

MAPPING THE ISTANBUL TECH ECOSYSTEM

HOW A SMALL GROUP OF FOUNDERS SCALED AND
CREATED THOUSANDS OF JOBS IN ISTANBUL BY
SUPPORTING OTHER FOUNDERS.

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INSIGHT

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TURKEY



REPUBLIC OF TURKEY
MINISTRY OF INDUSTRY
AND TECHNOLOGY



POWERED BY:

 Eczacıbaşı

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ABOUT ENDEAVOR INSIGHT:

Endeavor Insight is the research division of Endeavor, a non-profit organization that supports high-impact entrepreneurs across the world.

Its work seeks to answer three questions:

- 1 How do entrepreneurs reach scale at their companies?
- 2 How do entrepreneurs reach scale in local networks or ecosystems?
- 3 What can policymakers, philanthropic leaders, investors, support organizations, and other stakeholders do to empower more entrepreneurs to reach scale in their communities?

The methodology utilized in this study builds on previous Endeavor Insight research supported by the Argidius Foundation, the Bill and Melinda Gates Foundation, the Omidyar Network, the Inter-American Development Bank, as well as partners in the Global Entrepreneurship Research Network.



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EXECUTIVE SUMMARY

In early 2019, Endeavor Insight partnered with Endeavor Turkey and the Istanbul Development Agency to assess the entrepreneurship ecosystem for technology companies in Istanbul. Powered by Eczacıbaşı, The purpose of the study is to provide a snapshot of the sector's current state, evaluate its strengths and weaknesses, and enable decision makers to better understand and support local tech entrepreneurship. The following findings are based on over 200 interviews with tech entrepreneurs in Istanbul, as well as interviews with over 20 investors and entrepreneurship support organization leaders.

1 The Istanbul tech sector has been growing steadily for decades, but dynamism has slowed down in recent years.

The Istanbul tech entrepreneurship community emerged from email and internet provider companies in the 1980s, and has gained worldwide recognition in the past decade as an e-commerce tech hub with a series of successful exits. Companies like Yemeksepeti, Trendyol, and Gittigidiyor have been sold to companies like Delivery Hero, Alibaba, and eBay for over USD 100 million dollars each. Today, there are over 800 tech companies operating in Istanbul.

The tech community's resilience was tested in recent years when Turkey entered a period of geopolitical instability, followed by a currency and debt crisis. Valuations dropped, as did the influx of foreign capital into tech companies in Istanbul. Companies with foreign revenue sources weathered the crisis more easily, but new entrepreneurs have not been able to scale at the same rate as their predecessors. Looking ahead, strategies that previously enabled entrepreneurs to thrive in Istanbul may not ensure future growth at the same rate.

2 Decision makers need to focus on helping a new generation of tech entrepreneurs reach scale in Istanbul.

Companies with 50 or more employees have been driving most of the economic growth in Istanbul's tech sector, but only 13 percent of these firms were founded in the past five years. This is an indication of slowing dynamism that could have long-lasting implications for the sector's growth if the city does not increase the number of new companies.

Istanbul has demonstrated strengths in certain subsectors — most of the companies at scale that were founded more recently operate in the enterprise software, e-commerce, and analytics sectors. Decision makers should look to the entrepreneurs scaling fast in these areas, as well as new domains with demonstrated scale, to identify the next pathways for Istanbul to excel.

3 Decision makers should work to address the challenges that scaling tech founders have identified.

Based on interviews with the founders of high growth companies (the fastest 20 percent of companies with over 10 employees), access to tech talent and late-stage capital are two main barriers holding entrepreneurs back.

► **Access to capital:** International investors have been approaching entrepreneurs with more caution than before. The currency crash caused revenue numbers and valuations to collapse, which left founders struggling to demonstrate the growth rates that foreign investors expect while navigating complicated relationships with investors at home. There was a sizeable decline in larger investment rounds: the number of investment rounds above USD 1 million has gone from 26 in 2017 to just 6 in the fall of 2019.

► **Access to technical talent:** Qualified tech employees are hard to find, and even harder to keep in Istanbul today. Several decades of sustained growth in the tech sector fostered a high quality talent pool, but it is fast disappearing today. Istanbul founders have to compete for tech talent with European tech hubs like Amsterdam and Berlin, where there is an established and growing Turkish diaspora.

► **Regulation:** Regulation around research and development and startup support, as well as a lack of regulation around employee stock options, have made it more difficult for companies to retain talent.

4 Decision makers in the public and the private sector who want to help more tech entrepreneurs scale need to focus on connecting established company founders with the new generation of entrepreneurs.

► **The Istanbul tech community has been able to thrive because earlier generations of founders generously reinvested their resources in the ecosystem.** Like the founders of Fairchild Semiconductor in Silicon Valley, the founders of the first great Istanbul tech companies like Mynet, Markafoni, Yemeksepeti, and

Pozitron reinvested their resources in other tech entrepreneurs. Over one third of the tech companies in Istanbul today can be traced back to one of these four companies through either investment, mentorship, former employment, or serial entrepreneurship. These high quality connections have helped scaling founders perform better.

► **A number of entrepreneur-led support organizations and investors have been instrumental in engaging accomplished founders to give back.** There are over 80 active investment firms and support organizations working to support tech entrepreneurs in Istanbul today, and collectively, they supported nearly thirty percent of the companies in the sample. Some of the most influential support organizations in Istanbul like Endeavor, Galata Business Angels, and ITU are led by scaleup entrepreneurs, and some of the most accomplished tech entrepreneurs are involved as senior executives or board members of support organizations and investment funds.

► **Network effects may slow down because fewer resources are recycled back in the community.** With every new generation of tech founders that has scaled and engaged with the network, the sector has further specialized, moving from IT, to enterprise software, to e-commerce, to payments and analytics. Each new sector has drawn on value from its precursors. In the past five years, companies have been exiting at earlier stages and for lower dollar amounts than previously. To keep the tech sector moving forward, founders need to keep scaling and injecting new values, information, and resources back into their industry.

RESEARCH QUESTIONS

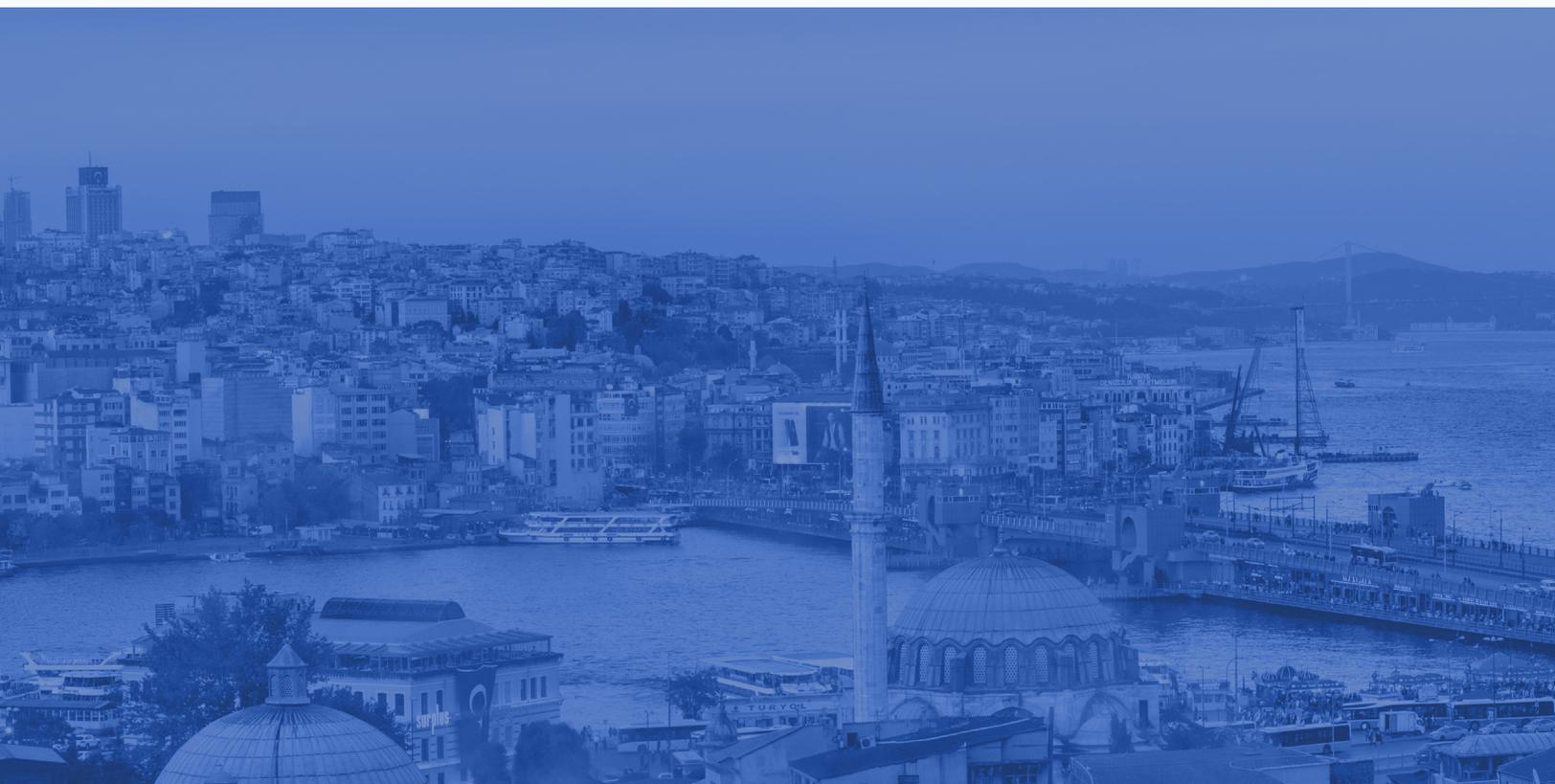
As soon as internet technology became widely available in the 1990s, Istanbul entrepreneurs recognized the potential of building the country's internet infrastructure.

The purpose of this study is to understand how technology companies in Istanbul are reaching scale, and to identify the greatest opportunities and challenges faced by these scaling companies that decision makers can help address. Over the course of this project, the research team identified over 865 tech companies in Istanbul; interviewed the founders of over 230 of these tech companies; and analyzed additional secondary data on former employment, investment rounds, and exits from publicly available data sources (i.e., LinkedIn and Crunchbase) on over 1,000 tech founders from over 865 tech companies.

Throughout this report, Istanbul refers to the greater Istanbul Metropolitan Area, also known as the administrative province of Istanbul. Technology companies were defined as for-profit companies whose primary activity can be described as either software development, internet-based or mobile-based retail services such as e-commerce, delivery platforms, content platforms, or online lenders, or as electronic hardware or manufacturing. Companies were only included in the research if they were entrepreneurial: founded by people, not corporations or government agencies.

Three principal research questions guided the research process:

1. What is the current state of the tech entrepreneur community in Istanbul?
2. What is the role of support organizations and other institutions in fostering entrepreneurship and economic growth in the sector?
3. Where do opportunities exist to accelerate the growth of this community so that it can generate more jobs and wealth for the region?



