

MAPPING THE RIYADH TECH SECTOR

A Network Analysis of the
Entrepreneurship Community

A REPORT BY:

endeavor
INSIGHT

STRATEGIC PARTNER:

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ABOUT ENDEAVOR INSIGHT

Endeavor Insight is the research division of Endeavor that provides data-driven analysis and visualizations showing what makes entrepreneurial ecosystems thrive. Our research team of economists, data scientists, and policy analysts specializes in understanding the needs of high-impact entrepreneurs and evaluating the networks that enable them to scale up and pay it forward to the next generation of entrepreneurs. Learn more about our research at endeavor.org/insight.

The methodology utilized in this study builds on previous Endeavor Insight research supported by the Omidyar Network, the Kauffman Foundation, and the Heron Foundation.

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Executive Summary

Endeavor Insight has partnered with Endeavor Saudi Arabia to study the entrepreneurship ecosystem for tech companies in Riyadh, Saudi Arabia. The purpose of the study is to provide insights on the sector's current state, evaluate its strengths and weaknesses, and enable decision makers to better understand and support local tech entrepreneurship. This report focuses on the entrepreneurship community in the city of Riyadh, Saudi Arabia, but takes into account select companies from throughout the region that contribute toward the local ecosystem.

ABOUT THE DATA

The findings are based on more than 70 interviews with tech entrepreneurs conducted from September to November 2021, and data on more than 340 companies and their founders. This includes more than 300 tech companies that have been identified for Riyadh's tech sector. In select cases this includes Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh. Select analysis also reviews the contribution of entrepreneurial tech companies operating in other countries in the Middle East region. In addition, data was collected on more than 250 support organizations and investment firms that support the local tech community.

Context

Entrepreneurial activity in Saudi Arabia has increased rapidly over the last five years, and much of the gains are attributable to the entrepreneurial tech sector. Successful companies, especially in enterprise software and e-commerce industries, are attracting capital to the country. The tech sector is also an example of Saudi Arabia's growing diversity and inclusion. The country boasts higher startup rates for women than men, and the participation rate of females in the tech sector is above the European average.

The entrepreneurial tech sector is an important part of Saudi Arabia's future. The ecosystem is being propelled in part by **Vision 2030**, a new strategic framework to diversify the nation's economy. Many of Vision 2030's initiatives focus on strengthening entrepreneurship through means such as boosting private-sector investment, supporting innovation, and attracting and training talent.

Opportunity

Saudi Arabia has the potential to become a regional hub for tech entrepreneurship in the Middle East if more companies reach scale. The Kingdom is already an important regional center for telecoms and IT, and vies with Egypt to be the largest single consumer market in the Middle East and North Africa (MENA) region. In order to take advantage of the country's market position, more tech companies need to continue to reach scale.

While most of the tech sector comprises companies with fewer than 50 employees, it is the businesses that grow larger that can provide the most benefit. Scaled companies tend to pay higher average wages, are likely to keep growing once they surpass 50 employees, and can be more resilient during economic downturns. Riyadh's active tech companies that have reached scale tend to be older companies that have taken many years to reach that size. Now is the time to devote resources to help newer companies achieve their potential.

Scaled companies are more likely to have founders with specialized professional experience. Many decision makers may believe that the stereotype of a young entrepreneur may lead to success, but the findings from this study demonstrate that specific professional experience is a stronger indicator. Companies with at least one co-founder who had previously founded or worked at a C-Suite level position of a scaled company are much more likely to scale their next company.

There is an opportunity to create a more enabling environment for scaling tech companies. There are constraints in the local market that have to be overcome, in areas such as securing technical talent as companies look to scale. These can lead local entrepreneurs to move some of their operations outside of the country. More than 90 percent of interviewed founders already have tech teams in other countries. On the other hand, several foreign founders have moved their companies to the Kingdom in recent years, which is a promising sign of the country's growing potential.

Network Analysis

Two important lessons emerged by looking at the connections among entrepreneurs:

- 1. Most tech founders have positive perspectives on the entrepreneurship community.** Nearly all of the founders interviewed (97 percent) had a positive or extremely positive view of the current and future state of Riyadh's tech entrepreneurship community.
- 2. Scaled companies are more likely to have founders who received support from other tech founders compared to companies that did not scale.** One of the largest differences between companies that reached 50 or more employees and the rest of the sample was having a founder who

had previously worked for a local tech company. Scaled companies were also more likely to have received mentorship and angel investment from other local companies.

International Actors

Saudi Arabia is a globally connected hub for entrepreneurship that is attracting resources from around the world. Network maps show the most influential international actors in the local ecosystem. These include investors, support organizations, mentorship networks, and entrepreneurial companies that have made a contribution to Riyadh's development.

Founder Challenges

Access to managerial and technical talent were the two most common challenges identified by interviewed founders, with cost and availability both cited as reasons. Competition from large corporations and semi-government entities also puts pressure on the talent market. To overcome these barriers, companies have hired staff from abroad, increased in-house training, or in some cases moved operations abroad to access talent there.

Government regulations and legislation presented major or severe challenges for around half of the interviewed founders, with regulations described as being unpredictable. Several founders noted that the government is increasingly supportive of entrepreneurs.

Access to capital is a lesser challenge locally, though early stage funding can be problematic. Only one-quarter of founders viewed customer acquisition as a major challenge, with one obstacle being a long-held view among major businesses and decision makers that international tech products are better than local ones.

Support Systems

There are several actors in any entrepreneurial ecosystem that make it possible for founders to succeed. In addition to the founder-to-founder support in Riyadh's tech sector, other local and international organizations are important to the development of the community. **Local support organizations** offer a range of programs and services with networking and mentorship being the most common. Very few organizations offered access to talent services, which is the most significant challenge that founders face. Availability of **mentors** does not appear to be a problem, but many lack the experience or specific skill set to provide the most relevant advice for entrepreneurial companies. In addition to providing business loans, local **banks** have improved the ease of doing business by lowering minimum requirements specifically for entrepreneurs among financial services that benefit startups. **Universities** in Saudi Arabia play an important role in the development of the local tech sector. Founders often meet their co-founders while attending university, and their facilities can often support the development of innovative products and services.



Recommendations

The principles of self-propelling ecosystem development will benefit the local tech sector. Endeavor Insight has identified three key principles that decision makers can follow to align their efforts around the needs of these founders and take action that lowers barriers for the most promising companies:

1

Focus on scale. The successes of the local tech sector are apparent, but a more enabling environment will help retain the most promising companies and support Saudi Arabia's position as a regional hub for entrepreneurship.

2

Understand local constraints and capacities. Decision makers should continue to listen to the experiences of entrepreneurs, especially those that have already scaled, as their knowledge will be most useful in designing solutions that reduce constraints for the entire ecosystem.

3

Encourage founder reinvestment. The value of peer-to-peer learning is immense, and more can be done to help cultivate those connections in Riyadh's tech sector. As more leaders of entrepreneurial companies reach scale, they should be encouraged to serve as mentors and angel investors for up-and-coming founders.

The local support system should coordinate to continue to address tech founders' greatest challenges.

Public initiatives, support organizations, and universities are already starting to address one of the network's major constraints, access to talent. Policymakers should continue to listen to the entrepreneurs' needs for talent, and support them to this end. Large corporations also play an important role in developing local talent and future founders. This pattern can be leveraged to encourage other such corporations to actively promote entrepreneurship as a career step for their experienced employees. The local support system has an opportunity to address other challenges such as access to capital. Coordinated efforts like these will ensure that founders' needs are being addressed and help position Saudi Arabia as a globally competitive hub for entrepreneurship.

ENTREPRENEURIAL ACTIVITY IN SAUDI ARABIA RAPIDLY INCREASED OVER THE LAST FIVE YEARS.

Entrepreneurship is a growing part of Saudi Arabia's economy. According to Global Entrepreneurship Monitor (GEM), the percentage of the adult population involved in an entrepreneurial operation rose from 13.7 percent to 22.4 percent between 2016 and 2020.¹ Private investment in entrepreneurial companies has also grown sharply. Before 2016, venture capital (VC) funding for startups in Saudi Arabia stood at \$6 million per year.² This rose by an annual average 35 percent to reach \$152 million in 2020. Moreover, growth has accelerated in recent years, to 55 percent in 2020,³ and to an annualized 65 percent in the first half of 2021, when VC funding reached \$168 million.⁴

Successes in the tech sector have strengthened the local entrepreneurship community.

Much of the rise is attributable to the entrepreneurial tech sector, with two of the three of the largest rounds in the first half of 2021 — totalling \$51 million — going to local tech companies, **Sary** and **Foodics**.⁵ Notable recent local successes include **Nana**, an e-commerce company founded in 2016, which raised \$50 million in a funding

round in February 2022. Foodics raised \$20 million in 2021 and in 2022 acquired a Jordanian company, **POSRocket**, to position the food-tech provider company as the leader in the MENA Region.⁶ In December 2020, **Salasa**, which provides fulfillment and logistics services for e-commerce companies, raised \$20 million in a series A round and the company is expanding across Saudi Arabia and the Gulf region.⁷

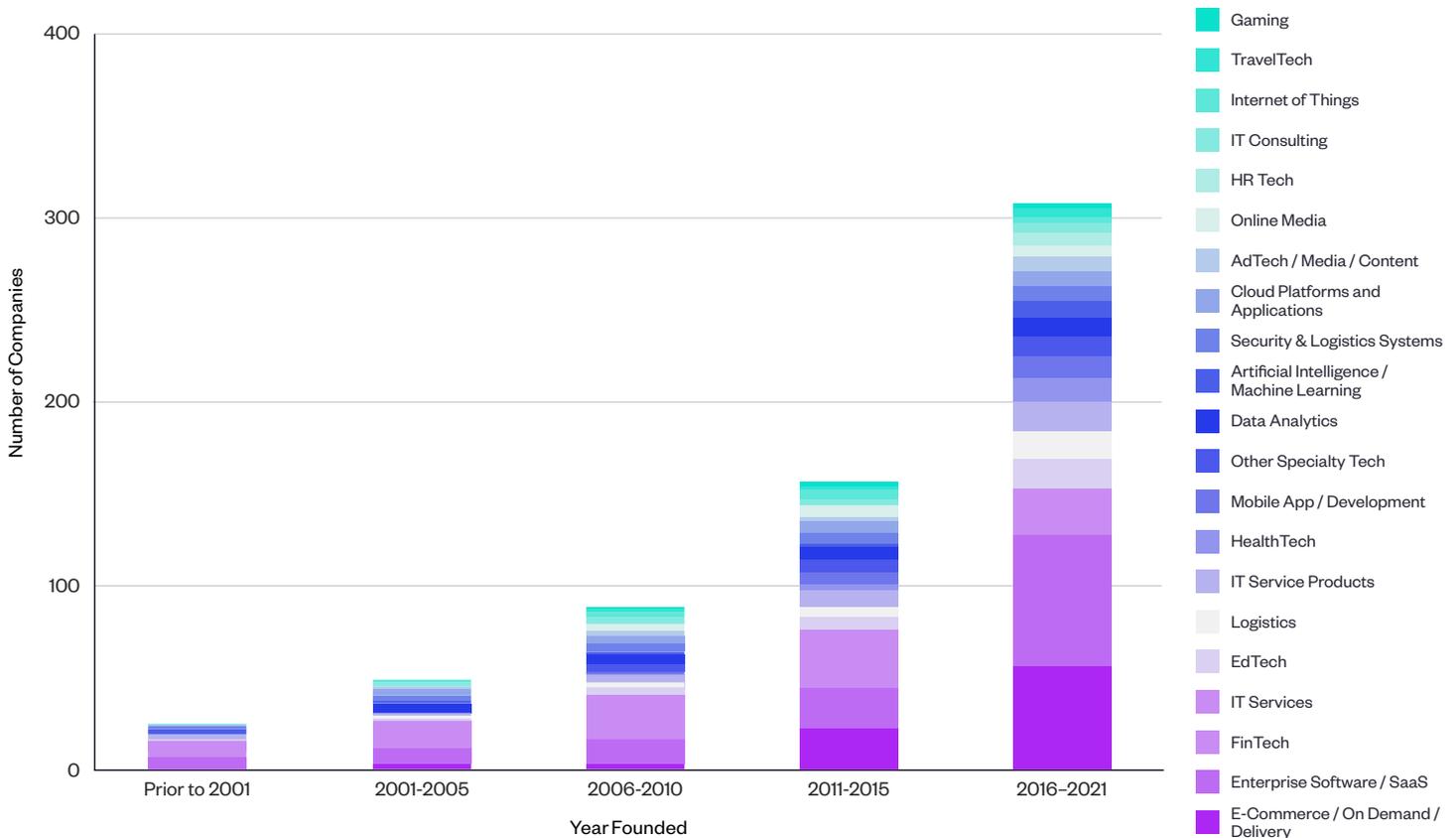


The growth of the tech sector has been characterized by developments in certain subsectors, as the graph below illustrates. Enterprise software companies such as **iNet** and **Geidea** were founded (in 2001 and 2008, respectively) to serve retailers' payment needs by being among the first companies in the Kingdom to provide both merchant point of sale (POS) solutions and mobile wallets, which store bank and card payment information in a mobile device. The sector's subsequent growth brought in companies in fields such as IT services and fintech, including **Hala** in 2016 and **Lendo** in 2019.

