The Tech Ecosystem in Palestine

Challenges and Opportunities in the Palestinian Information and Communication Technology Sector

anera
WHERE HOPE FINDS A WAY

Anera Reports
on the ground in the Middle East

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Methodology and Purpose of This Report

Anera conducted this assessment of the tech ecosystem in Palestine to inform our career accelerator program strategy and to provide a resource for other actors working on programs in the same space.

Our assessment and narrative comes from 34 extensive interviews with tech leaders in Gaza, the West Bank and Jerusalem. Interviewees include university professors, incubator/accelerator executives, company leaders, and talented IT professionals [see pages 8-9 for their names and titles]. Some portion of the data and statistics we include come solely from one or more of the interviewees. Reliable data about the Palestine tech sector are scarce, so these conversations with experts provide a useful analysis and fill some gaps. We also rely upon the excellent reports produced by the World Bank, Swiss Development Cooperation, and the European Union, which we cite throughout the document [see the endnote section on page 17).

Anera's PLUS (People Leveling Up Skills) IT upskilling program started with a pilot in 2019. The program graduated three cohorts of students from an intensive 20-week training in full-stack software development and achieved a 92% job placement rate. Anera is using the lessons learned from that pilot and the research conducted for this report to refine and grow our program.

Several discussions with major local companies in the region helped us assess market requirements by providing a better understanding of companies' struggles, hiring needs, and the skills that are most in demand. Anera is re-designing our PLUS program so that it achieves maximum community-driven impact and benefit to local Palestinian youth.

Glossary of terms

Angel investor – an individual who provides financial backing for a startup during critical early phases

Artificial intelligence – problem-solving abilities displayed by computer systems

Blockchain – a decentralized electronic database that utilizes cryptography to establish immutable chronological records

ICT or tech – In this report we use ICT (Information and Communication Technology) interchangeably

Pre-seed investments – the initial funding for a venture, often from family and friends

Round A investments – the funding that a startup needs to begin real business growth

Tech ecosystem – an interconnected and interdependent network of diverse entities coming together to spur innovation in the tech environment

Cover photo: A young woman using a computer at the Youth Development Resource Center that Anera built in Jericho.

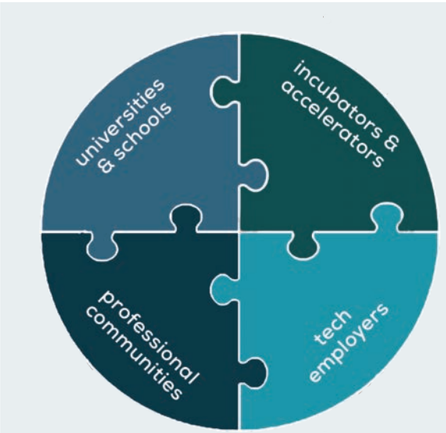
The State of the Technology Sector in Palestine Today

Professionals in the field of information and communications technology (ICT) are and will continue to be among the most prized and sought after in the global job market. Each year, more work moves into the digital space – now accelerated by the changes COVID-19 has brought to the work world. And digital skills are increasingly critical for all professionals, even those not specialized in ICT jobs.

There is a great source of talent – and a good value proposition – to be tapped in Palestine. Palestine is in a time zone that is close to Europe and the Arab Gulf countries – large, wealthy markets in desperate need of more ICT talent. Palestinians are highly literate, well-educated, and many speak English well.

The Palestinian tech ecosystem is still small, but it has been growing in the past 15 years. The majority of the existing tech businesses provide outsourcing services, mostly to local companies, while some also outsource to regional and international businesses and organizations. **Outsourcing accounts for more than 80% of the Palestinian tech ecosystem. Palestinian startups and other local tech companies account for the rest.** There are many initiatives, accelerators and incubators in Palestine working to help young entrepreneurs actualize their ideas and bring them to market as well as to upskill tech graduates and other aspiring tech career candidates.

Digital businesses are playing an increasingly important role in the Palestinian economy. There were 677 ICT firms in 2018 – 34% more than in 2008. Employment in the information and communications technology industry almost doubled over the same time frame. About half of these firms are in the telecommunications industry, and 144 are in computer programming and consultancy-related activities. The Palestinian ICT sector contributes about $493 million to the economy, accounting for approximately 3% of gross domestic product.[1]



What is a tech ecosystem?