CONTEXT

On May 5, 2015, the Istanbul tech sector made headlines around the world when Yemeksepeti, a Turkish on-demand food delivery company, was sold for USD 589 million to Delivery Hero, its German competitor.

This was the largest acquisition in Turkish history at the time, and the story was covered by all major online media platforms from CNN to the Wall Street Journal.^{1 2} Founders Nevzat Aydın and Melih Ödemiş, who started the company with USD 50,000, publicly thanked employees for the company's success. In July 2015, the Independent published an article calling him the world's best boss³

By the time the story broke about Yemeksepeti, there was a vibrant tech ecosystem in Istanbul. When internet technology became widely available in the 1990s, Istanbul entrepreneurs recognized the potential in building the country's internet infrastructure, including its email, IT, and web security services. Local entrepreneurs launched companies like Mynet (an email and internet portal), Logo Yazilim (an enterprise software company), and Pronet (a security firm). When this first generation of founders sold their companies, they began

investing in the industry, inaugurating what became a culture of generosity in the sector. Over 540 entrepreneurial tech companies were founded just between 2000 and 2015, based on Endeavor Insight research.

By the mid-2000s, Istanbul gained recognition as an e-commerce hub among emerging markets, marked by a series of high-value exits. Yemeksepeti was one of seven companies acquired for over USD 100 million, accompanied by Markafoni, Gittigidiyor, Pozitron, Gram Games, Trendyol, and Iyzico. General Atlantic, Kleiner Perkins, and Tiger Global were among the major investors. The list of buyers includes companies like Alibaba and eBay.⁴

Global tech companies were keen to tap into the Turkish market, a young population of 80 million native Turkish speakers who were difficult, if not impossible, to access without the involvement of Turkish companies. Three of the largest merger and acquisition deals in Europe in 2018 came out of Istanbul.⁵

The Istanbul tech entrepreneurship community's resilience was put to the test in recent years when the city endured a period

of geopolitical instability, followed by a debt crisis and a currency crash. In the first half of 2018, the Turkish lira dropped 40 percent against the U.S. dollar, and so did the valuations of tech companies in Istanbul.⁶ Investment activity slowed down. Companies were not only worth less nominally; their revenues in Turkey were discounted by 40 percent in a near instant. In a capital raising process, a drop of this magnitude was unprecedented, and posed a major challenge. Growth rates vanished when they were measured in dollars.⁷

The current generation of growing companies was hit hardest by the new macroeconomic circumstances; large tech companies weathered the crisis more easily. Those that generated most of their sales abroad, but kept their operational costs in Turkey proved to be especially resilient. To some, the new reality had some advantages as operational costs fell together with valuations.⁸ But new entrepreneurs have not been able to scale at the same rate as their predecessors. Of the 107 tech companies with 50 or more employees in Istanbul, only 14 companies, or 13 percent, were founded in the past five years.⁹





A SMALL MINORITY OF TECH FOUNDERS CREATED MOST OF THE JOBS IN THE ISTANBUL TECH ENTREPRENEURSHIP COMMUNITY.

By 2019, there were an estimated 865 entrepreneurial tech companies founded or headquartered in Istanbul. Between them, they employed over 25,000 people on a full-time, permanent basis. The sector has made a significant contribution to employment growth in the city. Most of this contribution, however, came from companies that scaled. As the chart below indicates, over 68 percent of these jobs were created by the 107 tech companies that employed 50 people or more — which comprise only thirteen percent of local tech companies.

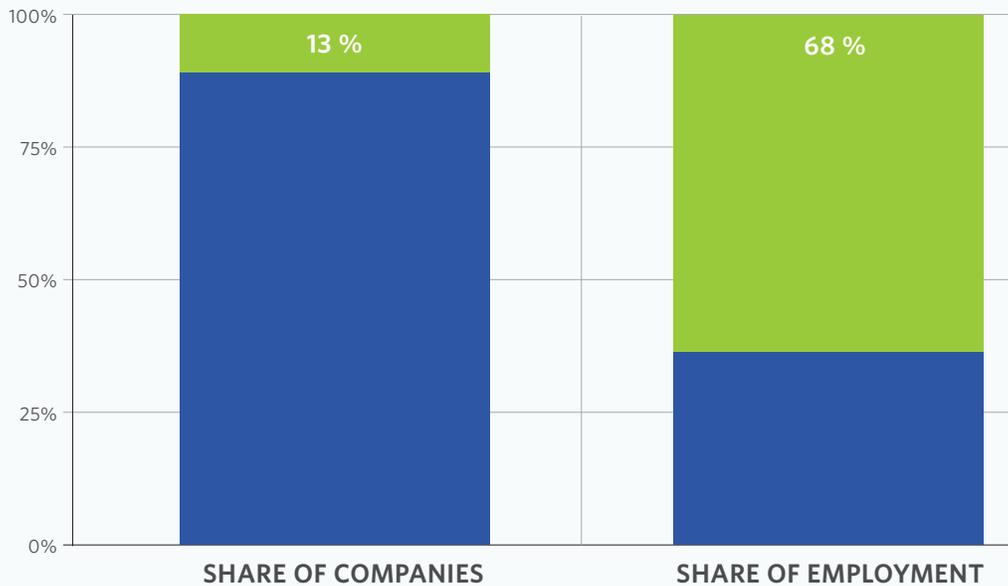
This trend is comparable to other tech ecosystems that Endeavor Insight has studied. For example, in Mexico City, 15 percent of 600 companies reached scale and generated over 80 percent of the jobs among entrepreneurial tech companies in the city. In Sao Paulo, 21 percent of 585 companies reached scale and generated over 87 percent of the jobs among local tech companies. Companies at scale tend to drive productivity in tech, and they are likely to pay higher average wages than smaller companies. They are also more resilient in times of crisis.

By 2019, there were an estimated 865 entrepreneurial tech companies founded or headquartered in Istanbul. Between them, they employed over 25,000 people.

EMPLOYMENT CONTRIBUTION BY COMPANY SIZE

Sample size: 865 entrepreneurial tech companies founded or headquartered in Istanbul.

- COMPANIES WITH 50 EMPLOYEES OR MORE
- COMPANIES WITH 1-49 EMPLOYEES



13 percent of local tech firms with 50 employees or more contributed 68 percent of the jobs in the sector.

Source: Endeavor Insight analysis.

Enterprise software, e-commerce, payments and analytics grew more dynamically. These domains produced more companies at scale than other industries.

A number of sub-sectors emerged as competitive strengths and produced more companies at scale than others. 13 percent of entrepreneurial tech companies reached scale in Istanbul, but some sub-sectors emerged as important competitive strengths. As entrepreneurs gained expertise in one domain, adjacent domains began to develop.

Enterprise software, e-commerce, payments and analytics grew most dynamically and produced more firms that scaled than other sub-sectors. As the table across the page demonstrates, these domains produced more companies at scale than other industries; between 15 to 18 percent of these companies reached scale. Some other sectors underperformed — of an estimated 50 gaming and mobile app companies, only 8 percent were able to reach scale.

Newer companies have been struggling to reach scale at the same rate as their predecessors, and only one percent of companies have been able to reach scale in the past five years. Scaling a company today looks different than it did before the crisis, and it takes new types of resources. Scaling an analytics company today also looks different from scaling an e-commerce company 20 years ago.

The next generation of founders at scale will come from founders rapidly growing their companies today. For the tech sector to thrive in Istanbul, new founders need to achieve scale in greater numbers than they are today. The next generation of founders are most likely to come from the companies that are scaling the fastest today. In order to identify these founders, Endeavor Insight analyzed a subset of high-growth tech companies in Istanbul, defined by their placement in the top 20 percent of all tech companies in the study based on their annualized employee growth rate.

High-growth companies differ from lower-performing companies in their industry representation and founder work history. Often, they operate in industries where Istanbul has demonstrated historical strengths, like payments and analytics as well as e-commerce. These companies were 60 percent more likely to be analytics, and 25 percent more likely to be e-commerce, than lower-performing companies.

The founders of high-growth companies also had distinct careers prior to starting their company. These founders were twice as likely to have over 10 years of total work experience among their co-founding team, and 60 percent more likely to have worked at a local entrepreneurial company that scaled.

To emerge from a challenging macroeconomic environment, new tech firms need to scale. In a new economic environment, the tech community needs to be more self-reliant and more founders need to be able to leverage local resources to generate revenues abroad.

Istanbul has a number of resources available to entrepreneurs, such as comparatively low operational costs, great quality of life, and a cosmopolitan city closely connected to the rest of the world. Compared to European cities, tech talent in Istanbul is inexpensive while still highly qualified. The city is famous for its high standards of living and it headquarters Turkish Airlines the world's most connected airline in 2019 by number of destinations.

One of the greatest strengths of the city are the entrepreneurs commitment to their community. Over 70 percent of interviewed founders were planning to stay in the city either long term or indefinitely. High net worth individuals, who control 51 percent of private wealth in Turkey, could also be a great asset to the ecosystem as investors, but are not as connected as they could be.¹¹

The next section offers guidance to decision makers who wish to support tech entrepreneurship in Istanbul. They need to identify the entrepreneurs with the highest potential to scale and help them address the challenges that they are facing. Entrepreneurs who are successful in building companies that scale in the current environment are going to be leaders of Istanbul's next era of tech growth and excellence.

