa bile yarattığı kullanıcı tabanını çeşitli şekillerde ekonomik değere dönüştürerek kâr elde edebilmektedir.

Ankete katılan kullanıcıların %40.6'sı 25-29 yaş aralığındadır. 25 yaş altı %6.3 ile en dar gruptur. 30-34 yaş aralığı %27, 40-44 yaş aralığı %8.1 ve 45 yaş üstü katılımcılar toplamın %7.2'sidir. Katılımcıların %78.4'ü erkek, 21.6'sı kadındır. Katılımcıların eğitim düzeyi üniversite öğrencisi ve üstüdür. %2,7'si öğrenci, %22,5'i üniversite mezunu, %27,9'u yüksek lisans öğrencisi, %16.2'si yüksek lisans mezunu, %18'i doktora öğrencisi ve %12.7'sinin doktora derecesi bulunmaktadır. Katılımcıların çoğunluğu %69.4 ile mühendistir. %25,2'si ekonomi ve idari bilimler, %17.1'i temel bilimler, %6.3'ü beşeri bilimler, %4.5'i tıp alanında eğitim görmüştür. Katılımcıların geldikleri diğer eğitim alanları eğitim bilimleri, tıbbi bilimler, güzel sanatlar, hukuk, turizm, mimarlık, zooteknik ve yönetmenliktir. Katılımcıların %86,5'i aktif olarak bir girişimle uğraşmaktadır. %73'ü en az bir kere başarılı olmuş, %38,7'si en az bir kere başarısız olmuş, %22.5'i en az bir kere hem başarılı hem başarısız olmuş ve %10.8'i henüz başarılı ya da başarısız olmamıştır. Katılımcıların %46,8'i ürünü satmıştır. %68.5'i bir devlet teşviği almıştır ancak sadece %18'i özel sektörden yatırım almıştır. %49.5'i bir kuluçka ya da hızlandırma programından yararlanmıştır.

Elde edilen veriler SPSS 22.0 programı yardımıyla analiz edilmiştir. Analiz yöntemi olarak T-testi, kümeleme analizi ve adımsal regresyon analizi kullanılmıştır. Bu testler yapılmadan önce, testlerin yapılabilmesi için veri setinin taşıması gereken özelliklere ilişkin varsayımlar test edilmiştir. Bunlar, güvenilirlik testi, normallik testi, lineer ilişki varlığı ve çoklu doğrusal bağlantının yokluğu testleridir. Veri setinin, bu testlerde

literatürde tanımlı sınır değerler içinde kaldığı görülmüş ve sonrasında bahsi geçen analizler yapılmıştır.

T-test sonucu göstermiştir ki, lider girişimci ile ilişkili olan faktörler en önemlileridir. Beş en önemli faktörden dördü lider girişimciyle ilgilidir. Girişimcinin yetkinlikleri, yaratıcılığı, şevki ve girişimine ayırdığı zamanın fazlalığı öne çıkmaktadır. Bununla birlikte eğitim ve profesyonel geçmişi ile iş fikrinin uyumluluğu arasındaki paralellik diğer faktörler kadar kritik gözükmemektedir. İkinci en önemli kriter grubu stratejidir. Özellikle de teknoloji tabanlı girişimlerde inovasyon ve ortaklık stratejilerinin önemli olduğu görülmüştür. Girişim ekibiyle ilişkili olan faktörler üçüncü sıradadır ve bu gruptaki faktörler için nicelikten çok nitelik öne çıkmıştır. Finansal değerlendirme faktörleri kayda değerdir ancak lider girişimci ya da ekip kadar etkili değildir. Son olarak, iş fikri ve pazar yalnızca dar bir alanda etkilidir.

Başarılı olmuş ve olmamış girişimcilerin algılarının karşılaştırılmasında ilginç sonuçlar çıkmıştır. Henüz başarılı olamamış girişimciler stratejiyi daha önemli görürken, başarıya ulaşmış olan girişimciler lider girişimciyle ilgili faktörlerin daha önemli olduğunu söylemiştir ancak her iki grup da lider girişimcinin özelliklerinin önemli gördüklerini belirtmişlerdir. Henüz başarılı ya da başarısız olmamış girişimciler ise takımla ilgili faktörleri stratejinin üstüne koymuştur. Devlet desteği almamış olan girişimciler, devlet desteğini strateji, lider girişimci ve takımın önüne koymazken, devlet desteği almış olanlar bu desteği lider girişimcinin arkasına koymuştur. Özel yatırım almış ve almamış olan girişimciler önemsiz gördükleri faktörler konusunda ayrışmıştır. Yatırım alanlar toplam 28 kriterin 11'ini önemsiz bulurken almış olanlar için bu sayı 4 olmuştur. Bir kuluçka merkezi ya da hızlandırma programına katılmış olan girişimciler bu durumun başarıya etkisine karşı gruba göre beş kat ağırlık vermiştir. Bir ürünün ilk satışı bir kilometre taşı olarak değerlendirilir ve hem ilk satışını yapmış hem de yapmamış girişimciler bu konuya eşit değer vermişlerdir. Mühendislik eğitimi almış olan girişimciler lider girişimci ve takımla ilgili faktörlere önem verirken mühendis olmayanlar stratejiye önem vermiştir. Ayrıca mühendislik eğitimi olmayan girişimciler teknik yeterlilik, inovasyon stratejisi ve ürün inovasyonunu ilk 5 faktörün içinde görürken diğerleri için durum böyle değildir. Kadın

ve erkek girişimciler karşılaştırıldığında, cinsiyetin başarı algısında bir fark yaratmadığı gözlenmiştir. Daha yaşlı olan girişimciler strateji tabanlı faktörlere daha az ağırlık vermiştir. Girişimciler eğitim durumunun performansa ciddi bir etki etmediğini düşünmektedirler.