A tech ecosystem is an interconnected and interdependent network of diverse entities coming together to spur innovation in the tech environment. Those entities are universities/schools offering tech education, developer and tech professional communities, incubators/accelerators, and startup and well-established tech companies.

Each entity has a key role in the success of the tech ecosystem. Their collaboration is key to maintaining its balance and its sustainable growth.

In 10 years, Palestine's tech sector **grew by 34%.**[1]

ICT service exports comprised 15% of all service exports in 2017, up from 0.6% in 2000. And the value of these service exports increased significantly, from less than $2 million in 2000 to more than $85 million in 2017.[2]

Palestinian universities in the West Bank, Gaza and Arab East Jerusalem graduate approximately 2,500 Palestinian tech graduates each year.[3] Of these graduates just 10% get hired by top companies right after graduation. Many of the remainder end up looking for jobs in other fields, because they lack the technical and/or other durable job skills that would make them competitive in the IT world. Others find that they do not know how to market themselves for job openings.[4]

Those tech graduates who do get hired in ICT fields start at wages that are competitive against other industries. Fresh graduates joining Palestinian tech companies might expect to make about $1,200/month in the West Bank and around $800/month in Gaza. However, **with more and more demand for new talent, Palestinian tech companies are forced to stretch their salary scales in order to compete with international and Israeli companies**, which tend to attract top-performing graduates as well as experienced professionals. Those who do manage to get hired by international companies often end up leaving Palestine, thus contributing to brain drain.

Palestinian developers earn more than their peers in Vietnam or India, which can make them less competitive in the global job market.

The key to success is to build strong technical and specialized skill sets among the Palestinian workforce.

In the past decade, significant international funding has come into Palestine to support the ICT sector. Initially the funding went largely to supporting startups and entrepreneurs. In the past two years, though, the focus has moved more to upskilling training programs. These programs' performance indicators generally have measured the number of people or startups reached and supported, rather than the impact of the support they provided to students in the mid-term and long-term. As a result, the quality of the programs suffers and some youth have grown skeptical about what they can gain from enrolling.

Though the challenges in the Palestinian tech ecosystem are great, the opportunities for improvement and growth are exciting and within reach over the near future. **Palestine has educational infrastructure and systems in place; a large pool of talented, smart people with energy and initiative; and supporters the world over ready to transform potential into reality.**

ICT contributes $493 million to the Palestinian economy **– about 3% of GDP.**[1]

"It all started when I was in high school. I really enjoyed our technology classes and wanted to know more about programming. I began with a C language online course. I still remember the feeling when I built my first 'Hello World!' project. I knew for sure then that this is what I'll be doing for the rest of my life."

Dalia Awad was in the first cohort of students from Gaza who graduated from Anera's coding academy in December 2019. She was 18 at the time. Dalia has since worked as an intern at Google and entered university.

Disadvantages Palestinian Tech Students Face

Tech students in Palestine start their educational path with fundamental deficits, including living under an occupying power that stifles nearly every aspect of most Palestinians' lives and contributes to leaving schools, communities and businesses under-resourced.

There is an overall **average of 20 students per computer in Palestinian schools, and 45 per computer in Gaza**. In the areas served by United Nations schools, where poverty is highest, those rates climb to 21 students per computer in the West Bank and 53 in Gaza.[5] And, as of 2019, only a third of households owned any kind of computer in Palestine (36% in the West Bank and 29% in Gaza).[6] It is no wonder that the majority of the Palestinian workforce have only basic digital skills.

Meanwhile, with the economy weak in Palestine, families struggle to find employment that will provide anything more than the most basic necessities. Students graduating from university or accelerator programs in tech emerge with high hopes of immediate employment in well-paying jobs or good internships. Their goals are to become financially productive as quickly as possible. If they do not get tech work, or find they need to gain more skills, many end up abandoning the profession in favor of other, more immediate opportunities. Some even end up working in blue collar jobs in Israel, since pay is often better than developers' salaries in Palestine.

Those lucky enough to enter a tech workplace face other challenges. **Many senior Palestinian tech experts have emigrated or they work remotely or in Israeli companies.** This means that junior staff in Palestine do not have the benefit of mentorship from Palestinians who have achieved expertise in their fields. New hires or remote workers sometimes struggle with English proficiency and employers report deficits in critical skills like problem-solving, decision-making, ability to get things done, and analytical reasoning.

from Anera's interviews...