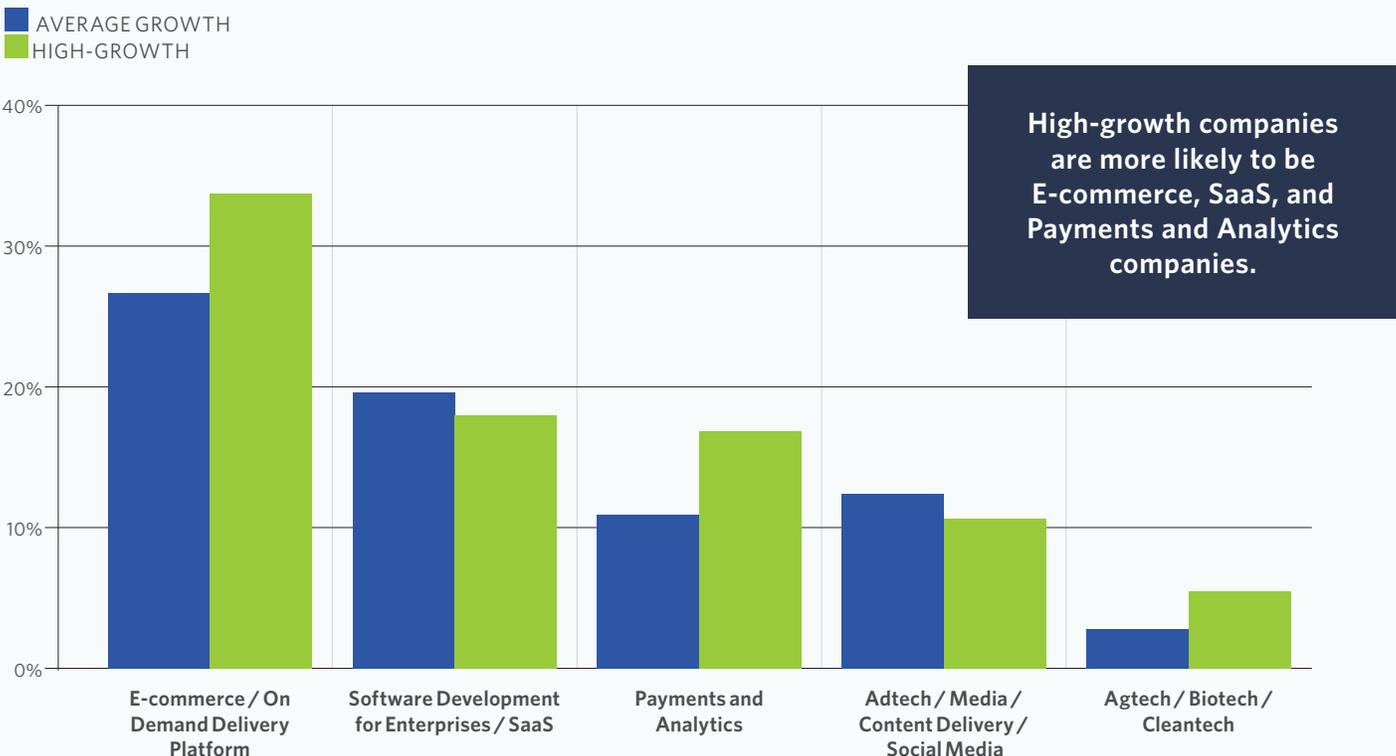
MAJOR SUB-SECTORS IN THE TECHNOLOGY SECTOR

Estimated start of sub-sector, number of total firms, total jobs, percentage of 50+ firms, and notable exits.

	ENTERPRISE SOFTWARE	E-COMMERCE AND DELIVERY	PAYMENTS AND ANALYTICS	MOBILE DEVELOPMENT AND GAMING
Estimated Start	1980s	1990s	Early 2000s	2010s
# of Companies	-140	-200	-80	-50
# of Jobs	-5,400	-9,000	-2,000	-1000
Percentage with 50+ Employees	18%	16%	15%	8%
Notable Exits	Pozitron, (Monitise, 100M) Logo Yazilim (Mediterra, 27M)	Trendyol (Alibaba, 728M) Yemeksepeti (Delivery Hero, 589M) Gittigidiyor (Ebay, 183M) Markafoni (Naspers, 146M)	iyzico (PayU, 165M) Foriba (Sovos, 50M)	PeakGames (Zynga, 100M for a single game) GramGames (Zynga, 250M) Masomo (Miniclip, 100M)

INDUSTRY REPRESENTATION OF HIGH GROWTH COMPANIES

Percentage of high-growth and regular companies by industry.



Note: Industry representation of high-growth companies compared to others. Sample size: 865 total companies, 90 of them high-growth companies. Source: Endeavor Insight Analysis.



ACCESS TO CAPITAL, ACCESS TO TECH TALENT, AND GOVERNMENT REGULATION ARE THE GREATEST CHALLENGES FOR SCALING FOUNDERS IN ISTANBUL.

Endeavor Insight conducted interviews with over 230 founders, including 39 founders of high-growth companies in Istanbul and leaders of the support organizations. Istanbul tech entrepreneurs identified three major challenges that are preventing them from scaling their companies: access to capital, access to tech talent, and issues related to regulation.

CHALLENGE 1

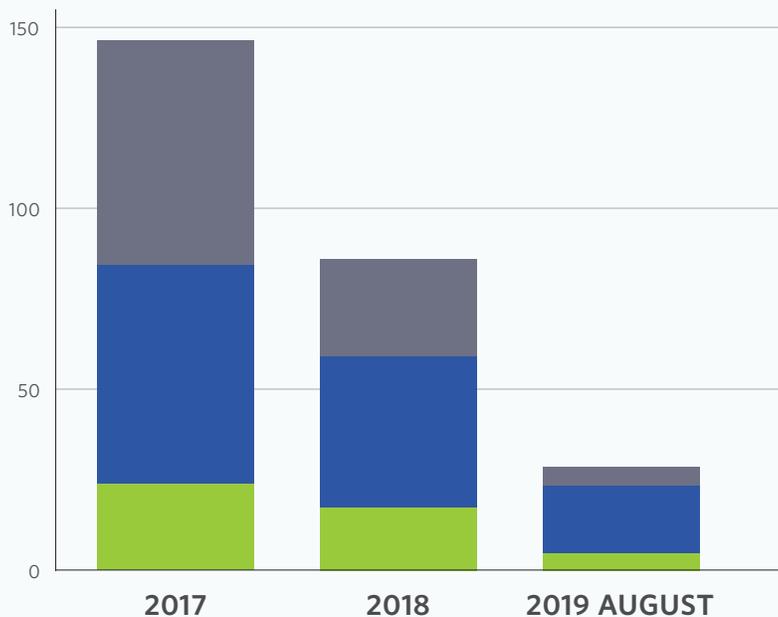
ACCESS TO CAPITAL

The past several years of economic volatility and political risk have had a significant impact on investment activity. Following several years of uneven growth, the greatest drop in investment activity over the past decade occurred in recent years. In a dataset of over 900 investment rounds in the industry between 2008 and 2019, 134 investment rounds occurred in 2017; 87 in 2018; and only 29 by August 2019 when this report was written. Between 2017 and 2018, the

number of investments in the industry dropped by an astounding 65 percent.

Larger investment rounds, which usually draw foreign investments, suffered the greatest loss. Sixty-three percent of investment rounds above USD 1 million involved the participation of a foreign fund, and nearly all — 95 percent — of investment rounds above USD 5 million involved the participation of a foreign fund. While the year 2017 saw the closure of 26

investment rounds in Istanbul, this dropped to a mere 18 by 2018, and to 6 by August 2019 when data collection closed for this report. Interviewees confirmed that after the valuation and sales of local companies collapsed, international investors have had a reduced appetite for making investments in Turkey. Valuations of Turkish companies collapsed — alongside the Turkish lira — and so did domestic sales at Turkish companies.



INVESTMENT ROUND SIZES IN ISTANBUL TECH COMPANIES IN US DOLLARS

Sample size: 250 investment rounds that took place between 2017 and August 2019, when data collection was closed for this study.

- UP TO 100,000
- 1,000,000
- ABOVE 1,000,000

Source: Endeavor Insight Analysis.

CHALLENGE 2

ACCESS TO TECH TALENT

As tech entrepreneurs call it, Istanbul is a developers' market: tech employees are hard to find and even harder to keep. Over decades of growth, the Istanbul tech community has fostered a quality talent pool, but entrepreneurs are now faced with a great challenge as coders leave en masse to pursue opportunities abroad. Over 40 percent of founders classified access to qualified coders and engineers as a challenge, and founders of high-growth companies were the most likely to bring up this issue.

Tech employees with a few years of experience are frequently approached by tech companies in Amsterdam and Berlin, where many of the regional headquarters of the largest tech companies are located. For instance, the headquarters of Tesla, Netflix, Uber, and Booking are all based in Amsterdam, as well as the European branches of Y-Combinator and Techstars. There is also an existing diaspora of nearly 6 million Turkish citizens in Western European countries, making Turkish migration to these countries significantly easier.¹²

Scaling companies in Istanbul go to great lengths to create appealing work environments to retain employees. Offices are often based in Istanbul neighborhoods like Beyoğlu or Galata, equipped with an espresso bar and a barista. In one case, a company hired a dietitian and a dentist to attract the best coders. Another tech founder was piloting a program to establish an Amsterdam campus for his company, arguing that it would be less expensive than losing his best talent and institutional knowledge.

CHALLENGE 3

REGULATION

Government regulation, or the lack thereof, has also impacted the potential to create compelling work environments and retain employees. Employee stock options, a powerful retention tool for tech companies that scale, are generally unknown and unregulated by law. Employment stock options are a type of equity compensation granted by companies to their employees, widely used in the U.S. and many other vibrant startup hubs. This is a significant challenge in an environment where companies are racing against brain drain, or even seeking to lure members of the diaspora to work for them.

National regulation ties startup support to policies that encourage R&D activity in the country. This has resulted in startup support initiatives that are overly prescriptive for entrepreneurial companies, including policies that require companies to move their headquarters to technoparks in the outskirts of Istanbul to qualify for tax benefits. As most top-performing founders noted, technoparks are much less attractive environments for coders than the alternative of an office in downtown Istanbul.





NETWORK EFFECTS HAVE PLAYED AN IMPORTANT ROLE IN SHAPING THE ISTANBUL ENTREPRENEURSHIP COMMUNITY.

Networks are important vehicles to transmit resources and information in a community, and they can be powerfully leveraged to address the challenges of scaling tech companies in Istanbul.

Network analysis helps trace the flow of people, capital, and information between entrepreneurs, their co-founders, employees, mentors, investors, and other stakeholders. To get a snapshot of Istanbul's tech entrepreneurship network, Endeavor Insight interviewed 230 founders and analyzed the connections among them using a methodology that was developed by members of the Global Entrepreneurship Research Network.

The methodology looks at four types of relationships among founders and companies that illustrate the ways in which local founders take knowledge and other resources acquired from founding one firm and use it to help launch or grow another. These are:

1. **Serial entrepreneurship;**
2. **Former employment;**
3. **Mentorship; and**
4. **Investment.**

Three important lessons emerged.

LESSON 1

THE ISTANBUL TECH COMMUNITY HAS THRIVED BECAUSE EARLIER GENERATIONS OF FOUNDERS REINVESTED THEIR RESOURCES IN THE ENTREPRENEURSHIP COMMUNITY.

The Istanbul tech community is highly interconnected. Of an estimated 865 entrepreneurial tech companies in the sector, 186 were connected to at least one other company through serial entrepreneurship, former employment, mentorship, and/or angel investment. There is also strong peer-to-peer connectivity: 74 percent of founders believe they could get the phone number of any founder in the city they wanted to meet the same day.

Tech entrepreneurs in Istanbul seem to appreciate the importance of building the right connections. In a sample of 163 tech entrepreneurs who answered this question, over 90 percent believed that knowing the right people was either very important, or essential to getting ahead as an entrepreneur in Istanbul.