Since 2016, rapid growth among e-commerce companies has been

characterized by two main business and operational models: on-demand platforms and delivery-based apps. On-demand platforms such as **Zid** and **Sary**, a B2B marketplace connecting small businesses with wholesalers and lenders, have been able to tap into niche markets to take advantage of Saudi's market size and consumer purchasing power to scale. Delivery-based app startups like **MRSOOL**, **Jahez**, and **DailyMealz**, a tech-enabled food subscription service, focus on covering direct-to-consumer delivery by taking advantage of recent improvements in fulfillment services, better shipping infrastructure and a sharp rise in hyperlocal and last-mile delivery demand, boosted in part by the pandemic.

CUMULATIVE GROWTH OF RIYADH'S TECH COMPANIES BY SUBSECTOR



Note: Based on data from 308 companies, where data was available. Other Specialty Tech includes subsectors with three or fewer companies operating in industries such as search engine, cybersecurity, geotech, and blockchain. The data includes select Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh.

Sources: Endeavor Insight analysis, founder interviews, LinkedIn, Crunchbase, company websites.

The tech sector is an example of Saudi Arabia's growing diversity and inclusion.

There are growing numbers of female-led tech companies in Saudi Arabia. Female entrepreneurship overall has grown, with GEM noting that Saudi Arabia is “now the only nation of 23 high-income GEM economies with higher startup rates for women than men.”⁸ Saudi Arabia's improved gender inclusion rates extends to the tech sector as a whole. According to the Ministry of Communications and Information, the participation rate of females in the tech sector stood at 28 percent in the third quarter of 2021, above the European average rate of 17.5 percent.⁹

This momentum is especially notable in the e-commerce sector. **Sabbar** is a platform for staffing gig workers in the hospitality and retail industries that raised \$4 million in 2021;¹⁰ **Taffi** is an AI-enabled fashion marketplace that successfully raised a seed round of more than \$2 million in 2022;¹¹ and **Gathern**, a tourism accommodation booking platform, raised \$5.9 million in 2021.¹²

The entrepreneurial tech sector is an important part of Saudi Arabia's future.

This rapid development has been propelled in part by a new strategic framework, dubbed **Vision 2030**, to transform the nation's economy. The initiative was announced in 2016 and aims to reduce the nation's dependence on oil and diversify the economy,¹³ with around \$7 trillion of public money promised to support the transformation.¹⁴ In addition to funds going into public service sectors such as health and education, the government has prioritized strengthening private-sector investment and supporting innovation under Vision 2030. Investment in technological infrastructure will also help to enable entrepreneurial activity.

As part of Vision 2030, Saudi Arabia has set a target to increase the ICT sector's contribution to GDP from 3.6 percent in 2017 to 4.6 percent in 2023. This would entail an increase of around \$11 billion in

the size of the sector.¹⁵ Grants are being provided via competitions and regulatory sandboxes have been established by several local governments.¹⁶ These allow local and international companies, including startups, to test new digital solutions in a live market environment.

Other components of the Vision 2030 will support entrepreneurs. The country's push to encourage local tourism can help position Saudi Arabia as a desirable place to work or move, potentially attracting foreign talent or new founders to the area.¹⁷ This is accompanied by a quality of life program, launched in 2018, which aims to increase the participation of citizens in a range of cultural activities.¹⁸ In a further effort to open the country to talent and position Riyadh as a competitive global city, the Royal Commission Riyadh City (RCRC) has launched an International Schools Attraction Program targeted at both Saudi nationals and the children of expat residents.¹⁹

The government is also attracting multinational corporations as part of its strategy to strengthen the local business environment. It is offering tax breaks, exemptions from work visa limits, and other incentives to persuade such companies to open regional headquarters in the Kingdom. By late 2021 over 40 multinationals had signed licenses to establish regional hubs in Saudi Arabia, with the government aiming to attract over 400 more by 2030.²⁰ In addition to the benefits of having more companies operating from Saudi Arabia, these businesses could help to provide training for the domestic workforce, reducing one of the pressures that startups in the Kingdom face. These strategic investments and increased focus on business growth will help build on the entrepreneurial sector's recent momentum.



II. Opportunity

SAUDI ARABIA HAS THE POTENTIAL TO BECOME A REGIONAL HUB FOR TECH ENTREPRENEURSHIP IN THE MIDDLE EAST IF MORE COMPANIES REACH SCALE.

Saudi Arabia is already an important regional center, representing over 50 percent of the Middle East's total telecoms market and 51 percent of its IT industries.²¹ The Kingdom vies with Egypt to be the largest single consumer market in the MENA region, according to World Bank data on household consumption,²² and is well positioned for strong growth in e-commerce. Online sales grew by a pandemic-induced 60 percent in 2020, and there is potential for much higher growth, given that e-commerce only accounted for 6 percent of total retail sales in 2020, compared to 18 percent in leading global markets.²³

High adoption of smartphones (97 percent of the population), fast internet speeds (ranking 10th globally), a relatively young and well banked population — 43 percent of the population are aged 18-34 and 72 percent of over-15s have a bank account — all position the Saudi consumer market as an important regional hub with considerable untapped potential.²⁴ In order to take advantage of the country's market position, and fulfill its potential as a regional leader in entrepreneurship, more tech companies need to continue to reach scale.



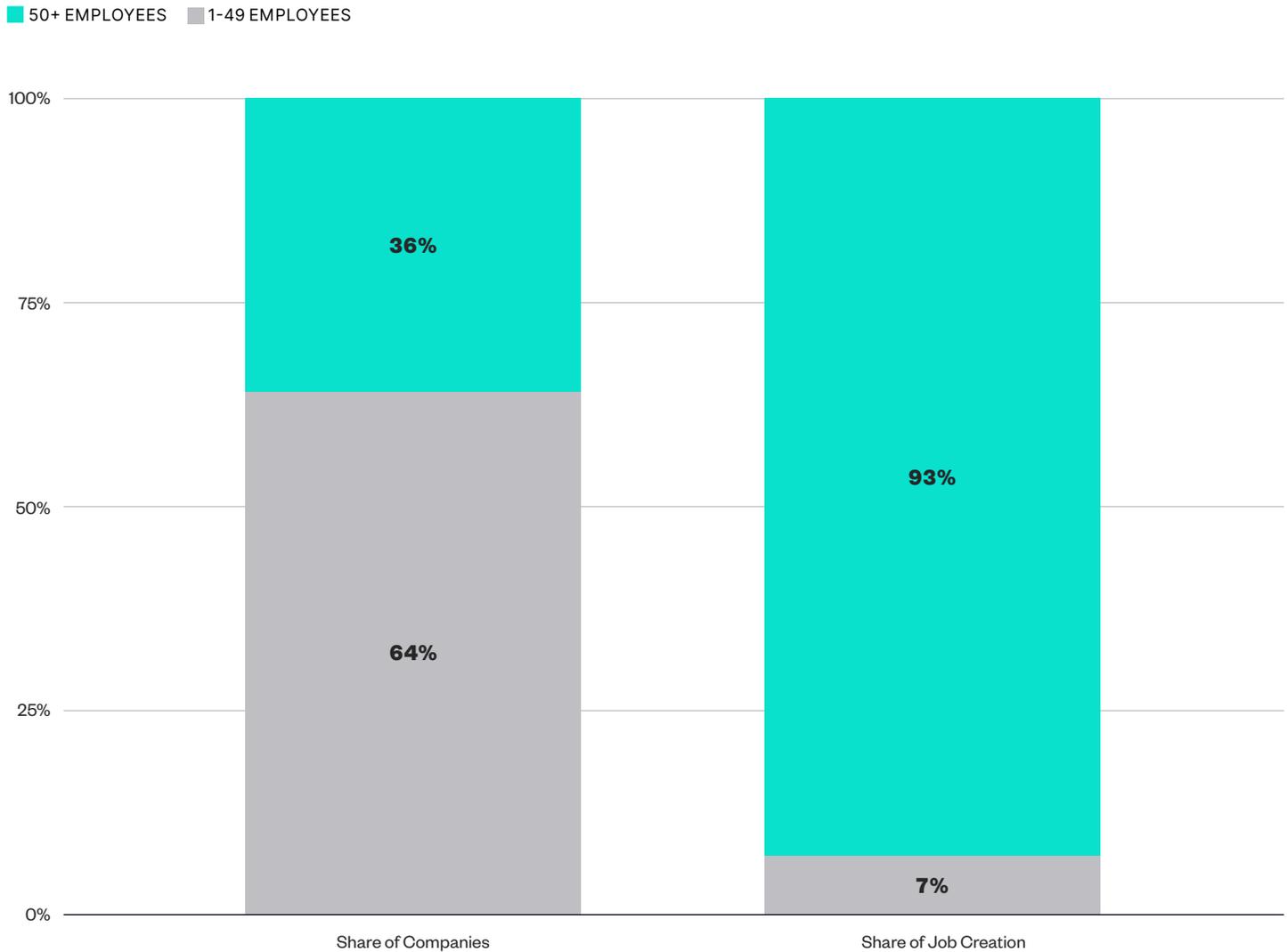
Focusing on the businesses that grow rapidly to 50 or more employees will do the most for the economy.

While most of the tech sector comprises companies with fewer than 50 employees, it is the businesses that grow larger that can provide the most benefit. The chart below demonstrates that companies that have reached the scale of 50 or more

employees only make up 36 percent of total companies studied, yet they contribute the vast majority of jobs. Previous studies from Endeavor Insight have shown that scaled companies pay higher average wages, are likely to keep growing once they surpass 50 employees, and can be more resilient during economic downturns.²⁵

JOB CREATION BY COMPANY SIZE IN RIYADH'S TECH SECTOR

Scaled companies are a smaller proportion of the total number of local companies, but they have generated the bulk of jobs.



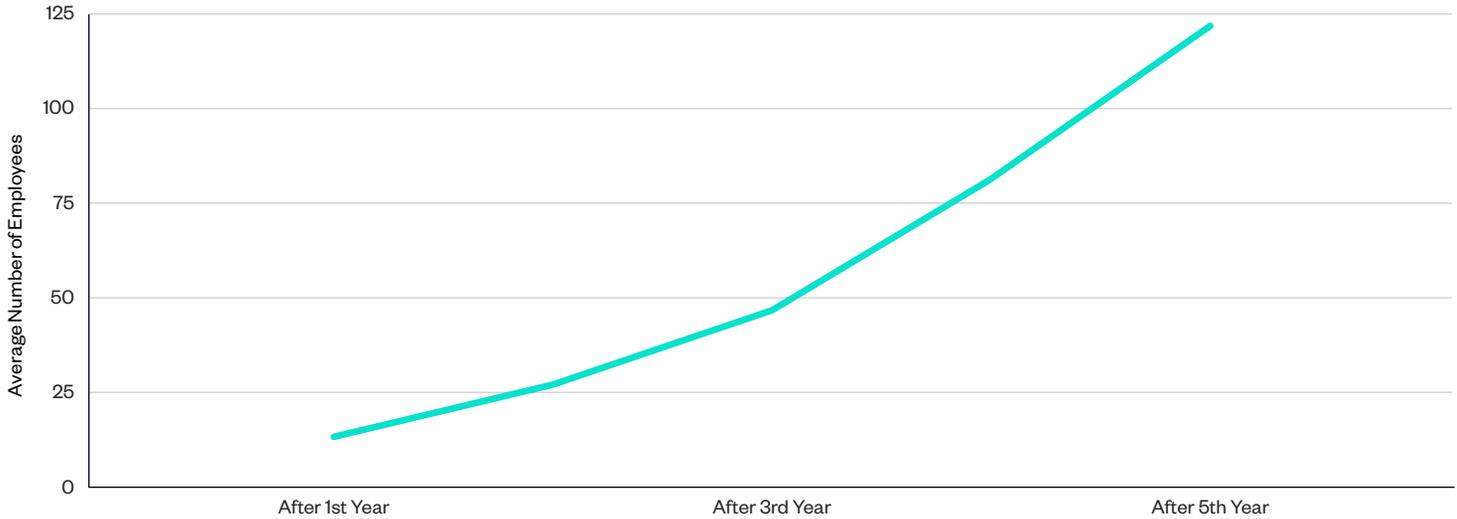
Note: Based on data from 285 active companies, where data was available. The data includes select Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh.