> "One of the main challenges in the tech industry in Palestine is the lack of senior expertise in most tech streams, especially in emerging technologies like artificial intelligence, blockchain, cloud computing and security."

Gaza Challenges

Tech students and new professionals face a host of challenges unique to or uniquely acute in Gaza. They live among two million other residents in an enclosed, isolated area the size of metropolitan Philadelphia. **The 15-year blockade on Gaza has created problems in every way.** The infrastructure for tech work – internet connectedness and

Ahmad Azzam is a 2020 graduate of Anera's coding academy. He has since been working full-time from Gaza as an IT officer at the Turkish company LC-Waikiki.

electricity – are chronically poor and unreliable. Hardware-related roles are rare, because of the restrictions the blockade places on hardware imports.

The economy is closed off, hampering the financial situation for the whole territory. Unemployment rates in Gaza hover around 50%.[7]

Parents wanting a promising future for their children push them into fields that offer the best prospects, as they see them. Young people who lack a passion for information technology, but succumb to their parents' pressures, often fail.

New graduates in Gaza are more likely to look for and switch jobs for even a slight raise in salary. Several companies are now elevating their work culture and employee satisfaction to overcome this issue.

According to leaders interviewed for this report, tech companies in Gaza face another challenge when it comes to getting paid from international clients. **Some international transfers cannot pass into Gaza due to the political situation and restrictions.** Palestinian companies find work-arounds that transfer payments through a third country, and they lose revenue in the process. The same holds true for individual developers working through hiring agencies or other online platforms, like Upwork.

Literacy in Gaza is high – at 98% (on par with Israel and slightly higher than the 97.5% rate in the West Bank), and the percentage of the population with bachelor's degrees is also high at 18.5%.[8] However, because Gaza is closed off and connections to the wider world are limited, education there is sometimes regarded as lower quality than elsewhere in Palestine. Universities give minimal focus to practical experience, and graduates face an uphill battle in getting recruited for jobs, as companies cannot afford to invest in the training they require to become fully productive.

98%
literacy rate in Gaza

West Bank challenges

Interviews with tech leaders revealed that international companies generally avoid working directly with Palestinian freelancers in the West Bank. Employers often rely instead on agencies, so that they can gain access to different talent through one source. Also by using registered agencies, employers have assurance that the work relationship follows the local laws regarding financial and legal liabilities.

For developers, however, working through outsourcing agencies limits their profits by a big percentage for each project.

Jerusalem challenges

Developers in Jerusalem are able to work remotely and receive payments. However, their focus on freelance work, as is the case for Gaza and West Bank freelancers, means that they do not benefit from the skill development and peer learning that comes through teamwork.

Some of the experts we interviewed for this report explained that Jerusalem-based developers also face competition from their peers in the West Bank and Gaza, who work for lower rates. **The cost of living is high in Jerusalem, so developers there are under pressure to earn higher incomes.** They also tend to avoid long-term projects, which could lead to fuller skill development and expertise, if they do not hold some promise of leading to higher salaries.

Interviewees also reported that Israeli companies hire the top 10 to 20% of IT graduates from Jerusalem. The remaining middle and lower level graduates look to the West Bank for job opportunities, but they earn lower salaries than their counterparts in Israeli companies and therefore tend to seek out opportunities with higher incomes even if it means looking for non-IT related jobs.

The Palestinian Tech Ecosystem | Universities and Schools

There is a strong education ethic across Palestine. The country has one of the highest literacy rates in the world. Parents of all socio-economic backgrounds work hard to send their children to school and to university. Tragically, there are often no jobs waiting for graduates when they finish their studies. And many end up emigrating to other countries where there are more opportunities. This is true across most disciplines, and the tech world is no exception.

from Anera's interviews...

"It's the failure of the whole educational system that is not producing graduates who are computational thinkers, tech savvy (as opposed to tech consumers), able to innovate, create, think, and speak languages proficiently (even Aabic). If a society does not have a critical mass of such professionals, no program on earth can create a sufficient number of people to build a viable industry."