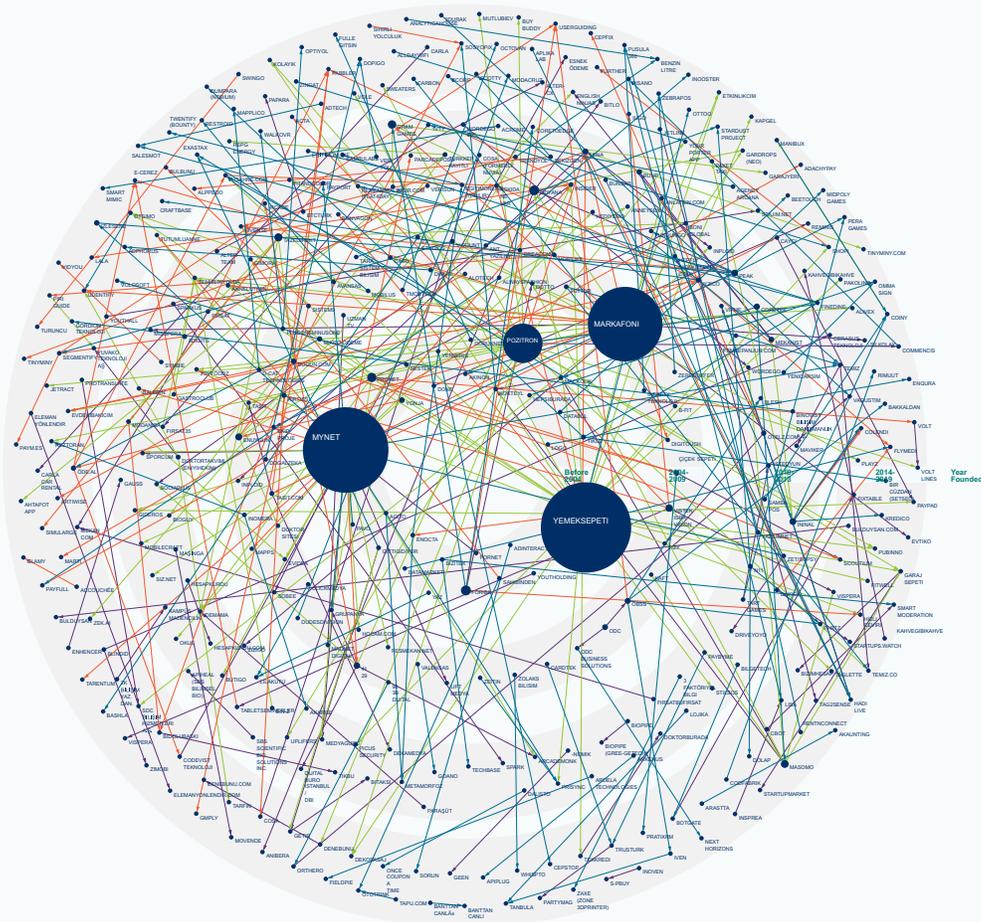
More importantly, the network is dominated by high-quality connections. Over half of the local tech companies that were able to reach scale were connected to at least one other company through serial entrepreneurship, former employment, mentorship, or angel investment, as the map on the opposite page illustrates.

Previous research by Endeavor Insight has shown that when entrepreneurs at scale are more connected to other founders, entrepreneurship communities are more productive. (Endeavor Insight, 2018) In Istanbul, the four most influential companies in the network are:

1. **Mynet**, an email provider and social media company with over 250 employees. Founded in 1999, and still owned by the founder, Emre Kurttepelı, Mynet is one of Istanbul's earliest success stories.
2. **Yemeksepeti**, a marketplace company with almost 400 employees, which was acquired for more than USD 589 million by Delivery Hero;
3. **Markafoni**, an e-commerce company with over 500 employees, acquired for USD 146 million by Naspers.
4. **Pozitron**, an enterprise software company founded by Firat İşbecer and Fatih İşbecer with more than 100 employees, acquired for USD 100 million by Monitise.

Over half of the 186 entrepreneurial tech companies in the network were directly related to one of these four companies.

The network map on the top of the opposite page represent the connections between tech founders in Istanbul. The map on the bottom of the page highlights the companies at significant scale. Significant scale is defined by having 100 or more full-time, permanent employees, or an exit over USD 5 million. These are highlighted in yellow.



Tech founders that scaled are strongly embedded in the entrepreneurship community in Istanbul.

YEAR FOUNDED:

- BEFORE 2004
- 2004–2009
- 2010–2013
- 2014–2019

ACTORS:

- ENTREPRENEURIAL COMPANIES

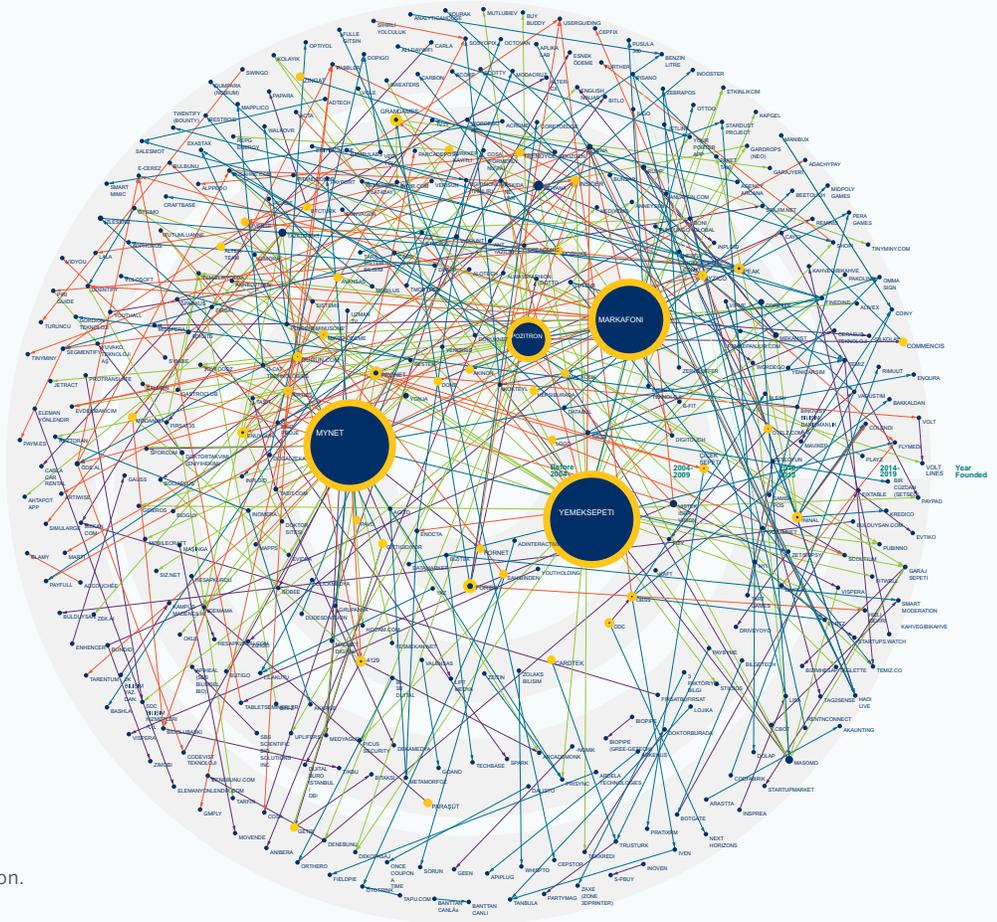
The size of the circle reflects the number of connections originating from the founders of each company or the leaders of each organization. Founders are represented by their most prominent company or organization.

CONNECTIONS:

- Serial entrepreneurship
- Former employment
- Mentorship
- Angel investment

HIGHLIGHTS:

- Companies with 100 or more employees and companies that were acquired for over USD 5 million.



Support from experienced entrepreneurs measurably helped tech entrepreneurs scale in Istanbul.

The tech community was able to thrive because tech entrepreneurs remained strongly connected to the community. They reinvested their resources and knowledge through mentorship and angel investment.

Support from experienced entrepreneurs measurably helped tech entrepreneurs scale in Istanbul. The fact that accomplished entrepreneurs are the most influential in the tech community in Istanbul explains why the community was able to produce over a 100 companies at scale and a number of exits over USD 100 million.

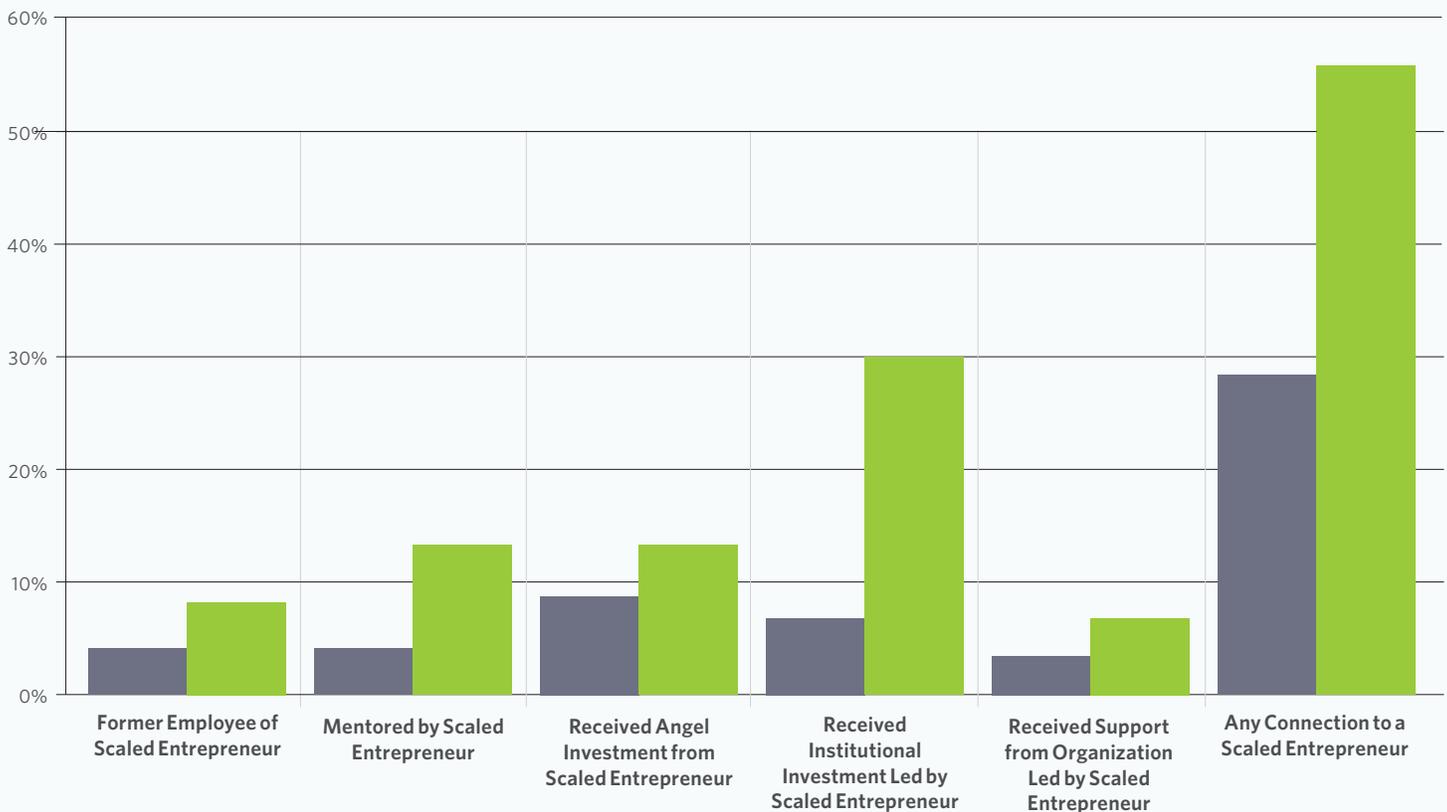
Previous research suggests that connections to entrepreneurs who have experience in building a company that employ a 100 people or more can demonstrably improve a company's chances to be one of the fastest growing companies by number of employees. The network map of Istanbul's tech community reflects this same story.