Kümeleme analizi sonucunda ortaya çıkan ilk kümede 66 başarılı girişim yer almaktadır. Bu grupta teknik ve idari yeterlilik ile yaratıcılık öne çıkmaktadır. Ayrıca bu grupta inovasyon, ortaklık stratejileri ve iletişim ağları güçlüdür. Risk algısı, pazarlama tecrübesi ve işe olan heves başarılı girişimlerin ayırıcı özellikleri olarak görünmektedir. Ortaya çıkan ikinci kümede ise 21 başarısız girişim yer almaktadır. Bu grubun girişimcilerinin teknik ve yönetsel yetkinliklerinin, yaratıcılıklarının ve ar-ge ve pazarlama tecrübelerinin yeterli olmadığı görülmüştür. Genel olarak rekabet yoğunluğu bu girişimlerin hedef pazarlarında daha yüksektir. Ancak zaman ve kaynak gereksinimlerinde ciddi farklılıklar saptanmamıştır.

Regresyon analizinde her performans ölçütü için anlamlı olan sonuçlar incelenmiştir. Satış için olan değişiklikler %50.5 oranında ortaklık stratejisi, özel yatırım, teknik beceri, kalite stratejisi ile açıklanmıştır. Kâr, %44.2 oranında ortaklık stratejisi, işe olan heves/istek, sektör tecrübesi, yerel ya da global ve rekabet yoğunluğu ile açıklanmıştır. Benzer şekilde, yatırımın geri dönmesi %49.0 oranında inovasyon stratejisi, risk algısı, ürün inovasyonu, kuluçka/hızlandırma programları ve zaman yatırımı ile açıklanmıştır. Pazar payı kriterinin, %54.3'ünün inovasyon stratejisi, işe olan heves/istek, ortaklık stratejisi ve özel yatırım ile açıklanması mümkündür. Son olarak, kullanıcı sayısı artışı kriterindeki değişiklik %48 oranında; özel yatırım, teknik beceri, inovasyon stratejisi, yaratıcılık ve iş fikrinin pazar uyumu kriterleriyle açıklanabilir.

Sonuç olarak, teknoloji tabanlı girişimlerin başarısı bir çok kriterden etkilenen kompleks bir konudur. Bu başarıda 28 faktör incelenmiştir. Literatürde bir uzlaşı olmamasına karşın, lider girişimci öne çıkan kriterdir. Bu çalışmanın sonucu da benzerdir. Lider girişimci en önemli başarı kriteri olarak ortaya çıkmıştır, strateji ve girişim ekibi onu izlemiştir. Bu da girişim başarısının bölgesel ve kültürel farklılıklara çok hassas olmadığı hipotezini destekler niteliktedir. İlginç olan bir başka husus,

mühendis kökenli olmayan girişimciler teknik beceri, inovasyon stratejisi ve ürün inovasyonuna oldukça değer verirken; mühendis girişimcilerin bu faktörleri mühendis olmayanların gördüğü kadar önemli görmemesidir. Zaman ve kaynak gereksinimleriyle girişim başarısı arasında bir korelasyon bulunmamıştır ki, bu da çalışmanın şaşırtıcı bulgularından biridir. Lider girişimcinin tam zamanlı çalışması ve teknik ve yönetsel yetkinliklerinin yanı sıra girişim ekibinin iletişim ağı ve stratejilerin performansa katkısı çok büyüktür. Bunun dışında, beklendiği üzere, girişimcinin eğitim düzeyi, takımın büyüklüğü ve hedef pazar daha önemsiz faktörler arasındadır.

Çalışmanın bazı kısıtları bulunmaktadır. Öncelikle veri toplanırken istenen ön koşul teknoloji tabanlı bir girişimde kurucu ya da ortak olmaktır. Bu kriterin sağlanıp sağlanmadığı, anket soruları ile kontrol edilmeye çalışılsa da doğruluğunu ispatlamak bu şekilde mümkün değildir. İkinci olarak katılımcılar ile değerlendirdikleri girişimler arasındaki ilişkinin bilinmemesi sebebiyle; katılımcılar girişimlerin başarılarını abartmış, başarısızlıklarını ise hafifletmiş olabilirler. Bu da üçüncü sınırlamayı getirir: Hem anket metodunun kendi sınırlaması hem de "algı" kavramının sayılara indirgenmesi yüz yüze yapılan bir görüşme kadar derin olmayacaktır.

Son olarak, bu çalışmayı ileri götürmek için yapılabilecek bir kaç şey vardır. Bu çalışma kurucu ya da ortaklar üzerine yapılmıştır. Odak grubu değiştirilerek aynı kriterlerin değişip değişmediği ölçülebilir. Aynı şekilde anket metodunun getirdiği sınırlılıkları aşmak adına odak grubuyla yüz yüze görüşme yapılarak sonuçların değişip değişmediği incelenebilir. Bu çalışma makro seviyede analizler içermemektedir ki değişik çalışmalar bu konuyu değerlendirebilir.

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TEZİN ADI / TITLE OF THE THESIS (**İngilizce** / English) : Success and Failure Factors For Technology Based Startups: Turkish Entrepreneurs' Perception

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