Palestinian students see the opportunities that tech can provide. **Education in digital skills is a popular area of study in university and beyond, accounting for about 7% of enrolled university students in Palestine.**[9]

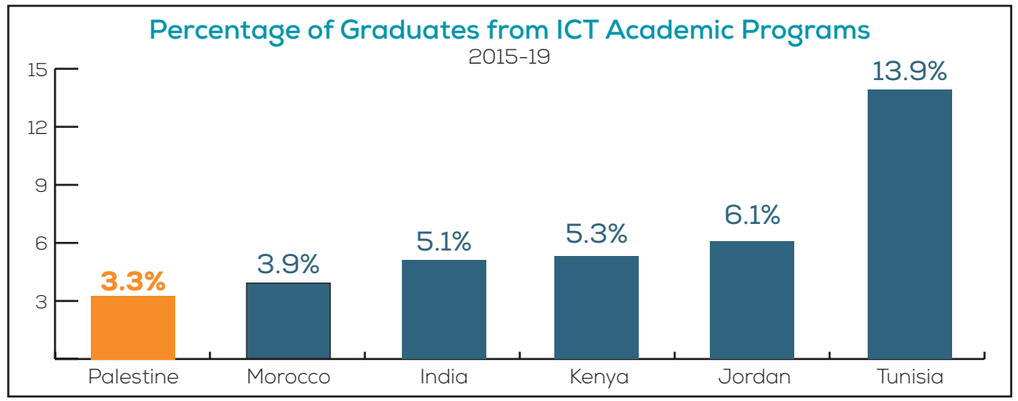
Very few tech students, however, achieve advanced or specialized levels of knowledge. The curricula at most Palestinian universities, like elsewhere, tend to be disconnected from the needs of the market, despite many initiatives that exist between universities and the private sector. Students are often not able to build up their skills to follow specialized career paths in competencies such as data science and artificial intelligence, cloud computing, blockchain, and security. **Learning focuses on theoretical aspects of education rather than on practical applications in workplace environments.**

Many education programs include mandatory internships at companies. Those opportunities are rarely productive for students, though, as companies do not invest the time into bringing interns' skills up to the levels they need to make them viable as employees. Therefore, many universities are revising and improving their internship programs to become more effective. By having better internship strategies, some introductory courses, dedicated resources, and support on campuses, universities will help the tech ecosystem by introducing better prepared graduates into the job market.

The majority of tech graduates come out of school with only a basic or intermediate understanding of their chosen field. According to one of the tech leaders interviewed for this report, **about 50% of graduates struggle to find jobs in local and global companies due to the gap between studies and market needs,** while 10% are generally head hunted quickly by top tech companies in Palestine, Israel or by international companies. And the remaining 40% leave tech altogether.

Our interviews with education professionals revealed that **student interest has shifted to emerging technologies rather than software development tracks**, as the market has been saturated with average-quality programs covering those topics over the last five years. Also, few students are interested in long-term training programs that do not include paid internships or employment guarantees, given the economic pressures they face.

(text continues on page 10)



Source: UNESCO Institute for Statistics (UIS)

Our Expert Sources

Anera conducted in-depth interviews with 34 leaders in the Palestinian ICT sector to learn first-hand about challenges they confront as they navigate and work within the tech ecosystem. They are a diverse selection of leaders in the sector: academics, entrepreneurs, and executives. The wisdom they shared is quoted and referenced (anonymously) throughout the report.

Haneen Abu Farha
Dev Diversity Sourcer
Meta London
West Bank

Abeer Abu Ghaith
Chief Executive Officer
MENA Alliances
West Bank

Mary Abu Ghattas
Senior Talent Acquisition Specialist, Freightos
West Bank

Mustafa Al-Tamim
Director of Big Data & AI
Harri
West Bank

Thaer Ayasi
Senior Growth Executive, CEO at Transcend; Lecturer Bethlehem Univ., West Bank

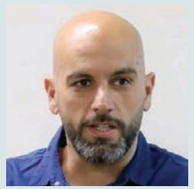
Husam Barkawi
CEO at ITG Software
Reconess
West Bank