The chart below demonstrates this relationship between connections to experienced entrepreneurs and the likelihood of building one of the fastest growing companies among companies of the same age.

CONNECTIONS TO SCALED ENTREPRENEURS VS. COMPANY PERFORMANCE

Sample size: 865 entrepreneurial tech companies in Istanbul.

■ NON-TOP PERFORMER
■ TOP PERFORMER*



Source: Endeavor Insight Analysis.

* Top performing companies were defined by their placement in the top 20 percent of the sample by their employee CAGR.

In Istanbul, companies that received support from entrepreneurs with a 100 or more employees were almost twice as likely to become high-growth companies. Companies founded by former employees of companies at significant scale were nearly twice as likely to reach high growth; companies that received mentorship from a founder at significant scale were over three times as likely to be top performers.

The network between tech entrepreneurs is also founded on a strong foundation of trust between entrepreneurs.

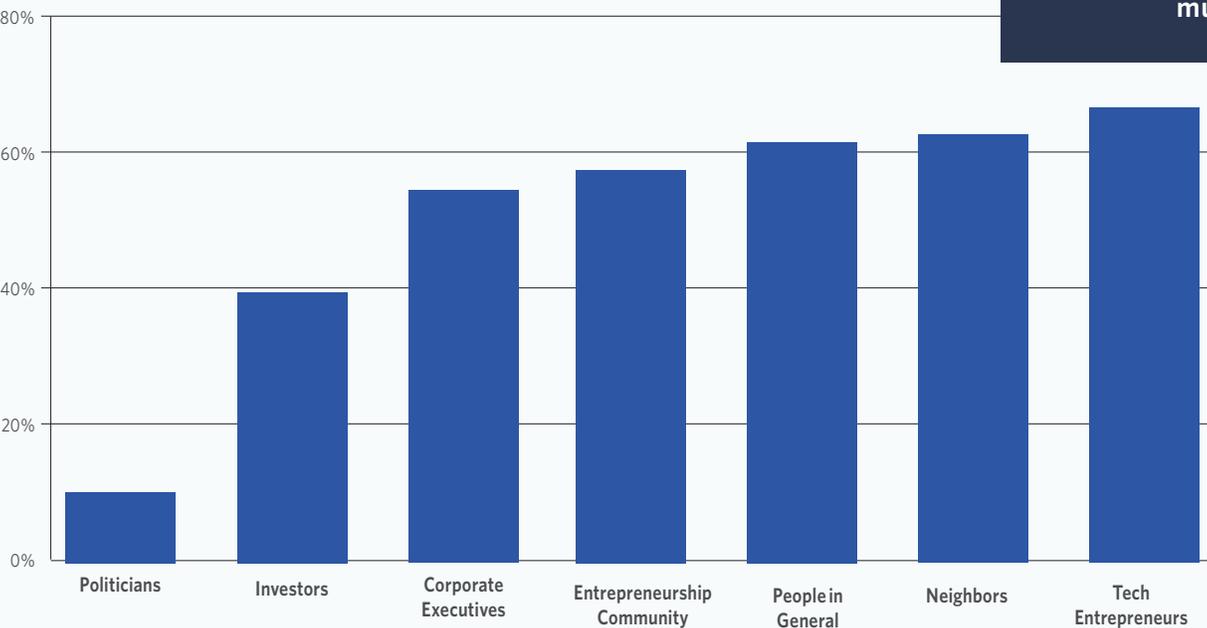
Endeavor Insight adapted a question from the World Values Survey to ask how much respondents trusted each of the following groups: people in general, neighbors, corporate executives, investors, other tech entrepreneurs, other members of the tech entrepreneurship community, and politicians.

Other tech entrepreneurs were by far the highest trusted group; more than two-thirds of respondents said that they trusted them somewhat or completely. In comparison, only 36 percent of entrepreneurs trusted other entrepreneurs at the same levels in Mexico City, a tech ecosystem of similar age and size.

The network between tech entrepreneurs is based on a strong foundation of trust between entrepreneurs.

THE TRUST LEVELS OF INTERVIEWED TECH FOUNDERS IN ISTANBUL

Sample size: 173 unique responses.



Over 60 percent of founders reported that they trusted other tech entrepreneurs either somewhat, or very much.

Founders who scaled reinvested the resources they acquired founding one company to support the new generation.

Renewal in the network has been driving innovation in the Istanbul tech sector. With every new generation of tech founders in Istanbul, the sector further specialized, moving from IT, to enterprise software, to e-commerce, to payments and analytics. Each sector has added value to the previous one. Founders who built successful companies reinvested their resources towards supporting the new generation. Whenever a new generation reached scale, the community received fresh inputs of information on what makes growth possible in Istanbul.

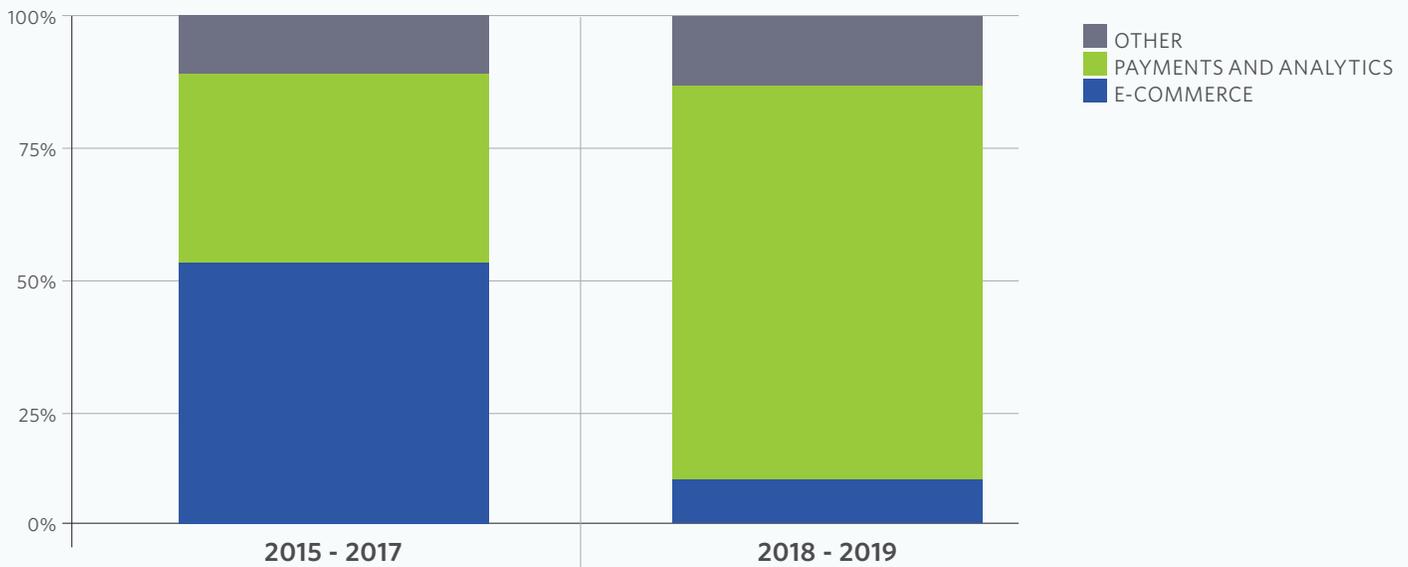
Nevzat Aydın, Fırat İşbecer, and Emre Kurttepelı made over 85 direct investments in Istanbul tech companies, directly influencing over 10 percent of the entrepreneurial companies in the industry between the three of them.

An analysis of recent acquisitions over USD 1 million over two- to three-year periods demonstrates the shift from e-commerce to payments and analytics in the past five years. In the three years between 2015 and 2017, the majority of companies acquired for more than USD 1 million were e-commerce companies, like Gittigidiyor, Markafoni, and Yemeksepeti. A smaller number came from the subsector of payments and analytics.

In the past two years, seven out of the nine acquisitions over USD 1 million were in payments and analytics companies like lyzico, Foriba, and Paraşüt. Only one was in e-commerce.

RECENT EXITS OVER USD 1 MILLION IN ISTANBUL TECH

Sample size: 19 exits over USD 1 million between 2015 and 2019.



LESSON 2

ENTREPRENEUR-LED SUPPORT ORGANIZATIONS AND INVESTORS HAVE BEEN INSTRUMENTAL IN FOSTERING NETWORK EFFECTS.

When tech entrepreneurs are more involved in leading investment firms and support organizations, entrepreneurship communities are more productive, and they create more jobs and wealth.¹³ Istanbul is a textbook example of this relationship: entrepreneur-led investment firms and support organizations have been influential in making Istanbul's tech community thrive. The next section covers the role of these organizations in more detail.

In Istanbul, the top investment firms and support organizations are all led by entrepreneurs or former senior executives of entrepreneurial companies. Most of these organizations have at least one executive or board member with experience at a company that reached a 100 employees or more.

Conversely, the majority of the most accomplished tech entrepreneurs are involved in the leadership of the most active investment firms and support organizations. The founders of Airties, Mynet, Pozitron, Pronet, and Yemeksepeti are all involved as board members and leaders in at least one entrepreneurship support organization, and many of the founders of the more recently exited companies are active angel investors through Galata Business Angels or other angel groups.

LESSON 3

NETWORK DYNAMISM IS SLOWING DOWN BECAUSE FEWER RESOURCES ARE INVESTED BACK IN THE COMMUNITY.

There are a number of reasons to think that the network effects that helped the Istanbul tech community succeed have slowed down in recent years. In the past five years, founders have been selling companies earlier and for lower dollar amounts than they did in the five years prior. They are less experienced when they sell, and they receive less capital to inject back into the community. Based on a dataset of 63 exits, between the five year periods of 2008-2013 and 2014-2018, the median price of acquired companies and the median number of their employees dropped by about half.

Tech companies are selling earlier because they are being bought by foreign competitors. While investors were deterred by the valuation drops, foreign tech companies saw this as an opportunity. Buying access to the Turkish market remains an appealing opportunity for any global tech company. At the same time, as circumstances became more difficult, founders were more willing to cash out, rather than struggle to scale their companies in a difficult investment climate.

The talent pool is also thinning. Former employees of scaled companies are particularly well-positioned to become top-performing founders, but they are more likely than ever to leave the country instead of starting their own company. They are currently undervalued compared to European salary levels, and so many of them decide to pursue opportunities abroad.

PUBLICALLY SPONSORED INITIATIVES LAID THE GROUNDWORK FOR A DIVERSE, LOCALLY DRIVEN, AND DYNAMICALLY EXPANDING ENTREPRENEURSHIP ECOSYSTEM IN ISTANBUL TODAY.