Sources: Endeavor Insight analysis, founder interviews, LinkedIn, Crunchbase, company websites.

Riyadh's active tech companies that have reached scale tend to be older companies that have taken many years to reach that size. It may take more than three or five years for a promising company to reach the size of 50 or more employees,

as the chart below indicates. Endeavor Insight's previous research shows that companies achieving rapid growth in the first five years have the potential to keep adding jobs, attract capital, and contribute the most to the economy.²⁶

AVERAGE GROWTH TRAJECTORY OF RIYADH'S TECH COMPANIES



Note: Based on data from 50 interviewed founders of tech companies.

Sources: Endeavor Insight founder interviews and analysis.

Only 24 percent of companies founded in the last 10 years have grown to the size of 50 or more employees. While 50 percent of the sector's companies were founded in the last 5 years, only 18 percent of them have reached scale. Now is the time to devote more resources to help more of these newer companies achieve their potential.

Scaled companies are more likely to have founders with specialized professional experience.

In order to help more companies reach scale in Riyadh's tech sector, it is helpful to examine the patterns found among the entrepreneurs who have achieved that level of success. Endeavor Insight analyzed the work experience of entrepreneurs who founded a company between 2016 and 2021. The findings on the following page reveal that companies with at least one co-founder who had previously

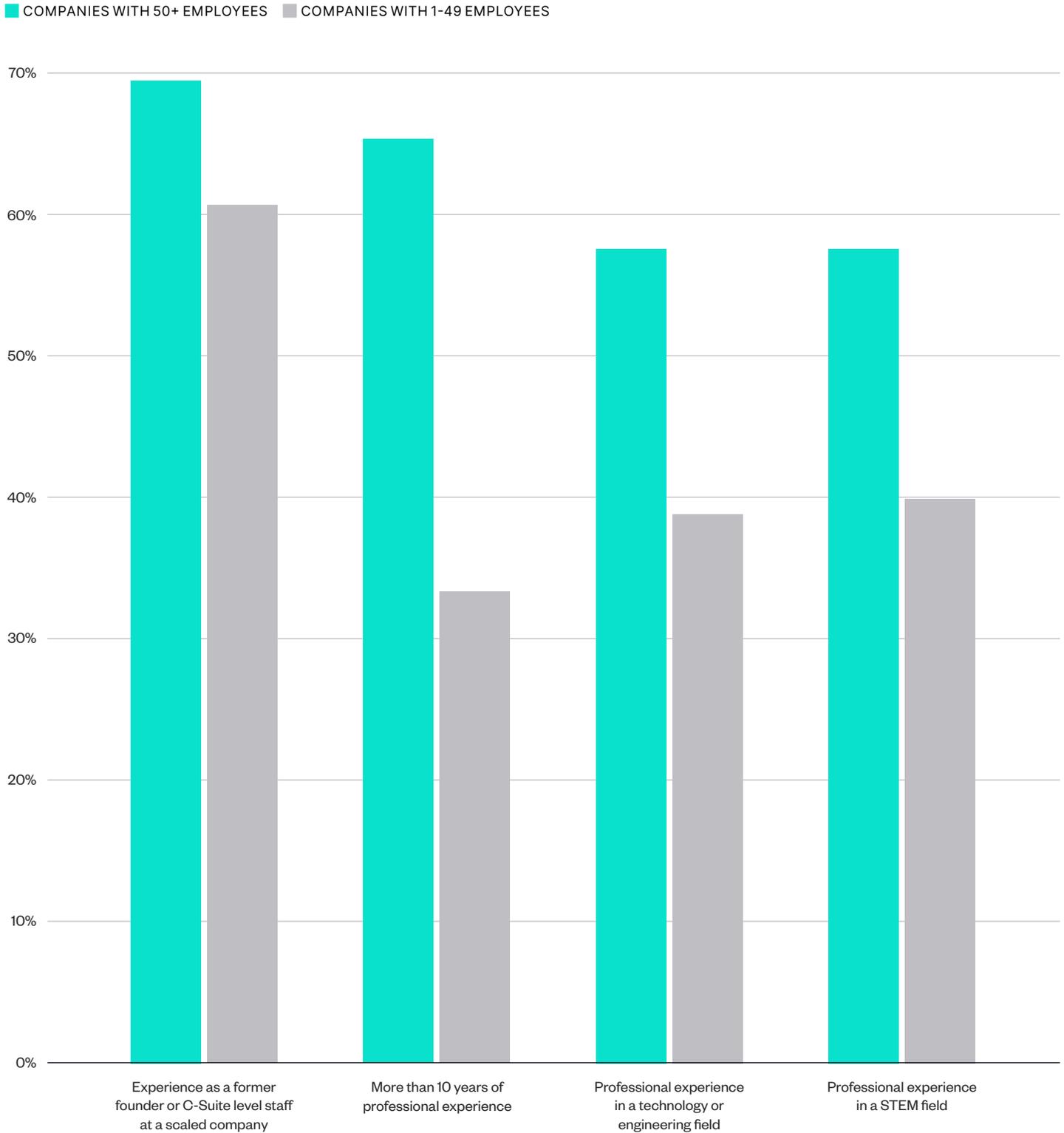
founded or worked at a C-Suite level position of a scaled company, were much more likely to scale their next company. This type of serial local entrepreneurship can be one of the most promising signs of a company's potential to scale.

Scaled companies were much more likely than smaller companies to have at least one founder with more than 10 years of professional work experience. Many decision makers may believe that the stereotype of a young entrepreneur may lead to success, but this data (as well as several other Endeavor Insight studies) shows that experience is a stronger indicator.* Unsurprisingly, scaled companies were also more likely to have at least one founder with professional experience in a science, technology, engineering and mathematics (STEM) field, or more specifically, previous technology and engineering experience.

* For more information see "Fostering Productive Entrepreneurship Communities" at endeavor.org/fpec. These findings have also been confirmed in other network mapping studies available at endeavor.org/knowledge-center-events/category/research-report.

SCALED COMPANIES FOUNDED IN THE LAST FIVE YEARS ARE MORE LIKELY TO HAVE FOUNDERS WITH SPECIALIZED PROFESSIONAL EXPERIENCE

Percentage of Riyadh's Tech Companies with at Least One Founder Who Has a Given Professional Experience



Note: Based on 152 companies founded in 2016 or later, where data was available.

Sources: Endeavor Insight analysis, LinkedIn.

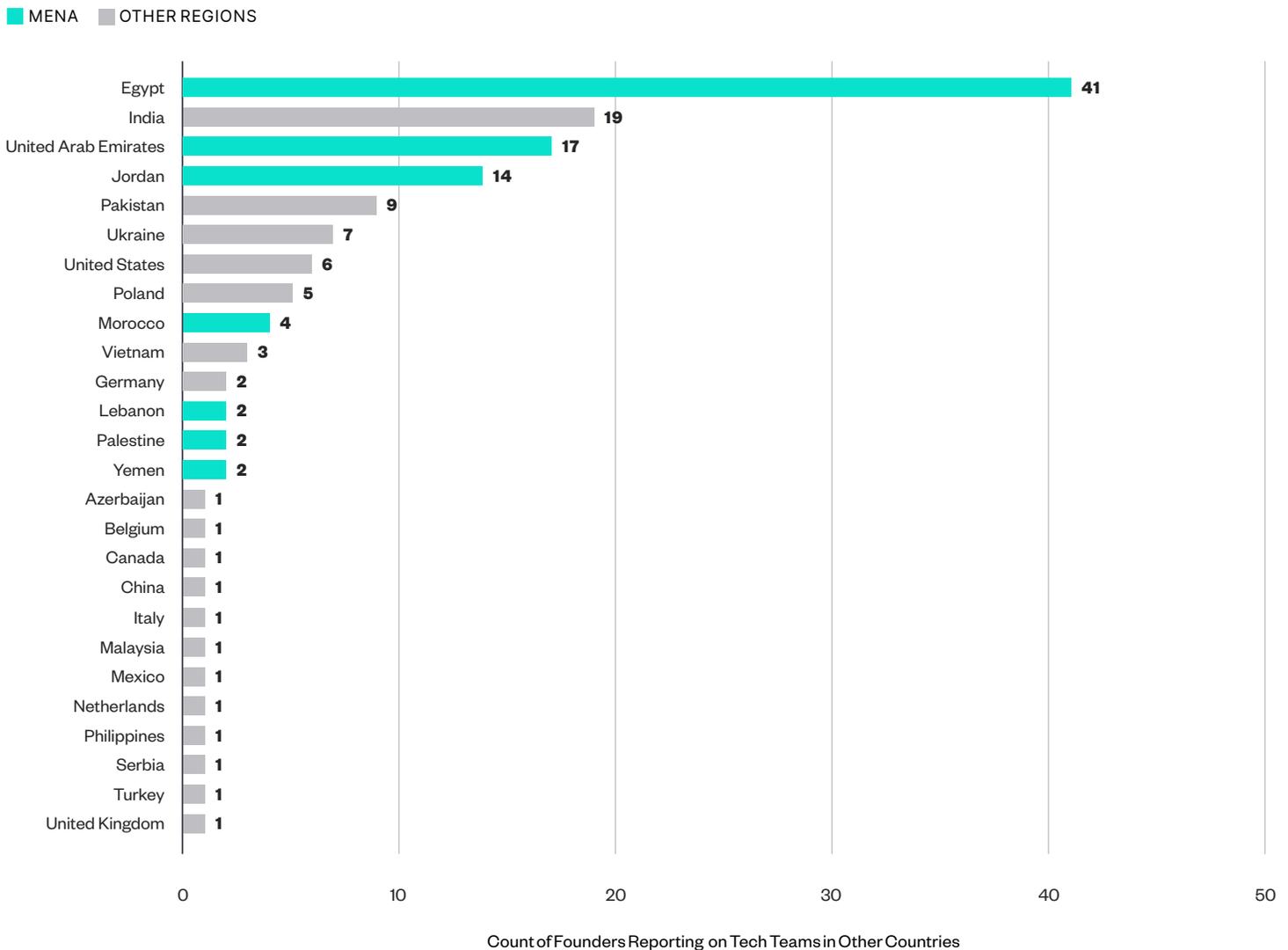
There is an opportunity to create a more enabling environment for scaling tech companies.

Saudi Arabia has the opportunity to become a more attractive location for entrepreneurs when they are deciding where to operate. Many of the founders interviewed have already moved some of their operations outside of the country due to local constraints such as securing technical talent as they looked to scale.

A vast majority of founders who participated in this study reported needing to hire

tech talent from outside of Saudi Arabia. More than 90 percent of them have tech teams in other countries, especially in the nearby MENA region, as the graph below illustrates. Local companies are essentially a driver of significant job growth for other countries, rather than creating and retaining that economic value locally. Moreover, several interviewed founders of Saudi Arabian companies mentioned plans to relocate their legal headquarters to other countries within the Middle East region or make acquisitions to further address the limitations of the local market.

WHERE DO RIYADH'S TECH COMPANIES FIND FOREIGN TECH TALENT?



Notes: Data is based on the 57 founders with companies based in Saudi Arabia who responded to the question "List the top three most common countries, if you have tech teams outside of Saudi Arabia."

Source: Endeavor Insight founder interviews and analysis.



Despite these constraints, Saudi Arabia is continuing to attract foreign entrepreneurs who are willing to move their families and businesses to the area. Zeid Husban from **POSRocket**, a Jordanian food-tech company, has already established a division in Saudi Arabia with plans to move their legal headquarters to the country now that the company has been acquired by **Foodics**. Zeid notes that large market, especially for food and beverage companies, makes the move very appealing.

There have been recent shifts that make this decision even easier for foreigners now that he can own 100 percent of his company without needing a sponsor.

The following pages are designed to help decision makers better understand these dynamics and how to create a more enabling local environment so that more companies reach scale and more founders are seeking to build their businesses locally.

III. Network Analysis

Networks are important vehicles to transmit resources and information in a community. 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 Riyadh's tech entrepreneurship network, Endeavor Insight interviewed more than 70 founders and analyzed data on the connections among them using a methodology that was developed by members of the Global Entrepreneurship Research Network.

The methodology looks at three 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. Mentorship;
2. Investment; and
3. Former employment.