Bashar Daraghmeh
VP for Students Affairs
AAUP
West Bank

Mona Nabil Demaidi
PhD in AI, IEEE Lead
West Bank

Doaa Ghandour
CTO, Co-Founder
Afkar & Meta DevC Co-Lead
Gaza

Daoud Ghannam
Founder & CEO
uMake
West Bank



Adel Hazboun
Director of Product & UX
Freightos
West Bank

Dr. Dalal Iriqat
VP & Assistant Professor
AAUP
West Bank

Bara' Isbeih
Director of Talent & Culture
ITG Software
West Bank

Laith Kassis
Managing Director
Paltel Group Innovation Hub
West Bank

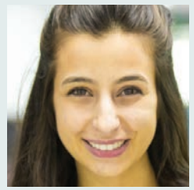
Feras Kayali
Chief Technology Officer
Harri
West Bank

George Khadder
Board Director
JHF
Jerusalem

Majd Khalifeh
Co-Founder and CEO
Flow Accelerator
West Bank

Hazem Khattab
Chairman
JHF
Jerusalem

Dr. Alaaeddine Mabhouh
Professor
Palestine University
Gaza



Razan Mattour
HR Manager
Harri Technologies
West Bank

Nadim Nashif
Founder & Director
7amleh
West Bank

Feras Nasr
Innovation manager
UK Palestinian Tech Hub
West Bank

Majdi Owda
Associate Professor in Computer Science at AAUP
West Bank

Rana Qutteineh
Managing Director
JEST Hub
Jerusalem

Nadiah Sabaneh
Founding Board Member
PalTechUS
West Bank

Randa Samara
HR Manager
Exalt
West Ban

Issam Shadid
Chief Technology Officer
AppiaTech
West Bank

Nisreen Shahin
HR & Business Development Manager, AppiaTech
West Bank

Mohamad Shela
Talent Acquisition Specialist
ASAL Technologies
West Bank

Mohammed Shurrab
Chief Technology Officer
Famcare
Gaza

Dr. Hashem Tamimi
Assistant Professor
Palestine Polytechnic
West Bank

Marwan Tarazi
Director of CCE
Birzeit University
West Bank

Ammar Tazami
R&D Director
Freightos
West Bank

Hazem Tirhi
Executive Director
Station J
Jerusalem

> The market has many competitive jobs that require people to have experience on the technical side, be able to work within a team, and have the skills needed to communicate with others. My tips for young people trying to enter this field are to always be learning new things and organize your time well and your methods for solving the problems you face. If I can do it, you can too."
>
> **Walaa Sbeih**, graduate of Anera's coding bootcamp and systems developer at the Futures Company

And universities lack trainers with strong private sector experiences or backgrounds who can deliver pedagogically sound and up-to-date courses and mentoring.

The Palestinian Tech Ecosystem | Incubators & Accelerators

There are some strong, innovative incubators and accelerators in Palestine that are striving to improve the Palestinian tech ecosystem. These organizations deliver a host of services, including providing workspace, administrative functions, training, mentorship, access to investors, and resources like capital and staff.

According to some of the experts we interviewed, incubators and accelerators play a major role in helping young tech entrepreneurs grow and shape their ideas. They pave the road for bringing new ideas to light and helping present them to venture capitalists and angel investors."

However, despite the large number of accelerators and incubators in Palestine, the industry is not really witnessing success for supporting startups through their entrepreneurial journey. Tech leaders reported to us in interviews that most of these incubators are running programs based on their donors' goals and intentions rather than focusing on how to sustain progress so startups can grow and reach financial maturity. **There is a large gap between the effort these accelerators and incubators put into their programs and the level of output seen in the market.**

The co-working spaces present good alternatives for people with limited access to reliable infrastructure, especially people in Gaza suffering from shortages in internet and electricity. Yet, there are few events that gather tech ecosystem stakeholders together and push for constructive conversations.

The Palestinian Tech Ecosystem | Employers

Employers in the ICT sector in Palestine fall into the categories of well-established tech companies and local tech startups. Both types of employers share the challenge of having a limited pool of qualified candidates for their job openings. That shortage of talent hinders growth in terms of company expansion and human potential.

Our interviews with employers revealed that companies, especially the smaller ones, are sometimes forced to turn down projects. Experts and seniors at these companies are overloaded, which limits the time they can invest in teaching juniors to start taking on more complex projects. This directly affects their profits and is particularly hard on burgeoning startups.