THE SUPPORT SYSTEM FOR ENTREPRENEURSHIP IN ISTANBUL RAPIDLY EVOLVING.

Investment firms and entrepreneurship support organizations like accelerators and incubators play an important role in the Istanbul entrepreneurship community. Endeavor Insight identified over 80 active investors, accelerators and other support organizations in Istanbul.

The support system for tech entrepreneurs in Istanbul has evolved rapidly over the past decade. In 2010, less than 5 support organizations were active in the city, but by 2019, there were over 80 incubators, accelerators, and institutional investors working to support local tech founders.

This abundant support activity is a relatively recent trend in Istanbul, especially compared to the maturity of the tech entrepreneurship ecosystem, which has seen entrepreneurs scale and reach success in the city since the 1980s. Over 90 percent of the support organizations were founded in the past decade. Today, there is an incubator or accelerator for every 12 local Istanbul tech firms.

TODAY, UNIVERSITIES AND NGOS DRIVE BUSINESS INCUBATION EFFORTS, WHILE ACCELERATOR PROGRAMS ARE MORE EVENLY SPLIT BETWEEN PRIVATE INITIATIVES, NGOS, CORPORATES, AND THE GOVERNMENT.

Today, according to data gathered from Startups.watch the entirety of the support ecosystem for startups in Istanbul comprises of 58 local Incubation and accelerator programs. The general allotment amongst these support program owners are universities and NGOs at 50 percent, privately held institutions at 22 percent, corporate companies at 21 percent and finally the government at 7 percent.¹³

Among the 30 accelerator programs, about 30 percent are privately held programs, 33 percent are corporate programs, 33 percent are university and NGO programs, and 3 percent are government programs; revealing a balanced distribution of responsibilities among actors. On the other hand, there is an uneven ownership among incubation programs where university and NGO-run programs take the lead with 68 percent, followed by privately held institutions at 14 percent, the government at 11 percent and finally by corporate companies at 7 percent.

Corporations have increased their entrepreneurship support dramatically in the last few years, making them one of the active players in entrepreneurship support. Banks have become the prominent actors running the majority (80 percent) of corporate accelerator programs.

GOVERNMENT AND UNIVERSITY PROGRAMS WERE THE FIRST TO SUPPORT TECH ENTREPRENEURSHIP IN ISTANBUL.

The first movers in entrepreneurship support were government institutions like TÜBİTAK and Kosgeb, followed by university programs like the programs of Yıldız Technical University, Sabancı University, Istanbul Technical University and Koç University. The past decade has seen an expansion of corporate support programs (such as Fincube, Garanti Partners, and Albaraka Garaj), and independent programs (such as Etohum, 500 Startups, SDG Impact Accelerator, taking over a lot of the support tasks that government and university programs kickstarted in the early 2010s. Investment firms have differed in their source from accelerators and incubators: it is not typical for university programs to invest in local entrepreneurs; instead, independent investment firms tend to dominate that field. Corporate programs tend to be more active in entrepreneurship support than in investment.

ENTREPRENEURSHIP SUPPORT IS OVERWHELMINGLY LOCALLY DRIVEN IN ISTANBUL.

Support organizations are not only numerous in Istanbul today but also very active: over 165 of the estimated 800 local tech firms in the sample have passed through an incubator or accelerator program at some point -- or over one in five local tech firms.

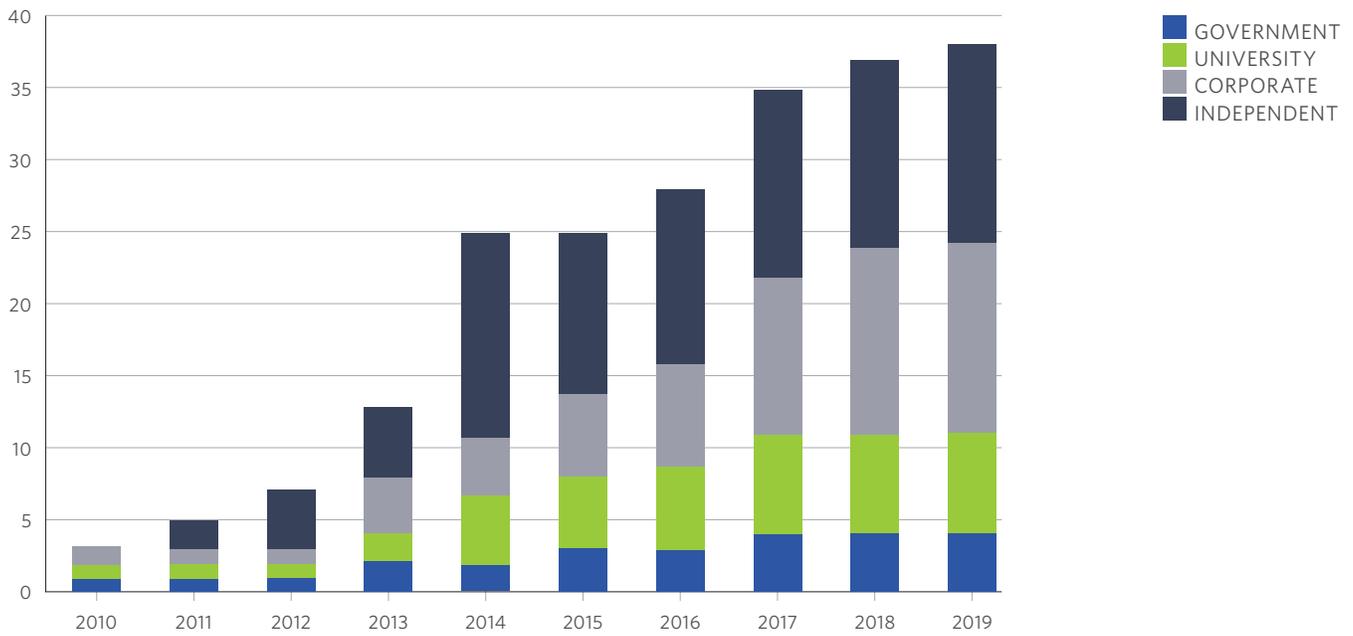
Most of the support activity appears to be locally driven. 126 of the 165 firms that participated in incubation or acceleration programs went through programs that were locally founded. The most active support organizations were all local organizations: Endeavor, Istanbul Technical University. The most active investors were also local: 212, Revo Capital, Galata Business Angels, and Aslanoba Capital.

HIGH-GROWTH COMPANIES ARE PASSING THROUGH AT LOCAL SUPPORT PROGRAMS AT SIMILAR RATES TO OTHER COMPANIES.

About 16 percent of the local tech firms in the study participated in a local incubation or acceleration program. To gauge the economic performance of these programs, Endeavor Insight assessed the percentage of top performing companies who passed through them, and compared it to the percentage of other companies that passed through. 19 percent of top performing firms passed through local organizations at some point, compared to a little less than 16 percent of all other firms — an insignificant difference.

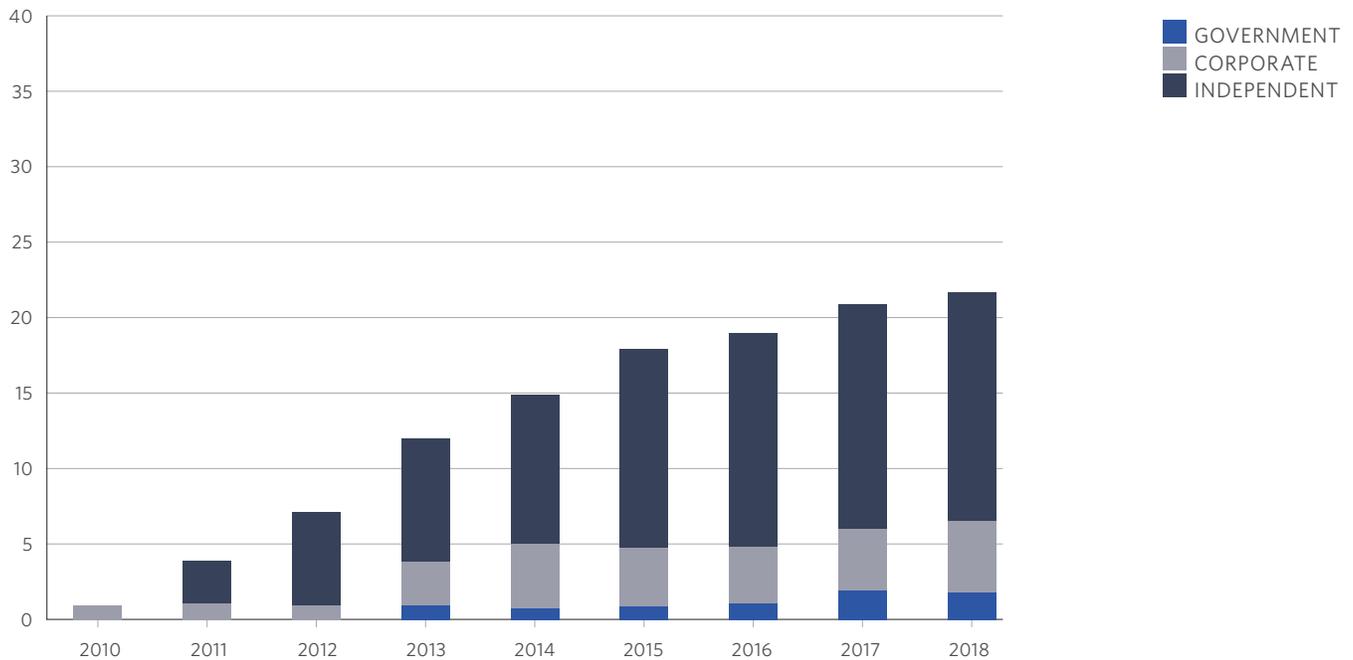
SUPPORT ACTIVITY IN THE ISTANBUL TECH SECTOR, 2010 - 2019

Government and university programs were the first movers of entrepreneurship support.



INVESTMENT ACTIVITY IN THE ISTANBUL TECH SECTOR, 2010 - 2019

Corporate programs are more active in entrepreneurship support than in investment.



Today, there is an incubator or accelerator for every 12 local Istanbul tech firms.