The network map on the following page shows entrepreneurial companies that are active in Riyadh's tech sector and how they are connected to one another through former employment, mentorship, and investment. This includes Saudi Arabian companies identified by Endeavor Insight as important to the local sector, but with legal headquarters outside of Riyadh,

as well as select entrepreneurial tech companies operating in other countries in the Middle East region that have been important to the local sector's development. The size of the bubble is a function of the number of first-, second-, third-, etc. degree connections that the company and its entrepreneurs had to others in the network. Founders who have started multiple companies are represented by their most prominent company or organization.

Riyadh's tech sector is fortunate to have many founders serving as active mentors and investors of other entrepreneurial companies in the ecosystem. The most influential entrepreneurial company in the tech sector is **Unifonic**, a scaled company founded in 2006 that provides B2B cloud-based communications solutions. The founders Ahmed and Hassan Hamdan are active mentors in the ecosystem, having supported more than 10 other companies. **Zid** is another important scaled company in the network. It specializes in e-commerce by enabling retail owners to track sales and operations. The founders Sultan AlAsmi and Mazen AlDarrab have both served as mentors, and Mazen is an active investor. Both companies have been selected to be a part of Endeavor's global network.

Endeavor Insight also collected data to understand which founders have previously worked at other local entrepreneurial tech companies. These findings show that **Nana**, a scaled online grocery shopping and delivery company, and **Prexle**, a fintech company providing point-of-sale solutions for retailers, are companies where their former employees went on to found their own companies. A company that has many "spinout" companies is very valuable to the ecosystem.



TWO IMPORTANT LESSONS EMERGED BY LOOKING AT THE CONNECTIONS AMONG ENTREPRENEURS.

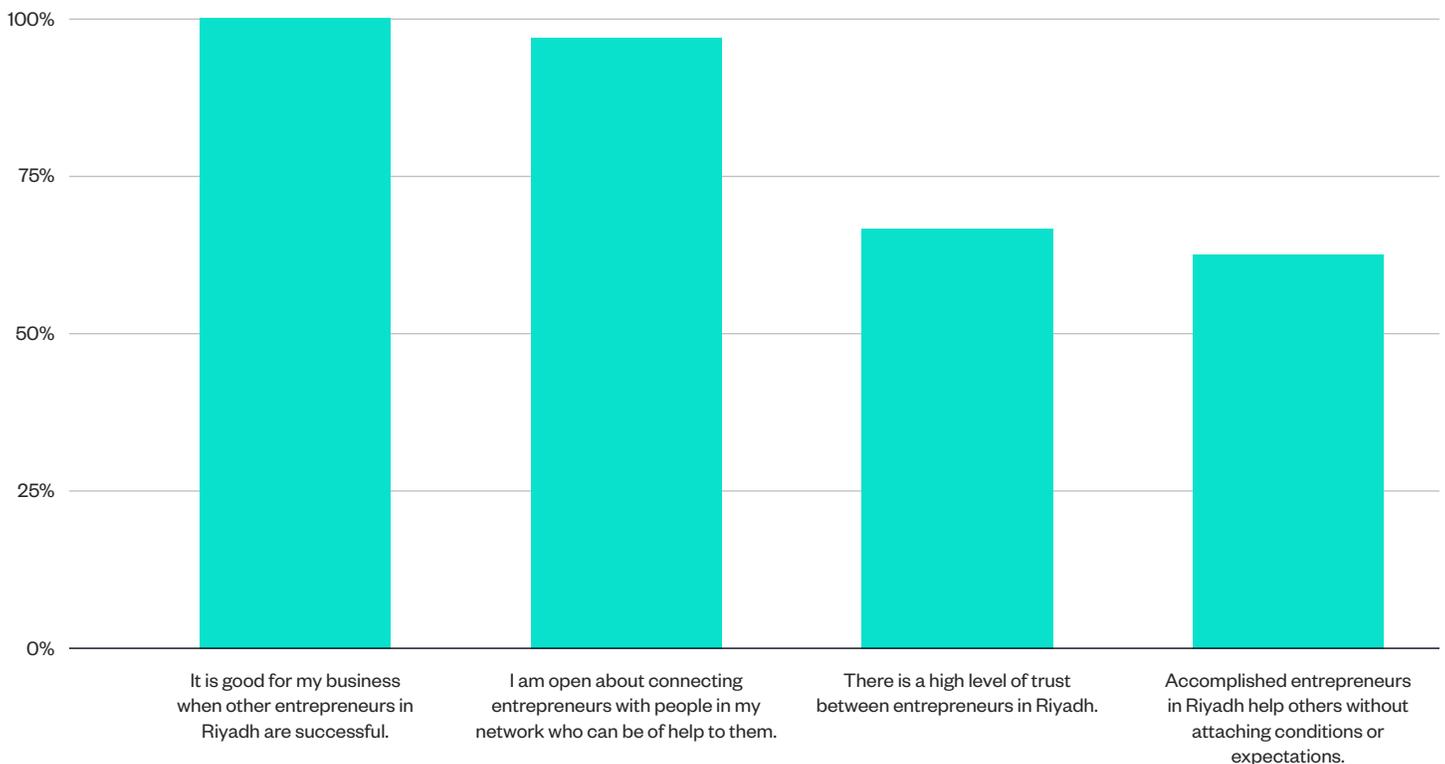
1. A majority of tech founders have positive perspectives on the entrepreneurship community.

All of the founders interviewed for this study agreed that it was good for their business when other entrepreneurs are successful and nearly all of the founders interviewed

for this study were open to connecting other entrepreneurs to people in their network, as the graph below demonstrates. Two-thirds of respondents agreed that there was a high level of trust among Riyadh's entrepreneurs and more than half believed that accomplished founders are willingly helping other entrepreneurs in the community.

TECH FOUNDER PERSPECTIVES ON RIYADH'S ENTREPRENEURIAL COMMUNITY

Percentage of Respondents Who Agree or Strongly Agree



Notes: Data is based on the 67 founders who responded to each respective question.

Source: Endeavor Insight founder interviews and analysis.

One of the founders that Endeavor Insight interviewed for this project mentioned, "There are a lot of activities between founders and discussions about what is happening to their company, and the level of awareness is high. Also, there are a lot more entrepreneurs who

speaking out about their experiences to help the ecosystem grow bigger."

Nearly all of the founders interviewed (97 percent) had a positive or extremely positive view of the current and future state of Riyadh's tech entrepreneurship community.

2. Scaled companies are more likely to have founders who received support from other tech founders compared to companies that did not scale.

Previous research by Endeavor Insight has shown that when entrepreneurs at scale are more connected to other founders, entrepreneurship communities are more productive.²⁷ Endeavor Insight analyzed scaled companies to see how their connections differed from companies that did not achieve significant growth. One of the largest differences between companies that reached 50 or more employees and the rest of the sample was having a founder who had previously worked for a local tech company. Scaled companies were also more likely to have received mentorship and angel investment from other local companies, as illustrated by the chart below.

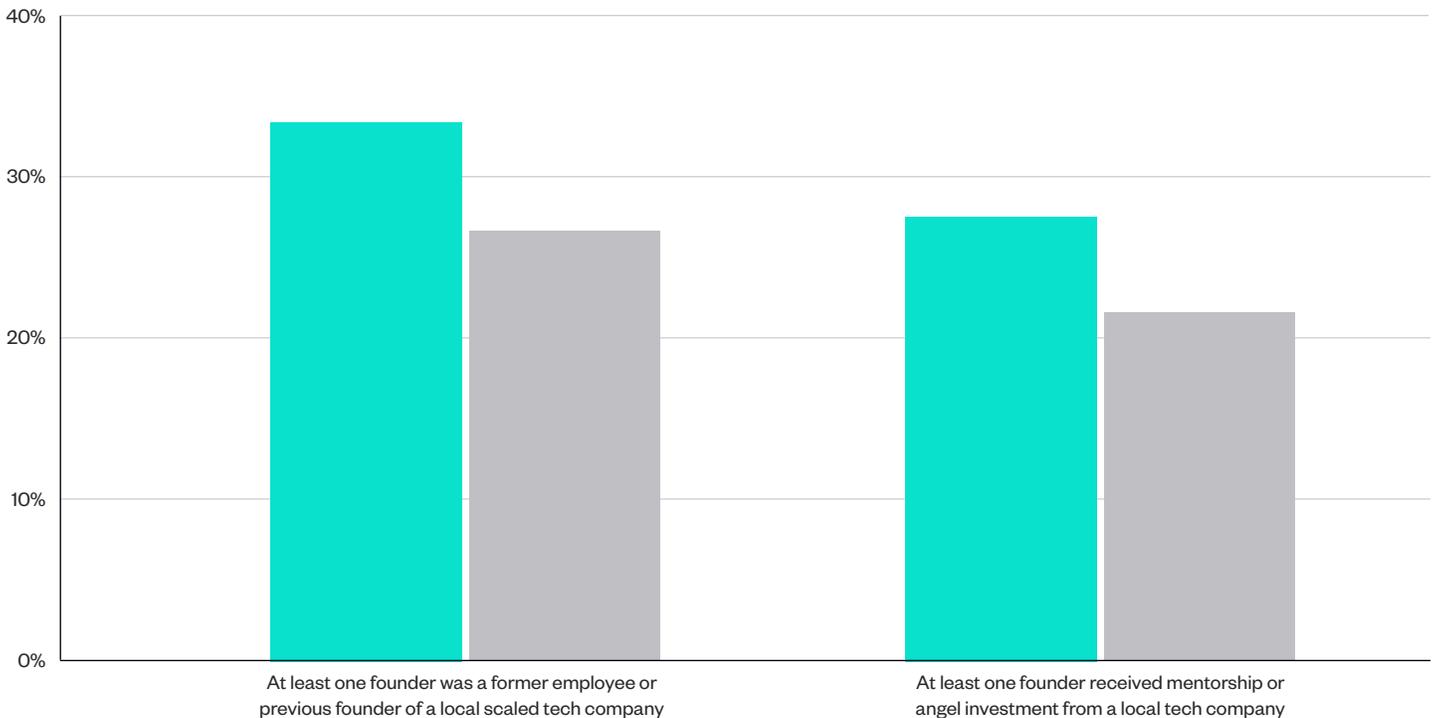
Research by Endeavor Insight suggests that previous employment at a scaling company offers founders important opportunities to learn how to navigate the challenges of building a local business. It also allows them to build important contacts that can make a meaningful difference in success when they start their own company.

Once a founder has launched their company, Endeavor Insight's research has consistently shown how mentorship and angel investment, especially from successful entrepreneurs, can demonstrably improve a company's chances to be one of the fastest growing companies by number of employees. The network map in Riyadh tells the same story.

SCALED COMPANIES IN RIYADH'S TECH SECTOR ARE MORE LIKELY TO HAVE WELL-CONNECTED FOUNDERS

Percentage of Riyadh's Tech Companies with at Least One Founder Who Has a Given Connection Type

COMPANIES WITH 50+ EMPLOYEES COMPANIES WITH 1-49 EMPLOYEES



Notes: Data is based on 189 companies where data was available.

Sources: Endeavor Insight analysis, founder interviews, Crunchbase, LinkedIn, company websites.

IV. INTERNATIONAL ACTORS

Saudi Arabia is a globally connected hub for entrepreneurship that is attracting resources from around the world.

The local ecosystem benefits from resources provided by organizations and founders outside of Saudi Arabia. The network map on the opposite page showcases the most influential actors that are based abroad. The foreign organization with the most relative influence in the ecosystem is **500 Global** which operates a four-month accelerator program in Silicon Valley among other activities in the United States and locally in the MENA region. More than 30 local companies have received mentorship and investment from their programs, which include

local accelerators such as Misk 500 and Sanabil 500 MENA Seed Accelerator.

Other organizations that are larger bubbles on the map include Endeavor and VentureSouq. **Endeavor** operates globally with multiple local affiliates in the Middle East region. Riyadh's tech sector is supported by the local Saudi Arabia office, as well as a global network of mentors and its Catalyst fund, a rules-based, co-investment fund set up to invest exclusively in Endeavor entrepreneur-led companies. **VentureSouq**, headquartered in United Arab Emirates, is a MENA-based venture capital firm investing in high growth early-stage technology companies.