ICT employers in Palestine, according to many experts we interviewed, also suffer from poor collaboration among local entities that should be supporting one whole, Palestinian ecosystem. Instead, **there is a fundamental disconnect among the Gaza, West Bank and Jerusalem ecosystems**.

Tech Companies

Palestinian ICT companies, while on a stronger footing than startups, face many challenges to keeping their businesses viable and thriving. The wages they are able to offer often fall below those of Israeli or international companies. They also tend to have limited connectedness to the international market and global tech ecosystem. These issues combine to create **a high turnover rate for their senior talent**.

from Anera's interviews...

> "Palestinian outsourcing companies are a great tech resource for many international and Israeli companies who hire them for short- and long-term projects. For these companies, working with Palestinian companies is very cost effective and convenient since they find talent and dedication in these projects."

Most of the tech companies in Gaza and the West Bank are generic outsourcing companies, which means developers work on whatever projects they are assigned to complete. They might design a website one day and a mobile cooking app the next. This mode of work discourages development of specializations. **Companies therefore often have weak expertise in most tech streams – especially in emerging technologies like artificial intelligence, blockchain, cloud computing and security.** They stay with the

modes of operation that have worked (even if only marginally) for them. Most do not have research and development departments or product-based teams, which jeopardizes their sustainability in the long run.

Tech Startups

Startups are in the early stages of development in Palestine. There are currently fewer than 300 in operation. The Palestinian startup community is fairly cohesive and supportive, however, with founders getting help from the ecosystem through shared working spaces and experiences with the same incubation and acceleration programs. But the overall ecosystem remains fragmented, with limited interactions between the different Palestinian regions.[10] Our interviews revealed that many startup founders are not aware of how valuable their businesses are in the tech ecosystem. Many create a startup simply to escape unemployment and once they find a job they quit.

<300

startups are operating in Palestine

Our interviews with tech experts also revealed that investment is a major problem for Palestinian startups. The majority of financial resources are pre-seed or unknown, and there is little early-stage funding available. There are very few venture capital and angel investors. Some small investment opportunities push startups to a certain level, but not at rates high enough to properly validate new ideas and products in the market or to act as leverage for more funding. The end result is that companies lack the means to take creative risks, try out their ideas, hire staff and launch their products in the market. Few startups survive in the longer term.

According to one leader with whom we spoke, only about 3% of current startups have a physical marketplace-based business, meaning that roughly **97% can conduct their business from any location, whether in person or online**. The majority of Palestinian startups cannot provide product-based or niche services on new technologies. Therefore they are unable to scale up and expand into new markets. No high-value tech scale-ups are currently expanding in Palestine.

As mentioned in earlier sections, there is a pay gap between local companies and remote work opportunities in foreign companies. All companies are competing for the same small pool of local talent. **Tech startups face formidable challenges in recruiting staff who have specialized skills and in paying competitive wages that will entice them away from other opportunities** that may be more lucrative, even if less relevant to their career goals. Again, this is a chronic issue that leads to a brain-drain of talent.

from Anera's interviews...

"The majority of the Palestinian startups do not mature to reach round A investments due to the lack of proper mentorship and guidance at an early stage."

Gaza-specific challenges for established and startup employers

As in the rest of Palestine, Gaza has a scarcity of professional experts in new technologies. The situation is particularly bad in Gaza, however, because there are fewer tech education opportunities at the university level and the quality of the education tends to be weaker than in Jerusalem and the West Bank. For instance, **in robotics and machine learning, the regulations on hardware imports makes building any real experience in the sector almost impossible as they do not have the tools or materials** (imports considered potential "dual-use" are restricted by the blockade imposed by Israel and Egypt) to practice or to build products. According to people we interviewed for this report, what is now adding to the compromised qualifications of Gaza's tech graduates is a newly emerging problem that affects all professions: universities, for financial reasons, have begun accepting new students with lower entrance exam scores (66% minimum instead of 75%).

Interviewees reported that there are around 200 tech companies in Gaza, mainly working in outsourcing IT services to local and international organizations. Only 40 of them are legally registered. Unregistered companies do not pay income tax to the government and their employees are not subject to the legal benefits they should receive, like a minimum wage, end-of-service severance pay, pension fund, medical insurance, and vacation days.