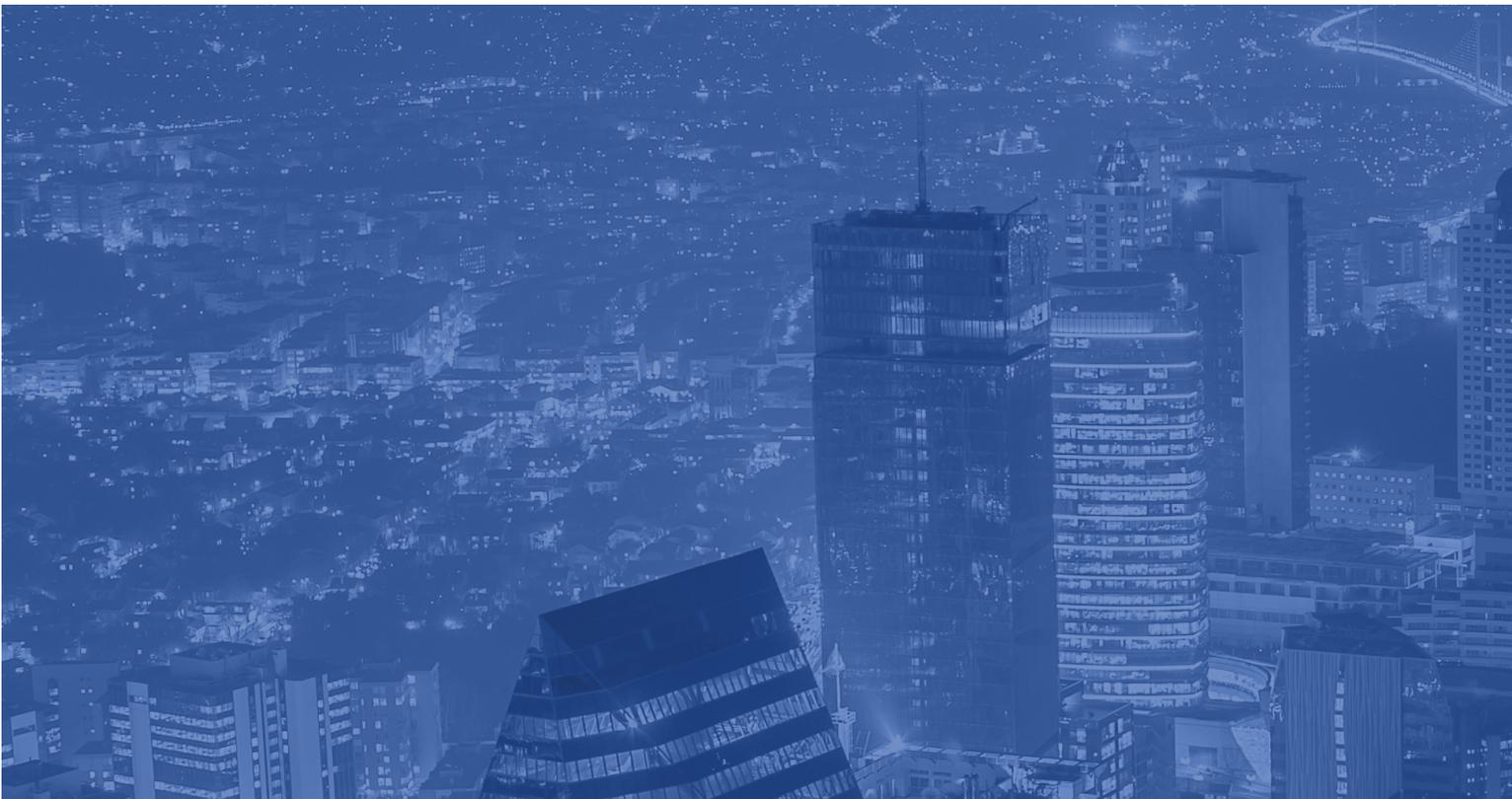
SUPPORT ORGANIZATIONS CAN INCREASE THEIR ECONOMIC IMPACT BY INVOLVING ACCOMPLISHED ENTREPRENEURS IN THEIR LEADERSHIP AND THEIR BOARD.

There is a strong and dynamically evolving support system in Istanbul. There are also opportunities to enhance the performance of local organizations, and increase the percentage of alumni who go on to become top performing employers in the sector.

Istanbul's support system for tech entrepreneurs is relatively young, and it has shown great potential based on the dominance of locally founded and headquartered support organizations and investment firms in the city.

Because most of the technology companies in Istanbul are early stage (the median age of tech companies is 4.5 years), the majority companies supported by accelerators and incubators is also young. As organizations keep growing, they will keep gaining expertise.

As the section on page 14 illustrates, support and investment connections to experienced scaleup entrepreneurs can significantly increase a company's chances to be a fast-growing company. Support organizations can further improve their performance by involving accomplished tech entrepreneurs in their leadership or their board.



THERE ARE FURTHER OPPORTUNITIES TO INCREASE THE IMPACT OF LOCAL SUPPORT ORGANIZATIONS BASED ON ENDEAVOR INSIGHT RESEARCH IN OTHER GEOGRAPHIES.

Government-funded entrepreneurship support should adapt to the needs of the ecosystem as they evolve and provide services tailored to entrepreneurs in specific sectors and stages. Research that Endeavor Insight has conducted with entrepreneurship policymakers around the world also suggests that support services tailored to entrepreneur needs in specific sectors and stages are associated with measurable improvements in their economic footprint.

The government is often a first mover in providing entrepreneurship support, but with time, as other actors appear in an ecosystem, government-funded entrepreneur programs perform best when they adapt to the needs in the ecosystem and fill the gaps that private sector actors are unable to fill.

Entrepreneurship programs should address the needs of scaling entrepreneurs, including services to help with talent recruitment, retention, and development. As it is discussed in earlier sections of the report, access to talent is a major challenge for tech founders in Istanbul. Research from other geographies demonstrates that support programs can better help entrepreneurs scale if they move beyond providing access to financing and assist entrepreneurs with recruitment (for example through targeted job fairs), and talent development (for example, offering government-sponsored online courses, such as the governments of Sweden or Colombia).

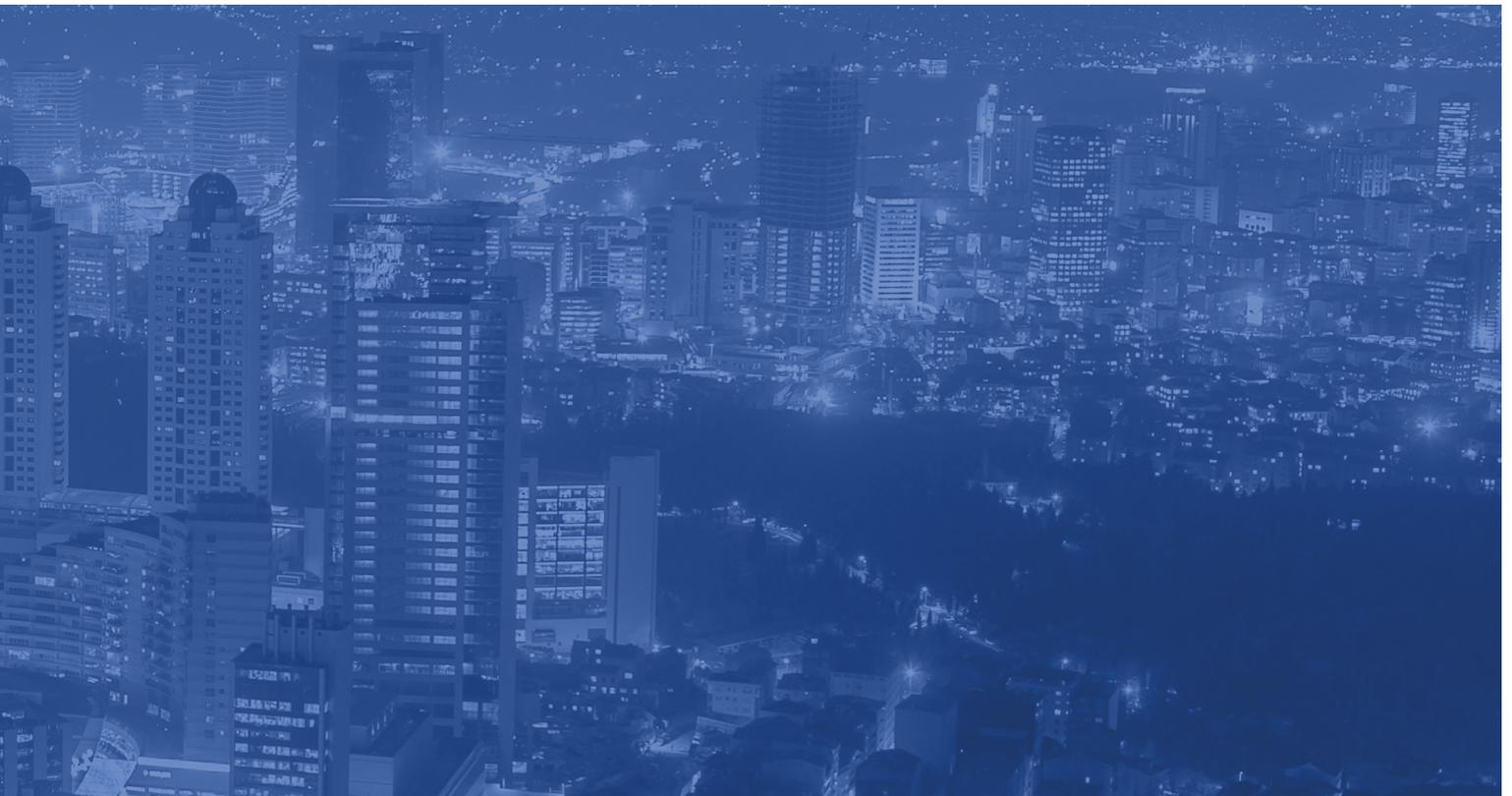
Local support organizations should cooperate with experts in selecting entrepreneurs for their pipeline. TÜBİTAK BIGG's new practice in cooperating with universities in their entrepreneur selection and mentoring suggests that support organizations can better maximize their impact if they cooperate with other organizations with demonstrated expertise in vetting entrepreneurs.

Local support organizations can also maximize their economic impact by showcasing successful entrepreneurs who have attended their programs, thereby signalling to other founders with ambitions to scale that their support services are equipped to assist them with their challenges, and they are not limited to early stage companies.

A NUMBER OF CURRENT TRENDS MAY HAVE IMPLICATIONS FOR THE FUTURE OF THE TECH ECOSYSTEM IN ISTANBUL.

The following trends may shape the challenges of scaling entrepreneurs and the availability of resources, and as a result, inform the actions of support organizations in Istanbul in the future.

1. The emergence of a new generation of entrepreneurs in new domains;
2. Continuing trends in talent migration;
3. A newly emerging corporate VC environment;
4. New resource injections from current exits, especially if coupled with new giveback policies.



RECOMMENDATIONS

1. FOCUS SUPPORT ON FOUNDERS WITH TOP-PERFORMER CHARACTERISTICS.

The tech sector in Istanbul has been able to grow and thrive because of a small percentage of founders who scaled and reinvested their resources in the community. The next generation of these founders is going to emerge from the tech companies that are growing fast today.

Decision makers in the public sector and private sector will maximize their impact by designing support programs to select and support entrepreneurs with these characteristics.

Top-performing companies are distinctive from lower-performing companies in their industry representation and founder's work history. These companies were more likely than other founders to start companies in e-commerce and payments or analytics. Founders were twice as likely to have worked for a tech company that reached significant scale. They were also twice as likely to have 10 or more years of collective experience on the co-founding team. In addition, they twice as likely to have connections to experienced entrepreneurs who have built companies with 100 or more full-time employees or sold their companies for over 5 million dollars.