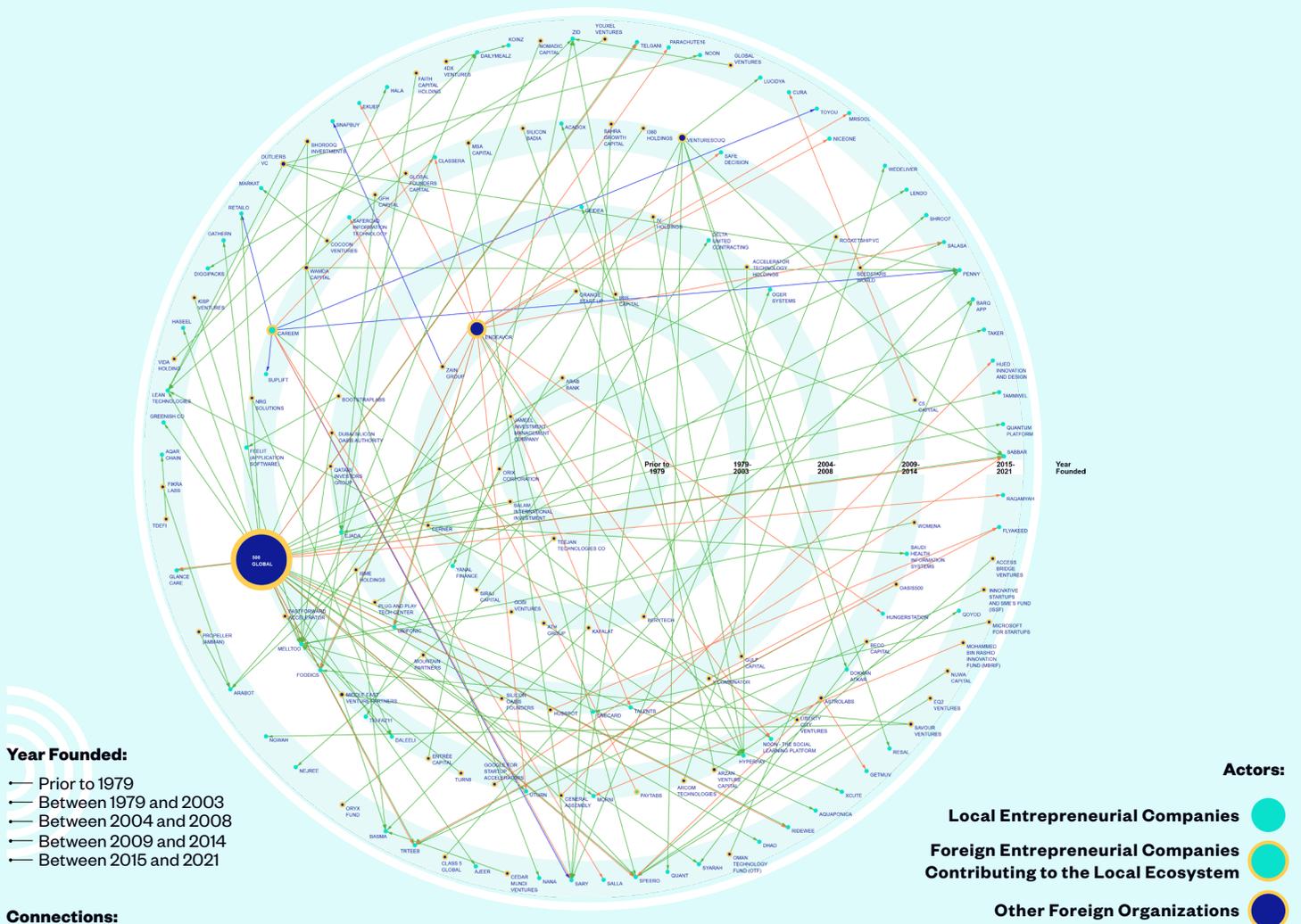


There are several entrepreneurial tech companies that have been included in this study because of their contribution to Riyadh’s development. These include companies such as Careem and Paytabs, who have Saudi citizens as founders yet they started their businesses elsewhere. **Careem**,

the Dubai-based ride-hailing platform that was acquired by Uber for \$3.1 billion in 2020.²⁸ The company has been heralded for producing a “mafia” of former employees who have gone on to found their own businesses, including **Retailo Technologies**, **Penny**, and **Sary** in Saudi Arabia.²⁹

The founders continue to play an active role in mentoring other entrepreneurs in the region. **PayTabs**, a B2B payments solutions company, is another tech company in the region that has supported entrepreneurs in Riyadh.

NETWORK MAP OF INTERNATIONAL ACTORS’ CONTRIBUTIONS TO RIYADH’S TECH SECTOR



- Year Founded:**
- Prior to 1979
 - Between 1979 and 2003
 - Between 2004 and 2008
 - Between 2009 and 2014
 - Between 2015 and 2021
- Connections:**
- **EXPERIENCE:** Former employment or serial entrepreneurship
 - **SUPPORT:** Mentorship or program participation
 - **INVESTMENT:** Angel or venture capital

Source: Endeavor Insight founder interviews and analysis, LinkedIn Pitchbook, Crunchbase.

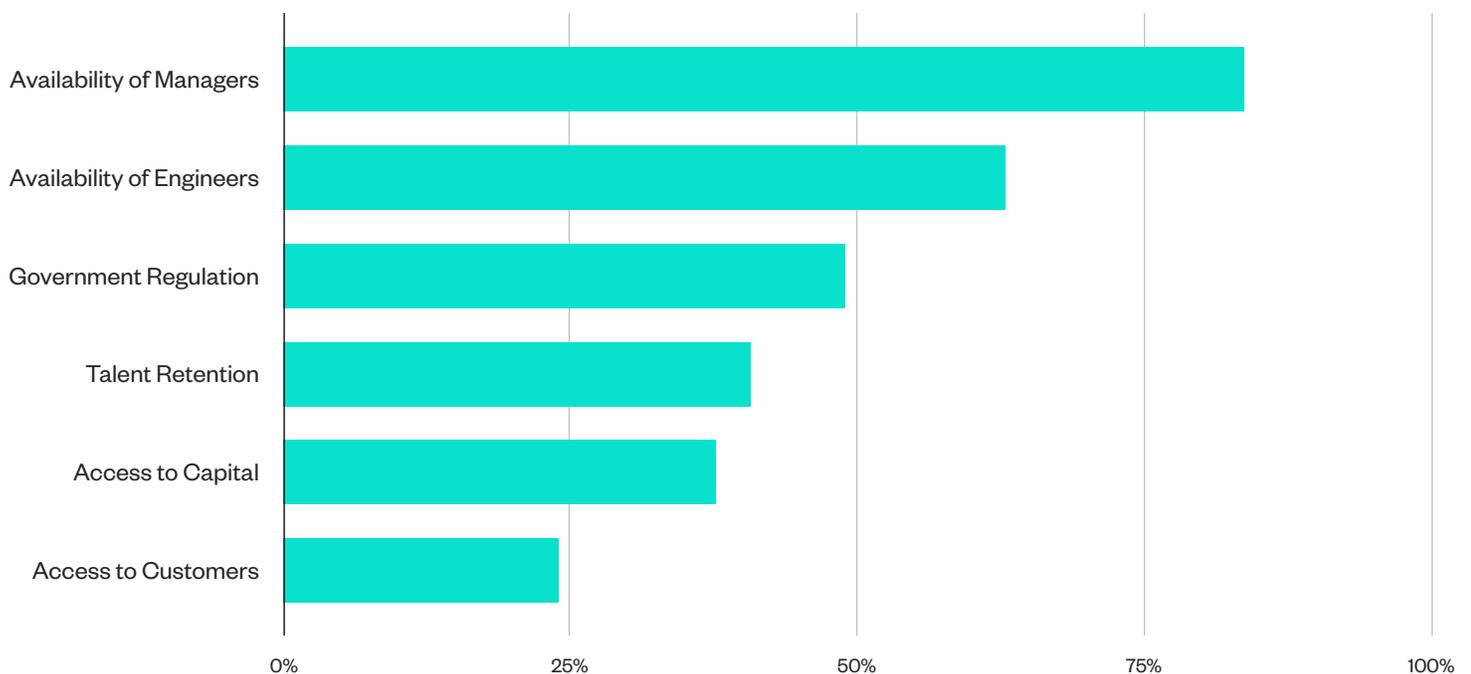
Note: The size of a circle is a function of the number of first-, second-, third-, etc. degree connections originating from an entity or the founders of a company. Founders are represented by their most prominent company or organization. Local entrepreneurial companies also include select Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh. Other organizations include accelerators, incubators, investors, and other types of organizations.

V. Founder Challenges

Endeavor Insight asked founders about their most common challenges, how serious they considered these were to operating their businesses, and whether they were able to overcome them. The findings below are based on the responses of more than 70 entrepreneurs who participated in the survey.

TOP OBSTACLES TO RUNNING AND GROWING TECH COMPANIES IN RIYADH

Percentage of Founders Reporting Each Category to be a Major or Severe Obstacle



Note: Based on 78 respondents of companies in Riyadh's tech sector. The data includes select Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh.

Source: Endeavor Insight founder interviews and analysis.

Access to Talent

Access to talent was the most common challenge identified, with 84 percent of founders interviewed by Endeavor Insight saying that access to managerial talent was a major or severe obstacle, and 63 percent saying that the availability of technical talent was a major or severe obstacle, as shown in the chart above.

Finding C-level managers is particularly difficult, since the ecosystem is relatively young and there are few professionals with sufficient expertise and experience for senior roles. The generous salary and benefits packages that public sector bodies offer has also raised salary expectations among jobseekers, which acts as a further obstacle to entrepreneurial companies.

The challenge has changed over time. Some founders recounted that it used to be difficult to convince experienced managers to leave a role in a traditional corporation, but now that the ecosystem is maturing and has enjoyed some successful exits, managers are more willing to move to an entrepreneurial company. The challenge now is that there is not enough local talent to satisfy the rising demand. As one founder summarized, “The challenge is no longer in convincing them, the problem is that the talent pool is not large enough.”

The three most common strategies to overcome the challenge are: 1) hiring managers from abroad, which public sector bodies are not permitted to do; 2) partnering with local universities to establish internships, or establishing in-house training programs for potential managers; and 3) moving their operations abroad to access talent there.

The challenges that local entrepreneurial companies face for accessing technical talent are similar to those they face for management — cost and availability. Competition from large corporations and semi-government entities puts pressure on the talent market. Although there is a strong supply of computer science graduates, many startups need talent with experience and specific skills, and do not have the resources to train in-house. Interviewees noted that this is a challenge that will lessen over time, but for now the main strategy to overcome this challenge is to hire remote workers in countries such as India, Pakistan, Egypt, and Jordan, where tech talent is considered by many to be more skilled and less expensive.

Local founders find it less of a challenge to retain talent, with only 41 percent citing this as a major or severe obstacle. The most common mechanism that founders use to retain talent is to offer a stock option plan to top staff members who are at risk of leaving. Other strategies include employee loyalty programs, improved benefits packages, and activities that add to the company culture and environment.

Government Regulations

Government regulations and legislation presented major or severe challenges for 49 percent of interviewed founders, most of whom said that it was a challenge they had not overcome. Founders described regulations as being unpredictable and fast-changing. Frequent changes in legislation brings uncertainty and lead founders to devote resources to comply with new changes. According to one founder, “There’s no synchronization between government entities. So you may have support coming from one place and find a problem coming from other places.” Founders have needed to hire staff dedicated to focusing on tracking and understanding legislation while maintaining communication with regulators.

Nevertheless, several founders noted that the government is increasingly supportive of entrepreneurs, and is starting to listen to them when drafting legislation. When asked whether government policies are currently playing an enabling role for entrepreneurs, 78 percent of founders agreed or strongly agreed.

Access to Capital

Access to capital presented a major or severe challenge for 38 percent of interviewees. Although difficulties with early stage funding was cited as an obstacle by some of the founders, several of those noted that it is easier now to raise early stage finance than it had been when they started out. According to one, “This has dramatically changed today when talking about the early rounds, these days it is easy for founders to raise money in Saudi.” Early stage companies in sectors such as fintech and hardware products find accessing capital more difficult than companies in more traditional or less capital-intensive sectors. Some founders noted that finding the right investor who understands their business model and specific funding needs was more of a challenge.

There has been an improvement in the local VC market with the government’s fund of fund initiatives such as SVC and Jada, which have transformed the sector in a relatively short period of time. The number of VCs and the amount they are willing to invest has increased, but there is often still insufficient capital available for later-stage companies. While growth stage companies are able to find capital, the average ticket size is often below their needs.

Many founders have looked to solve this issue by using international funding channels. Saudi Arabia’s **Venture Capital and Private Equity Association (VCPEA)** suggests that VCs could invite more limited partners (LPs) from abroad to participate in growth stage investments. Other founders have turned to local debt instruments, and VCPEA agrees that more attention should be paid to making venture debt available as well.

Another consideration is the availability of active angel investors. According to VCPEA, the number of angel investors who provide active support such as mentorship is not sufficient for the size of the market. There is an opportunity to encourage more hands-on angel investing from experienced founders.