Finally, a unique problem Gaza faces is a hesitancy from international companies to work with companies and talent based in Gaza because of concerns that local social and political instability may disrupt productivity. **After the bombing of Gaza in May 2021, several Gaza-based companies lost international contracts because clients feared the Gaza companies would not be able to deliver.**

Jerusalem-specific challenges for established and startup employers

Employers in Jerusalem are subject to Israeli laws and regulations, which impose higher income tax rates and set higher wages than the Palestinian Authority. This means that it is more costly for companies to operate there, which makes them less competitive.

Interviewees reported to us that Palestinian startups face investment challenges in Jerusalem due to high competition in the Israeli market. Israeli investors have a rich pool of new ideas to pick from for potential investment. Palestinian startups must have unique ideas to get attention in the Israeli market, and therefore they tend to look to the West Bank for investment opportunities.

from Anera's interviews...

"International companies prefer to avoid working directly with Palestinian freelancers, and instead employ outsourcing agencies, which limits developers' profits by 25% or more for each project."

The Palestinian Tech Ecosystem | Professional Tech Communities

A healthy tech ecosystem will only thrive if it has a nurturing community growing within and around it. Forward- and like-minded experts, leaders, students, employers, educators, and change-makers make up a community that can support and spur innovation and new ideas. The community can also promote a culture of comradery and giving back.

In Palestine, this community and hub does not exist as a holistic entity. There are few events or digital fora that bring together the breadth of stakeholders in the tech ecosystem. Important conversations are not happening about improving communication and finding solutions to better the whole system. So cycles of ineffectiveness continue.

There are, however, some initiatives that have started to emerge in Palestine that bring diverse programs together under one umbrella. The Palestinian Information Technology Association, for instance, is a non-profit that represents and advocates for 150 tech companies in Palestine. Moreover, some incubators and accelerators are starting new initiatives and joining efforts with the private sector. Programs like Gaza Sky Geeks, a Mercy Corps initiative, work with Palestinian youth to support and enhance their skill growth in programming and non-programming fields. Sky Geeks aims to nurture and leverage highly skilled Palestinian youth in order to stimulate the Palestinian digital economy through tech and innovation.

Such associations encourage collaboration and help focus efforts on the real needs and deficits of the market, and will ultimately help to produce the kinds of skilled tech professionals that local and international employers seek.

Anera's PLUS+Code Program

In 2019 Anera launched our PLUS (People Levelling Up Skills) program in Palestine. The PLUS+Code program provides an intensive 20-week training in full-stack software development followed by career mentorship to accelerate careers in IT. The pedagogy combines a technical curriculum from Silicon Valley's HackReactor with an intense emphasis on durable skills through an immersive boot camp. Completing three cohorts (Amman, Gaza and West Bank), the program achieved these notable results.

88% graduation rate
86 graduates

monthly salary
12% > Palestinian avg

52% women grads
49% women placed in jobs

87% job placement, 6 mos
92% within 1 year

To scale this program, Anera is tapping into impact investing and has created an LLC, Anera Ventures, to facilitate financing. This funding model will ensure sustainability by funding student tuition scholarships through a mix of donations and tuition payments from the learners and employers.

Improving the Health of Palestine's Tech Ecosystem

Though the challenges are great, as described above, the Palestinian tech ecosystem has many strengths to build on and opportunities to pursue. Below are recommendations that are based on Anera's experience in the sector, our conversations with leaders, and the excellent resource documents in the endnotes.

For the Overall Health of the Palestinian Tech Ecosystem...

- Develop expertise in emerging technologies to create a competitive edge.
- Advocate for improvements to national digital policies to make doing work in the sector more business-friendly.
- Collect data regularly on education, employability and entrepreneurship streams to help organizations design programs that best respond to real time needs.

For the Palestinian Tech Workforce...

- Upskill new grads as well as junior and senior staff through high quality training programs focused on emerging technological subspecialties.
- Guarantee graduate employability in existing local and international companies or in newly created startups.
- Identify potential pairing opportunities for university courses/startup models with successful universities/companies worldwide.
- Draft programs with universities that will guarantee quality internships or productive final year projects for pre-grads.
- Ensure students and educational programs have access to the hardware they need to succeed.
- Create opportunities for students to gain international experience and exposure.

For Supporting Viable Startups...