2. ENCOURAGE THE LATEST GENERATION OF ACCOMPLISHED ENTREPRENEURS TO GIVE BACK.

One of the keys to Istanbul's magnificent growth over the past decades has been the fact that early generations of founders who scaled were engaged in supporting scaling entrepreneurs. Fewer companies are now achieving scale, companies are acquired earlier and for lower amounts, and employees are leaving en masse to seek opportunities elsewhere.

In this tough environment, support organizations will need to engage an even higher percentage of new companies at scale to reinvest their resources in the next generation. This will help maintain the levels of network activity that allowed the community to thrive in the past. Support organizations should continue to involve entrepreneurs in their leadership, measure their impact, and listen to the challenges that top performing entrepreneurs are voicing as they are working to scale their companies.

3. INCREASE DOMESTIC INVESTOR ACTIVITY.

Turkey's political struggles coupled with the currency and debt crisis had significant negative impact on founders' ability to raise capital outside of Turkey, but Turkey has significant resources at home and for the first time, a large diaspora.

Decision makers in the public and private sectors who wish to support tech entrepreneurs in Istanbul should work to leverage private wealth in Istanbul. They should also work to engage the Turkish diaspora living near other developed tech communities like London, Amsterdam, and New York.

4. WORK WITH GOVERNMENT REGULATORS TO FACILITATE EMPLOYEE RETENTION.

Regulation was one of the highest rated challenges among entrepreneurs in this study. Over 50 percent of all interviewed considered it either a severe or very severe obstacle. In particular, regulation related to employee retention was frequently mentioned by entrepreneurs.

Employees are Istanbul's competitive advantage, but tech employees are in short and decreasing supply in the city. Top-performing entrepreneurs are able to keep employees and attract members of the diaspora back by sharing their profits with them, by investing in employee culture, and by creating appealing work environments.

Keeping and developing talent in Istanbul and bringing talent back is a collective priority for the tech community. Previous Endeavor Insight research has demonstrated that comprehensive regulation around employee stock options and fiscal incentives for returning employees are powerful tools for employee recruitment and retention.

Decision makers in the public and private sectors should work to pass policies that would create a comprehensive framework to facilitate employee retention for growing companies. As part of this work, policymakers should work to separate startup support from R&D support strategies what are ill-fitted for companies seeking to grow fast.



METHODOLOGY:

GLOSSARY:

- ▶ **Angel investment:** an investment in a company made by an individual, not on behalf of a business or investment firm.
- ▶ **Entrepreneurial firms:** for-profit businesses that are started by individuals who possess ownership and control of the firm. This excludes businesses that began as either government entities or subsidiaries of larger companies.
- ▶ **Local companies:** businesses that were founded or are currently headquartered in the Istanbul metropolitan area.
- ▶ **Mentorship:** a connection through which a mentee will meet the mentor at least three times for a minimum of 30 minutes to discuss critical business issues.
- ▶ **Metropolitan area:** the boundaries of a city's metropolitan area were defined using local input.
- ▶ **Serial entrepreneurship:** the activity of founding of a company by someone who previously founded one or more companies.
- ▶ **Software companies:** firms where the primary business activity is either software development, fintech, or e-commerce.
- ▶ **Spin-off:** a company started by a former employee of another company.
- ▶ **Startups:** companies founded no more than three years earlier.
- ▶ **Target companies:** entrepreneurial firms founded or currently headquartered in the city's metropolitan area and in the software industry.
- ▶ **Top performer:** a company in the top twenty percent of all local, entrepreneurial companies founded in the same year based on its number of employees. Used interchangeably with **high-growth companies** throughout the report.

SAMPLING FRAME:

Companies were considered "targets" and included in the sampling frame if they met the following criteria:

1. The company is local.

Companies were included if they were:

- Founded in the Istanbul metropolitan area, or
- Currently headquartered in the city's metropolitan area after they were founded elsewhere.

Target companies also included businesses that have closed after being founded or headquartered in the metropolitan area, and those that have been acquired after being founded or headquartered in the area.

2. The company fits the definition of a technology company.

Software companies are defined as for-profit businesses whose primary activity could be described as either:

- Software development for enterprises (e.g., CRM, logistics systems, or security software), or consumers (e.g., mobile apps, digital gaming); or
- Internet-based or mobile-based retail or services (e.g., e-commerce or fintech).

This definition excludes firms for which software development is a secondary activity, such as consulting firms and graphic design firms, as well as businesses in which internet and mobile-based platforms are secondary platforms, such as print newspapers.

3. The company is entrepreneurial.

Entrepreneurial companies are those started by individuals. This excludes businesses that began as either:

- Government entities, or
- Local divisions of corporations based in other cities.

DATA COLLECTION:

The data collected for this project comes primarily from surveys and interviews with local entrepreneurs and stakeholders.

This study began by identifying "VIP entrepreneurs" and other stakeholders who had an in-depth perspective on the sector (Heads of venture capital firms, government officials, etc.) in each city. VIP entrepreneurs selected for interviews were identified based on:

A) Scale - i.e., the current largest companies in the sector, or

B) Influence - i.e., companies that have made large exits, received a large investments, or were otherwise noteworthy or influential.

The preliminary interviews, which were mostly in person, focused on these important stakeholders.

The responses helped establish a list of the sector's most "influential organizations," i.e., organizations with outsized influence. It also provided critical data on the challenges, city characteristics, and each industry's entrepreneurial scene that helped inform later analysis.

The resulting primary company list formed a basis for the study, along with additional companies identified through other sources including databases such as Pitchbook, D&B Hoovers, and Crunchbase, as well as the portfolio companies of investors and entrepreneurship support organizations operating in the city. Only target companies moved forward for further investigation, i.e., those founded or headquartered in the mapped city, entrepreneurially founded and in the selected industry, and those fitting the aforementioned criteria on scale and influence.

Entrepreneurs from the target list received invitations to fill out an online survey or set up an interview (either in-person or over the phone). This mass outreach campaign used standard questions, but the interviews were adapted to be more conversational.

In order to ensure that the company list was comprehensive, a secondary list of companies was compiled from those mentioned in the interviews and surveys that were not already on the primary list. The secondary list also included additional companies sourced from the portfolio companies of those associated with the new mentions. T

he secondary list also included new companies found on LinkedIn while collecting data on entrepreneurs and companies. These secondary targets then received invitations to complete surveys and interviews. The research and outreach process was repeated multiple times depending on the size of the city.

Additional data was included on investments and support organization portfolios using Startups.watch.

The number of companies mapped and entrepreneurs interviewed varied depending on the size of the sector.

NETWORK ANALYSES:

Previous research by Endeavor Insight has found that there are **four main connection types among entrepreneurs** that drive the growth of an industry.

For analyses that only include connections between entrepreneurial tech companies, these are:

1. Angel investment;
2. Mentorship;
3. Serial entrepreneurship; and
4. Former employee spinoffs.

To learn about these connections within entrepreneurship communities, the surveys and interviews discussed above focused on four core questions:

1. Who invested in your company? (This includes both angel and institutional investors.)
2. Who was your mentor during the growth and development of your company?
3. Have you founded other tech companies in your city?
4. Which of your former employees have gone on to found tech companies in your city?

LinkedIn provided data for the analysis of founder work and education histories. The responses to these questions formed an edge list of connections among organizations, along with a corresponding set of four types of outbound connections. The edge list then informed all subsequent network analyses and created the network map visualizations in D3.

For all network analyses, **each founder was assigned to only one company or organization.** Where an entrepreneur had founded multiple companies, his or her most prominent company represents his or her influence in the analysis and on the map. This was based on an index of founding date, number of employees, total investment, and exit sizes. Where an entrepreneur had founded an investment firm or support organization, it was the company entity that took precedence (if they founded one), followed by the founder's investment firm, followed by the accelerator or support organization.

The size of an organization's influence in the network was based on directed closeness centrality for unconnected graphs. In other words, the size of an organization was a function of the number of first-, second-, third-, etc. degree connections that the organization and its entrepreneurs had to others in the network. All connections on the map were weighted equally. Financials and employee counts did not factor into an organization's centrality.

Connections accrue to an organization based on the time period in which the connections occurred. Where the year of a connection was unknown, two different approaches informed the date used in the study. Where year information for a former employee, investment, or founder connection was missing, it was assumed that the year of the connection between the source and the target companies was equal to the year the target company was founded. To estimate a mentorship relationship start year, authors reviewed mentorship relationships.

Companies were only included in the analysis if it was possible to identify their founding year. For companies whose employee count could not be determined,

authors used the median number of employees for companies founded in the same year, where companies founded over ten years ago were combined into one cohort. Companies that were no longer operating were included in the analysis if it was possible to find enough data to target them. For companies that were acquired, the number of employees at the time of acquisition were used.

LIMITATIONS:

Omitted variables may have played a role in sampling, creating bias that would otherwise expose gaps in the research process. The study's double interview, verification and analysis procedures were meant to offset any adverse effects. If gaps in or misinterpretations of the data were revealed during the analysis, the map and results were corrected.

While efforts were made to be as complete as possible in data collection by using a mixed methodology for data gathering and a detailed respondent verification process, the observed data used in this study is only a highly developed representation of the entrepreneurship network in each community and may omit certain data or attributes.

CONFIDENTIALITY:

Endeavor maintains confidentiality, and collected data is accessible only to Endeavor and its research partners.

ENDNOTES:

- 1 CNN Money. CEO shares \$27 million with staff after selling his firm, July 29, 2015
URL: <https://money.cnn.com/2015/07/28/news/companies/turkish-ceo-staff-bonus-millions/index.html>
- 2 The Wall Street Journal. Delivery Hero Acquires Turkey's Yemeksepeti
URL: <https://www.wsj.com/articles/delivery-hero-acquires-turkeys-yemeksepeti-1430802002>
- 3 The Independent. Best boss of the world? Turkish tech CEO gives employees £150,000 each after sale of company
URL: <https://www.independent.co.uk/news/business/news/yemeksepeti-turkish-tech-ceo-nevzat-aydin-hands-workers-bonuses-worth-17-after-sale-of-firm-10424378.html>
- 4 Venturebeat. Zynga buys 1010 maker Gram Games for \$250 million.
URL: <https://venturebeat.com/2018/05/30/zynga-buys-1010-maker-gram-games-for-250-million/>
- 5 Endeavor Insight interviews.
- 6 The Economist. The struggle to restore Turkey's stricken economy
URL: <https://www.economist.com/finance-and-economics/2019/03/14/the-struggle-to-restore-turkeys-stricken-economy>
- 7 Endeavor Insight interviews.
- 8 Endeavor Insight interviews.
- 9 Endeavor Insight analysis.
- 10 Endeavor Insight interviews.
- 11 Endeavor Insight interviews.
- 12 The industry distribution of recent exits over USD 1 million demonstrates the way the tech sector has diversified over time as experienced founders reinvested their resources in the network.
- 13 Endeavor Insight analysis based on data from startups.watch, accessed September 13, 2019.