Customer Acquisition

Customer acquisition presented a major or severe challenge for only 24 percent of interviewed founders. The most common challenge noted was a lack of trust from potential customers in local technology companies, especially among B2B and B2G companies. This may be influenced by long-held views that international tech products are better than local ones. Attitudes are changing, but this stems from years of government units and corporations relying on outsourced technology from international tech companies, rather than seeking local entrepreneurial providers. Entrepreneurial companies are helping to overcome this issue — sometimes referred to as “foreigner complex” — by investing in sales teams that work on understanding customers’ individual technical literacy, have built brand awareness strategies, and developed customer-centered features.

Tech literacy or slow adoption was cited as a challenge by a few founders, especially those operating companies that serve consumers directly, but they noted that this is a challenge that is receding. This has been helped by the pandemic, which has accelerated the pace of digitalization and the adoption of e-commerce in the country. Companies have learned to identify a difference between two customer types and have adjusted their marketing accordingly. The most significant portion of the population is young, tech-savvy, and keen to adopt tech solutions. The second group is the older generation, who have higher disposable income but lag in terms of tech adoption and savviness.



VI. Support Systems

There are several actors in any entrepreneurial ecosystem that make it possible for founders to succeed. In addition to the founder-to-founder support in Riyadh's tech sector, other local organizations are important to the development of the community.

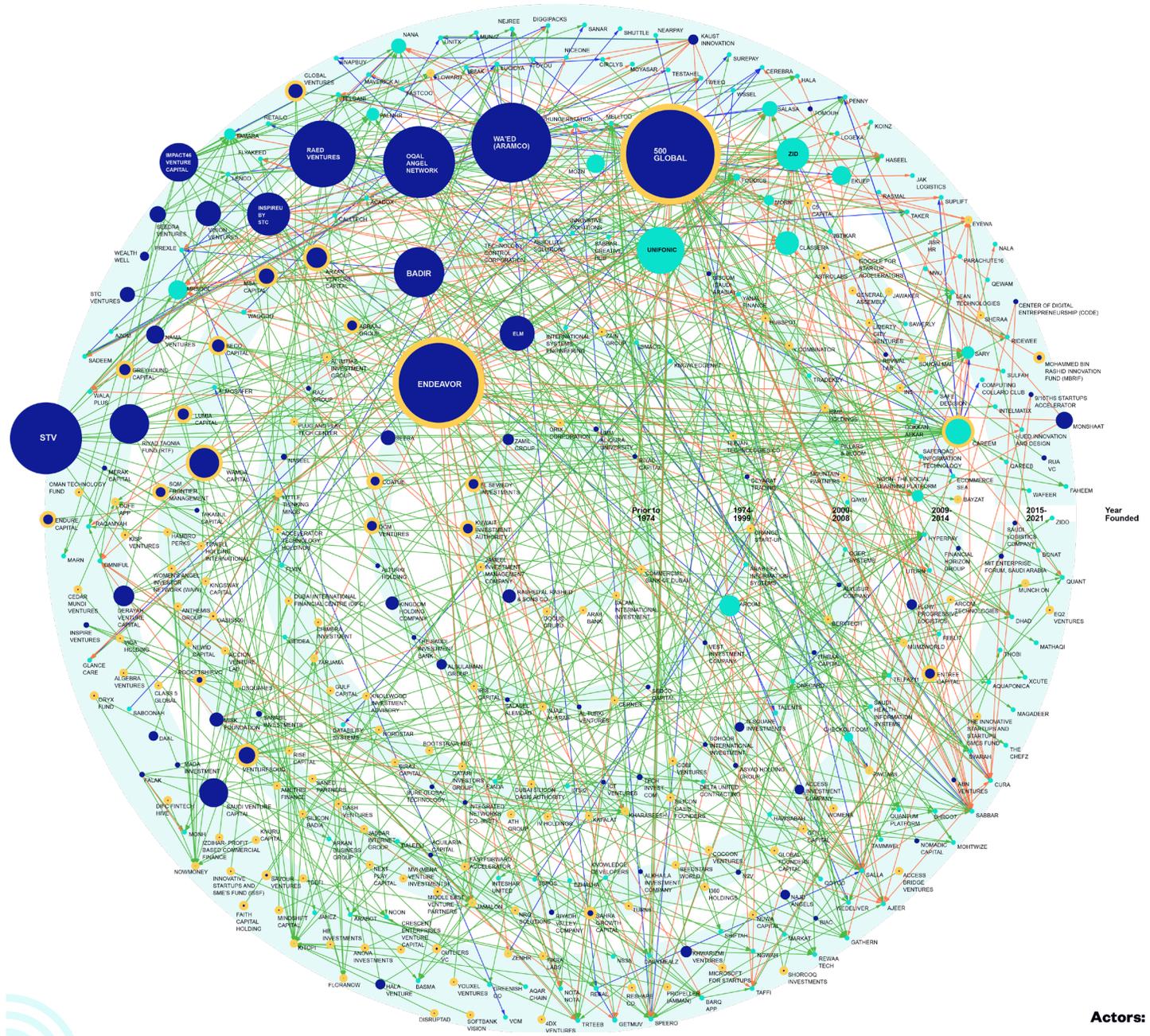
The network map on the following page shows all of the actors in the tech sector that are providing resources to local tech companies. This map adds support organizations and investment firms to the previous visualization of founder-to-founder connections, to identify the fuller picture of previous employment, mentorship and other support, and investment connections. Similarly, the size of the bubble is a function of the number of first-, second-, third-, etc. degree connections

that the company and its entrepreneurs had to others in the network. Organizations that offer multiple programs are represented only once on the map.

The top five most influential support organizations and investors in the network are **500 Global**, **Endeavor**, **Wa'ed**, **Oqal Angel Network**, and **Saudi Technology Ventures (STV)**. These organizations have higher relative influence on the network because of the following factors: they have supported the most number of tech companies (through primary connections such as mentorship, program participation, and investment); and the founders they have supported have, in turn, been supportive of many other companies (secondary and tertiary connections, which also includes employment).



NETWORK MAP OF RIYADH'S SUPPORT ECOSYSTEM FOR TECH FOUNDERS



Year Founded:

- Prior to 1974
- Between 1974 and 1999
- Between 2000 and 2008
- Between 2009 and 2014
- Between 2015 and 2021

Connections:

- **EXPERIENCE:** Former employment or serial entrepreneurship
- **SUPPORT:** Mentorship or program participation
- **INVESTMENT:** Angel or venture capital

Source: Endeavor Insight founder interviews and analysis, LinkedIn, Pitchbook, Crunchbase.

Actors:

- Local Entrepreneurial Companies
- Foreign Entrepreneurial Companies Contributing to the Local Ecosystem
- Other Local Organizations
- Other Foreign Organizations

Note: The size of a circle is a function of the number of first-, second-, third-, etc. degree connections originating from the founders of a company. Founders are represented by their most prominent company or organization. Local entrepreneurial companies also include select Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh. Other organizations include accelerators, incubators, investors, and other types of organizations.

The international programs are described on the previous page. The influential organizations based in Saudi include **BADIR**, which is a national program managed by **BIAC** that operates several incubators and accelerators across the Kingdom. It focuses on promoting entrepreneurship, and transforming technical projects and research into successful business opportunities. Wa'ed is a venture capital firm and incubator

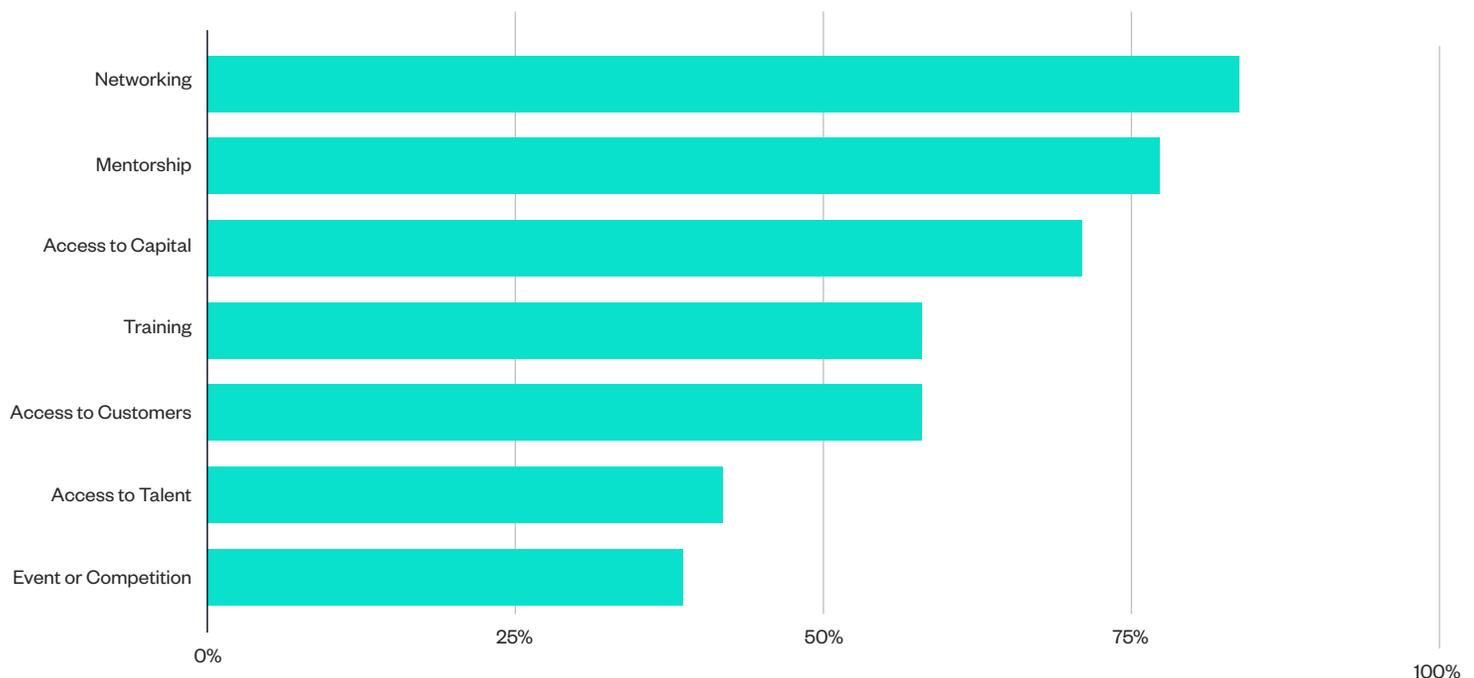
created by **Aramco** in 2011. In the network Wa'ed provides capital and support, while Aramco has offered employment to several people who have gone on to found their own companies. STV is the largest technology-focused venture capital fund in the Middle East with more than \$500 million in capital. It was founded in 2017 and has ambitions to double in size.³⁰

LOCAL SUPPORT ORGANIZATIONS

Endeavor Insight collected data on nearly 90 organizations that have supported local tech companies, of which about 30 were headquartered in Saudi Arabia. These organizations offer a range of programs and

services with networking and mentorship being the most common, as the chart below illustrates. Very few organizations offered access to talent, which is the most significant challenge that founders face.

SERVICES OFFERED BY SUPPORT ORGANIZATIONS IN RIYADH'S TECH SECTOR



Note: Based on 31 support organizations in Saudi Arabia serving companies interviewed for this study.

Source: Endeavor Insight analysis, founder interviews, organization websites, LinkedIn, Crunchbase.