- Create a focus stream for startups, especially one that develops products, to help refine their offerings and allow them to expand to international markets.
- Support the creation of additional venture capitalists and/or the creation of angel investor networks.
- Pair Palestinian with European/U.S. startups to help them design their services' expansion strategies.
- Include a mentorship period for startups to move towards product-based modes of work. Product teams could be created for startups.

- Support opportunities for start-ups to participate in accelerator programs outside of Palestine and international conferences and events, like Web Summit and ArabNet.
- Focus on product-based teams instead of generic outsourcing, especially in Gaza where fees are more competitive.
- Mobilize the diaspora through an organized initiative to support the local tech ecosystem across Palestine.

For Palestinian Software Firms...

- Establish product-based teams and specialized outsourcing services to more effectively compete for global business.
- Build expertise in specific industries that are booming worldwide, much like Agrytech, Cleantech, Fintech, and Edtech.
- Move into specializations like emerging or product-based technologies to create a competitive edge for the emerging workforce and startups.

For Fostering Tech Communities...

We recommend that those of us who participate in the Palestinian tech ecosystem come together to either create a new community or leverage an existing one that acts as an umbrella and builds bridges between Gaza, the West Bank and Jerusalem. A strong tech community can bring about great changes, starting with these several recommendations:

- Identify a team to support the community.
- Create essential guidelines and regulations.
- Host regular events (hackathons, expert panels, workshops, etc.).
- Act as a hub for any help required (technical, career, funding, business, etc.).
- Build and implement a mentorship program.

Transcending Barriers

The ongoing occupation and lack of progress on Palestinian sovereignty, with all of the restrictions these realities entail, are real hindrances to developing a more robust economy overall. ICT is no exception. At the same time, even within these limitations the tech sector presents a major opportunity for Palestine to grow its economy through good jobs and a thriving technology ecosystem. Borders don't impose the same impenetrable restrictions on the tech sector as they do in other sectors. Indeed, **the global demand for more supply of tech talent presents an opportunity for the Palestinian economy. ICT can be a larger piece of the economic growth pie relative to other countries precisely because of the physical and border restrictions that greatly hinder other sectors of the economy.** The technology sector can and should play an important role in strengthening Palestine's economic future.

Endnotes

1. documents1.worldbank.org/curated/en/472671640152521943/pdf/Palestinian-Digital-Economy-Assessment.pdf
2. Ibid
3. home.pita.ps/wp/
4. mohe.pna.ps/services/statistics#
5. Ibid
6. pcbs.gov.ps/post.aspx?lang=en&ItemID=3738#:~:text=The%20results%20of%20the%20Household,29%25%20in%20Gaza%20Strip)
7. pcbs.gov.ps/portals/_pcbs/PressRelease/Press_En_8-11-2021-LF-en.pdf
8. pcbs.gov.ps/Portals/_Rainbow/Documents/Education-1994-2021-10E.html
9. documents1.worldbank.org/curated/en/472671640152521943/pdf/Palestinian-Digital-Economy-Assessment.pdf
10. ipsd.ps/cached_uploads/download/2021/05/04/palestinian-startup-ecosystem-summary-1620120199.pdf

References We Recommend

Palestinian Digital Economy Assessment Report | World Bank

The Palestinian Information Technology Association

Palestinian Startup Ecosystem - Summary | Startup Genome

The Palestinian Tech Ecosystem | The Portland Trust

Niveen Elkhozondar

After graduating from Anera's coding bootcamp, she began first as a freelance front-end software developer and user-experience developer. Now she works full-time from her home in Gaza as a quality assurance engineer for Unit One Group, an IT services and consulting company.

> "Unemployment is rife in Palestine. Women, in particular, go through extra challenges. So programs like PLUS motivate people and give them skills to set them up for a better future."

Anera
1111 14th Street NW, #400
Washington, DC 20005

+1-202-266-9700
anera@anera.org

anera.org

ABOUT ANERA'S ON-THE-GROUND SERIES

The Anera on-the-ground series is designed to add a humanitarian voice to the story of life in the Middle East. With data from Anera's professional staff, people who live and work in the communities they serve, and with over 50 years of experience in the region, Anera has a unique opportunity to build a fuller understanding of what life is like for families struggling to survive within an atmosphere of severe political strife and daily turmoil.