About half of the programs in Saudi Arabia that were included in the study catered to the tech sector, with others focused on other industries such as real estate, tourism, or logistics. Fewer than 50 percent of programs indicated that their support was suitable for growth- and expansion-stage companies, with services such as a focus on profitability,

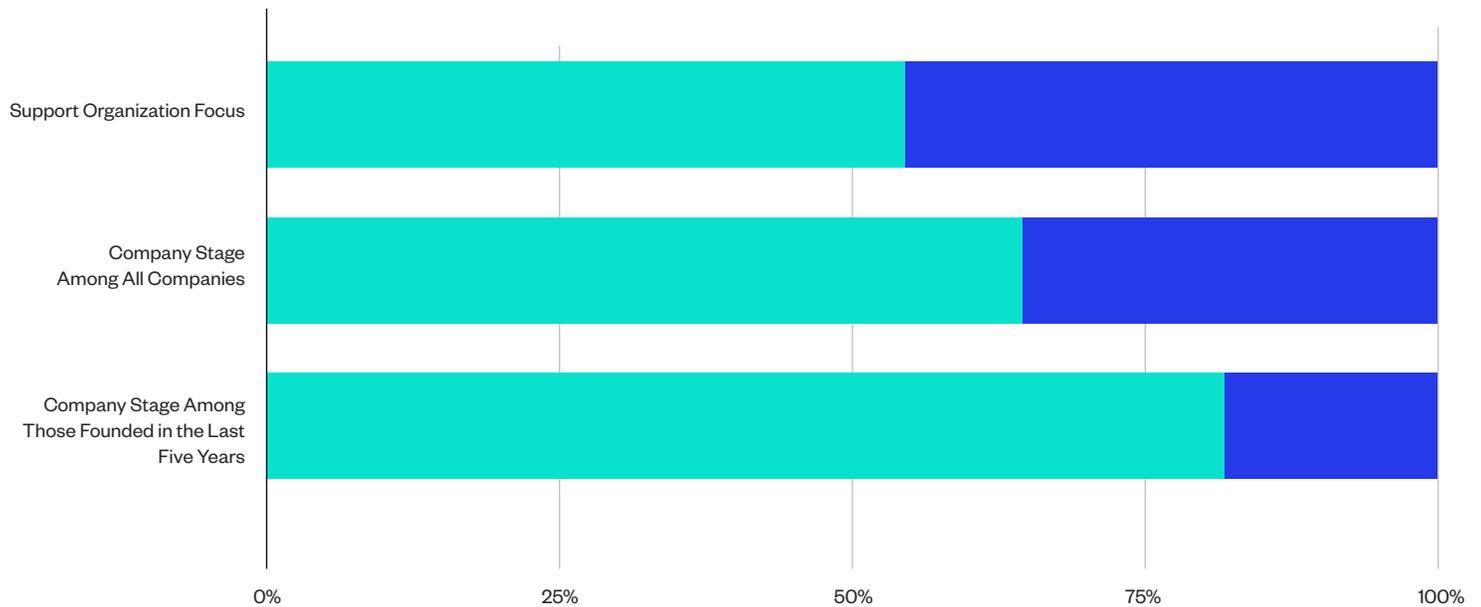
diversifying products, or expanding operations internationally. More common were programs geared toward idea-stage companies and small business services that focus on helping companies test their products, prove their market viability, or build demand.

The comparison of program offerings and the companies in the ecosystem can be seen in the graph below. Since so many companies have yet to reach the growth

and expansion stage, more support organizations should be prepared to help them reach their potential.

COMPARISON OF SUPPORT ORGANIZATION OFFERINGS AND COMPANY STAGE

■ PILOT AND EARLY ■ GROWTH AND EXPANSION



Note: Support organization data comes from 31 support organizations in Saudi Arabia serving companies interviewed for this study. These categories are not mutually exclusive, as some support organizations supported more than one stage. Pilot and Early stage indicates companies with fewer than 50 employees. Growth or expansion stage is assumed for companies that have reached the scale of 50 or more employees.

Sources: Endeavor Insight analysis, founder interviews, organization websites, LinkedIn, Crunchbase.

LOCAL MENTORS

Endeavor Insight’s survey of founders showed that the mentor community is still developing in Riyadh. Availability of mentors does not appear to be a problem, but founders have noted that many lack the experience or specific skill set to provide the most relevant advice for entrepreneurial companies. This is particularly the case for founders in less mature sectors such as fintech or software-as-a-service (SaaS). According to one founder, “There are great mentors but they don’t have the domain expertise or understanding of our problems. The mentors I met helped me with business development, building relationships, and government lobby. But when it comes to business models, building networks, there are not a lot of people in Saudi Arabia, even founders.”

Founders attribute the scarcity of quality experienced mentors to the fact that the tech

ecosystem is still young, limiting the pool of local people with the experience that new founders need from a mentor. According to one, “We are currently building these companies. The people of the ecosystem today are the mentors of the future.” This leads many to look abroad for mentorship in the interim. As one local founder explained, the best mentor “is someone who built and exited a sustainable business and currently we are building these companies. Today we find expert mentors in the global market, not locally.”

Endeavor was mentioned by several of the interviewees as playing an important role in developing a mentorship ecosystem, and the same proportion said that support organization programs had been instrumental in connecting founders with mentors.

BANKS

Local banks provide essential services to Riyadh's tech sector. One of the central aims of Vision 2030 is to support financing for entrepreneurial companies, and structural changes have been undertaken to address the legacy problem of government crowding out commercial lenders. Finance would typically be provided by government entities such as specialized credit institutions, the **Real Estate Development Fund**, and the **Saudi Industrial Development Fund (SIDF)**.³¹

In addition to providing business financing, they have also improved the ease of doing business by lowering minimum requirements specifically for entrepreneurs among financial services that benefit startups. Several banks have been active in providing further support for entrepreneurs including **Riyad Bank's** SME Toolkit, an online resource for business planning.³²

The government has put in place a mechanism to seek to address this problem and encourage the development of private financing. In September 2021 the **National Technology Development Program (NTDP)** launched a Technical Growth

Financing initiative through a partnership with the **Kafalah** program, which was set up in 2019 to provide guarantees for loans extended to SMEs. The new initiative aims to stimulate the growth of tech companies by reducing the financing risk for innovative enterprises.³³

The Technical Growth Financing initiative provides guarantees of 90 percent of the financing for tech SMEs for loans of SAR100,000 to SAR 15 million (around \$27,000 to \$4 million), and is valued at SAR 700 million (\$187 million).³⁴ The scheme is overseen by **Monsha'at**, the government's Small and Medium Enterprises General Authority.³⁵

Enterprises seeking such a guaranteed loan apply through a participating bank or financing body via Monsha'at's website, and if successful, the loan is granted and progress monitored by the issuing bank and Monsha'at. According to Kafala, the scheme had provided loans worth SAR 150 million (\$40 million) to 48 enterprises by March 2022, 90 percent of which had been granted by Riyad Bank, one of the first banks to join the initiative, and 10 percent by other banks.

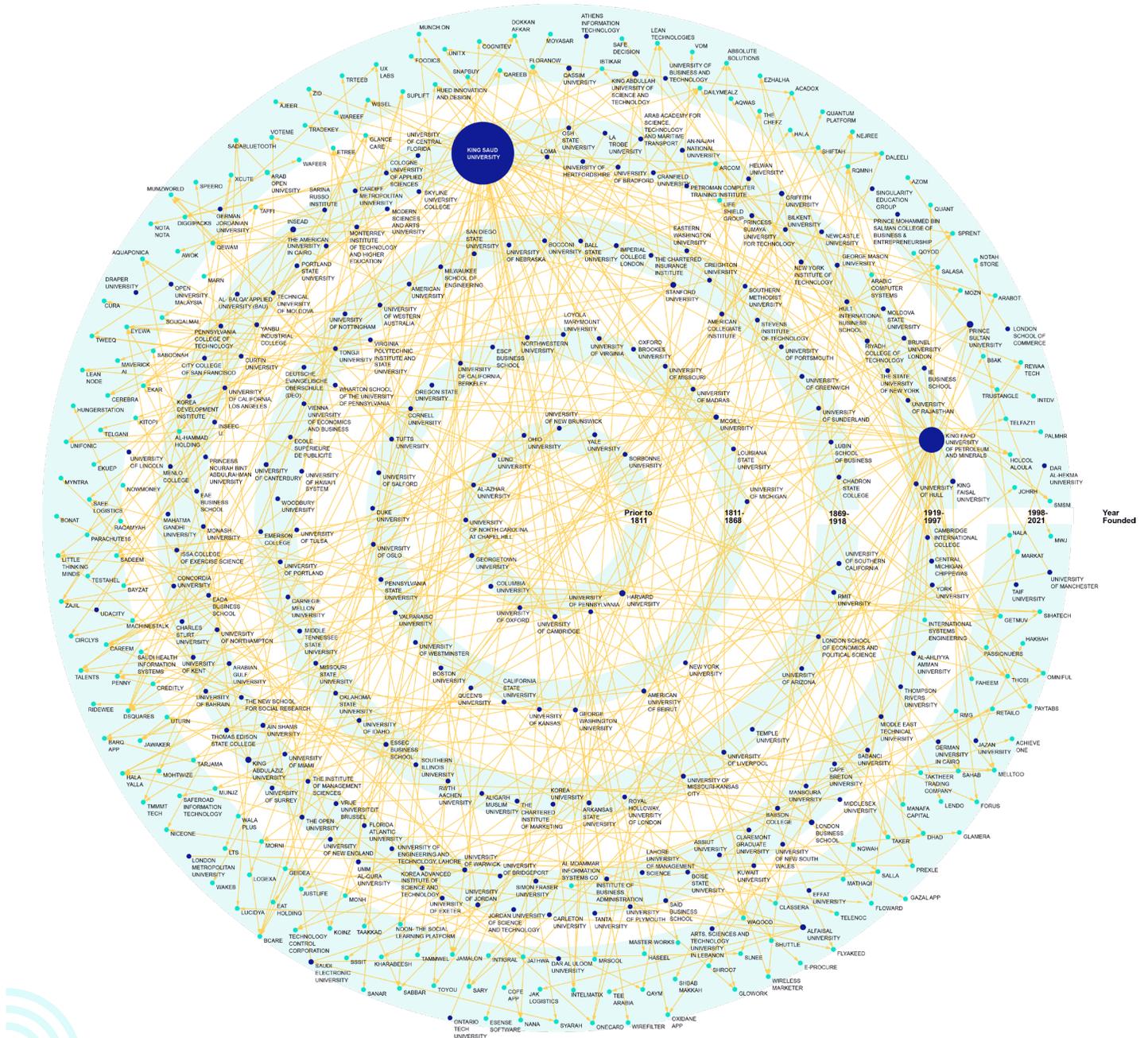
UNIVERSITIES

Universities in Saudi Arabia play an important role in the development of the local tech sector. Founders often meet their co-founders while attending university, and their facilities can often support the development of innovative products and services that eventually go to market, and graduates of technical programs provide essential talent to growing businesses.

The network map on the next page shows the relative influence of all of the universities attended by founders in Riyadh's tech sector. The most influential universities were **King Saud University** and **King Fahd University of Petroleum and Minerals**. Six of the top ten most commonly attended universities are located in Saudi Arabia, as the table on page 34 shows.



NETWORK MAP OF UNIVERSITIES ATTENDED BY FOUNDERS IN RIYADH'S TECH SECTOR



Year Founded:

- Prior to 1811
- Between 1811 and 1868
- Between 1869 and 1918
- Between 1919 and 1997
- Between 1998 and 2021

Connection:

→ **EDUCATION:** Undergraduate Degree or Higher

Source: Endeavor Insight founder interviews and analysis, LinkedIn.

Actors:

- Entrepreneurial Companies
- Universities

Note: The size of a circle is a function of the number of first-, second-, third-, etc. degree connections originating from the university. Founders are represented by their most prominent company or organization. Local entrepreneurial companies also include select Saudi Arabian companies identified by Endeavor as important to the local sector, but have legal headquarters outside of Riyadh.

TOP MOST COMMON UNIVERSITIES ATTENDED BY FOUNDERS IN RIYADH'S TECH SECTOR

Rank	University	University Location
1	King Saud University	Saudi Arabia
2	King Fahd University of Petroleum and Minerals	Saudi Arabia
3	Prince Sultan University	Saudi Arabia
4	King Abdullah University of Science And Technology	Saudi Arabia
5	King Abdulaziz University	Saudi Arabia
6	Massachusetts Institute of Technology	United States
7	Harvard University	United States
8	INSEAD	France
9	Imam Mohammad Ibn Saud Islamic University	Saudi Arabia
10	Stanford University	United States

Note: Based on data from 390 founders, where data was available. Founders were counted if they completed a bachelor's or higher education degree. If a founder received more than one degree from the same university, they were counted only once.

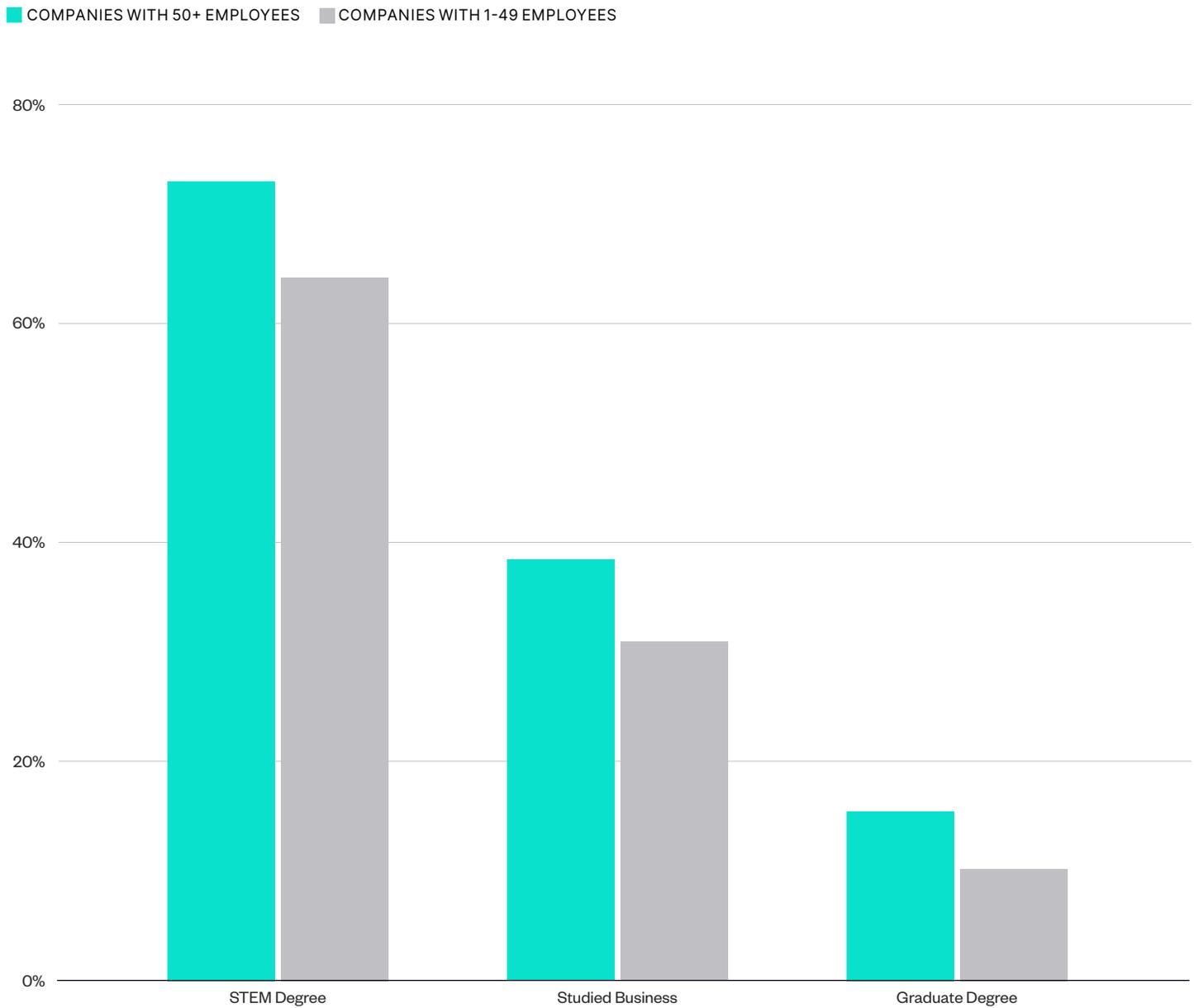
Sources: Endeavor Insight analysis, LinkedIn.

Founders who scaled their companies after 2016 in Riyadh's tech sector are more likely to have certain types of educational achievements. As the graph below illustrates, scaled companies that reach the size of 50 or more employees were more likely to have at least one founder who had

earned a STEM degree, studied business, or earned a Master's or other graduate degree. These differentiations have grown compared to companies founded more than five years ago, meaning advanced and specialized education is becoming more important to the growth of the sector.

SCALED COMPANIES FOUNDED IN THE LAST FIVE YEARS ARE MORE LIKELY TO HAVE FOUNDERS WITH CERTAIN EDUCATIONAL EXPERIENCE

Percentage of Riyadh's Tech Companies with at Least One Founder Who Has a Given Educational Experience



Note: Based on 152 companies founded in 2016 or later, where data was available.

Sources: Endeavor Insight analysis, LinkedIn.

VII. Recommendations

SAUDI ARABIA HAS THE OPPORTUNITY TO INCREASE SUPPORT FOR ITS MOST PROMISING TECH ENTREPRENEURS.

The principles of self-propelling ecosystem development will benefit the local tech sector.

Endeavor Insight has identified three key principles that decision makers can follow to align their efforts around the needs of these founders and take action that lowers barriers for the most promising companies.*

1

Focus on scale.

As Riyadh's tech network continues to mature, it is crucial to focus on the fastest-growing companies that have the most potential to benefit the Saudi Arabian economy. Tech companies that scale rapidly to the size of 50 or more employees can best contribute to economic productivity and have more potential for future growth. In order for the entrepreneurial community

to flourish into the future, more tech companies need to reach scale, and it needs to be easier for more businesses to grow their operations locally. The successes of the local tech sector are apparent, but a more enabling environment will help retain the most promising companies and support Saudi Arabia's position as a regional hub for entrepreneurship.

2

Understand local constraints and capacities.

As the founders continue to grow their companies and new subsectors emerge, they will face different challenges. Decision makers should continue to listen to the experiences of entrepreneurs,

especially those that have already scaled, as they will be aware of the local context and their knowledge will be most useful in designing solutions that reduce constraints for the entire ecosystem.

3

Encourage founder reinvestment.

Strong founder-to-founder relationships are important for fostering a productive entrepreneurship ecosystem. The value of peer-to-peer learning is immense, and more can be done to help cultivate those connections in Riyadh's tech sector. The positive perspective that the majority of

founders have about the development of the ecosystem can be leveraged to increase the connectivity in the ecosystem. As more leaders of entrepreneurial companies reach scale, they should be encouraged to serve as mentors and angel investors for up-and-coming founders.

* For more information, see Endeavor Insight's publication on "Self-Propelling Ecosystem Development" at endeavor.org/self-propelling-ecosystems.

Public initiatives are already starting to address one of the network's major constraints.

Accessing qualified managers and technical talent was a primary concern for tech entrepreneurs and there are already a number of public initiatives taking place to address this. Digital transformation is one of the central pillars of Saudi Arabia's Vision 2030 initiative, and the government is pursuing several policies to raise the standard and quantity of tech talent in the Kingdom. In August 2021, the government launched a series of initiatives to improve digital skills.³⁶ An investment of \$1.2 billion from various tech-focused government bodies covers a range of programs. The tech education initiatives aim to make one out of every 100 Saudi nationals a programmer, and these will be complemented by partnerships with multinational tech companies including Amazon, IBM, Cisco, Oracle, Informa, and Microsoft, which have agreed to establish innovation hubs for tech startups and digital centers.³⁷

The Saudi Digital Academy has set up programs to qualify and train recent graduates and job seekers in a variety of tech disciplines.³⁸ The Ministry of Communications and Information Technology (MCIT) has several initiatives aimed at strengthening technical training for different groups, including a Women's Empowerment program that seeks to bridge gaps in the labor market while opening opportunities.³⁹

Another way that the government has the opportunity to support local tech entrepreneurs is through procurement. The 2019 public procurement law has already benefited certain local sectors, starting with construction and manufacturing, by requiring the government to purchase certain products from local providers, and other products are subject to a price premium of 10 percent if purchased from

abroad. More sectors are being added once the government deems those sectors to have sufficient capacity.⁴⁰ Extending procurement policy to the tech sector would be a game changer for local entrepreneurship. It would help reduce the competition with international tech companies such as Oracle, Microsoft, and SAP, and help address the stigma stemming from the "foreigners complex," where local tech companies are passed over in favor of international corporates.

Government initiatives to attract more multinational corporations could strengthen the talent pool in the country in the long term, but there is a risk that these firms will — as government and semi-government tech enterprises already do — compete directly with entrepreneurial companies for the limited talent pool.

The local support system should coordinate to continue to address tech founders' greatest challenges.

Policymakers should continue to listen to the entrepreneurs' needs for talent and support them to this end. This may involve a similar visa waiver scheme for technical and managerial talent, as is being offered to multinationals looking to establish regional hubs in the Kingdom.

There are opportunities for other local institutions to contribute toward efforts to support entrepreneurs and build a stronger pipeline of talent. Local **support programs** can coordinate with local **universities** to better tailor their curricula to the most relevant skills needed in growing local subsectors such as e-commerce, SaaS, and fintech. Additional funding could increase capacities of the existing **in-house training programs** at entrepreneurial companies for managers and technical employees, making these programs available to others in the ecosystem.

Large corporations also play an important role in developing local talent and future founders. Many successful founders previously worked at local corporations such as **Aramco** and **STC** prior to starting their companies. The findings in this study show that founders who gain technical experience and have more years of professional experience are more likely to scale their companies. This pattern can be leveraged to encourage other such corporations to actively promote entrepreneurship as a career step for their experienced employees, which could address the need for qualified C-Suite level staff at scaling entrepreneurial companies or bring about a new generation of promising startups. These types of efforts would help change perspectives on local entrepreneurship, both as an attractive career choice, as well as a beneficial business partner.

Future growth should build on current successes.

Local **venture capital firms (VCs)** have helped accelerate the growth of the tech sector in Riyadh. Although VC is still relatively new in Saudi Arabia, they have

played an important role providing capital to the entrepreneurial ecosystem. Going forward, the sector will mature only if more deals and larger rounds are easier for scaling tech companies to access. In the short term, decision makers should help support local VCs partnering with limited partners from abroad who can supply larger funding. Over time, successful exits will further feed the supply of available capital locally so that more of the value created is retained in the region.

All types of actors in the ecosystem from entrepreneurs, investors, support organizations, and policymakers can play a larger role in recognizing and supporting local tech entrepreneurship. Coordinated efforts like these will ensure that founders' needs are being addressed and help position Saudi Arabia as a globally competitive hub for entrepreneurship throughout the region.





Entrepreneurial companies: For-profit businesses that are started by individuals. This excludes businesses that began as government entities or subsidiaries of larger companies.

Investment types:

Angel investment: An investment in a company made by an individual, not on behalf of a business or investment firm.

Institutional investment: An investment made by a company or organization.

Venture capital: Investment in businesses that have high growth potential. Venture capitalists (VCs) often provide expertise in finance and operations, in addition to capital.

Mentorship: A relationship through which a mentee will meet a mentor; in this study, defined as meeting at least three times for a minimum of 30 minutes to discuss critical business issues.

Network: A group of actors working to support local entrepreneurs. This includes capital providers such as investors and foundations, support organizations, government and international aid agencies, and experienced entrepreneurs.

Scale: A measure of a company's growth; in this study, defined as employing 50 or more people.

Support organizations: Organizations offering skill-development programs, investment, mentoring, or other support for entrepreneurs. These include incubators, accelerators, and other programs.



Methodology

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: a) founded in Riyadh, Saudi Arabia, b) currently headquartered in Riyadh, Saudi Arabia after they were founded elsewhere. Target companies also included businesses that have closed after being founded or headquartered in the area, or those that have been acquired after being founded or headquartered in the city. In select cases, exceptions were made for companies in Saudi Arabia with official headquarters outside of Riyadh, but the majority of operations are based out of Riyadh, Saudi Arabia. Select companies with headquarters outside of Saudi Arabia, but in the nearby regions, were included in the network analysis to assess their contribution to the local ecosystem.

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

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

- **Software development** for enterprises (e.g., CRM and logistics systems, security software, outsourced software and app development), or consumers (e.g., mobile apps, digital gaming), or
- **E-commerce:** Internet-based or mobile-based retail or services (e.g., e-commerce, delivery platforms, content platforms, online lenders), or
- **Electronic hardware** design and manufacturing (e.g., data storage components, IoT devices, etc.), or
- **Other tech-enabled** businesses, considered on a case-by-case basis where substantial operations relate to technology (e.g., retail or manufacturing that utilizes tech-enabled business models for reaching/serving customers).

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

companies for whom the creation of electronic hardware is a secondary activity, such as car manufacturers.

3. The company is entrepreneurial.

Entrepreneurial companies are for-profit companies started by individuals. It 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. 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 large investments, or were otherwise noteworthy or influential.

The responses helped characterize the relationships between founders and establish a list of the sector’s most “influential organizations,” i.e., organizations with outsized influence. It also provided critical data on the challenges, network characteristics, and subsector dynamics 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 Crunchbase and Pitchbook, 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 fitting the aforementioned criteria. Entrepreneurs from the target list received invitations to set up an interview via video conference. This mass outreach campaign used standard questions, but the interviews were adapted as needed 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 included additional companies sourced from the portfolio companies of those associated with the new mentions, and new companies found on LinkedIn while collecting data on entrepreneurs and companies. These secondary targets then received invitations to complete interviews. Additional data was included on investments and support organization portfolios.

Network Analyses:

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

1. Investment;
2. Mentorship and other types of support; and
3. Former employee spinoffs.

To learn about these connections within entrepreneurship communities, the interviews 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. What support organizations have you participated in?
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. Additional information on support organization participation was collected from local organizations. This combined primary and secondary data formed an edge list of connections among organizations, along with a corresponding set of three types of outbound connections. The edge list then informed all subsequent network analyses and created the network map visualizations.

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. In some cases, the sizes were adjusted to show distinction between the organization's relative influence.

Companies were only included in the analysis if it was possible to identify their founding year. 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

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