

MIT-Middle East Multi-Party Collaboration

By

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ABSTRACT

The Middle East comprises much of the Arab world, including Egypt and Israel. It is the birthplace of three major world religions. The modern history of the region has been marked with a series of geopolitical upheavals that have fragmented the countries that make up this place. In August of 2020, however, there was an historic shift away from fragmentation when an agreement of diplomatic, economic, trade and cultural collaboration was signed between Israel and UAE. This was soon followed by a similar agreement between Israel and Bahrain which further sparked normalization agreements with Sudan, and then with Morocco. Combined, these series of agreements were known as the Abraham Accords. This is important for multiple reasons:

- This transition to normalization occurred after a long history of absence or lack of any diplomatic or trade relations despite being in the same region.
- The Abraham Accords have the potential open doors for the remaining countries in the region, among which Saudi Arabia is the largest and one of the richest in the world, to also normalize relations with Israel and thus pave way for a collaborative network innovation ecosystems for the region
- Viewed from the MIT lens of entrepreneurship and innovation, Israel stands out as the clear powerhouse in the region followed by a very distant second, UAE, which in recent years is doubling down on building and expanding its own entrepreneurial ecosystem.

The idea of a ‘Middle East Multi Partner Initiative’ was explored from within MIT International Science and Technology Initiatives (MISTI) while aiming to engage across the Institute. The initiative to build on recent geopolitical developments in the region to reach across borders to make regional impact is in its nascent stages of development. Its goal is to promote collaborative solutions to major challenges in the region that often share the same set of geographical, economic, and social hurdles, but lack bridges for knowledge sharing as well as symbiotic and sustainable partnerships.

My work explores the current state of the region from the lens of potential entrepreneurial and economic collaboration, the key areas to focus on, and the most effective framework for MIT to build bridges between multiple countries by leveraging MIT’s programs, researchers, students, and the alumni body who are either based in the region or involved in research or coursework in these countries. For the 200+ MIT students that in a typical year annually take part in professional experiences in the region, this initiative could bring together new and existing partners in multi-partner engagement while simultaneously offering transformative educational experiences for MIT students and meaningful research opportunities for MIT faculty in the region.

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To David Dolev, who is the reason and the enabler for me to research this topic starting from my time in Jerusalem as part of Israel Lab and introducing me to Dr. Phil Budden

...to Dr. Phil Budden for guiding me through this project and providing me diplomatic advice and an incredible learning experience

...to everyone who was gracious enough to talk to me and share their perspectives

...and lastly to my parents, who's never-ending support has always enabled me to explore unbridled

Thank you. Truly.

Thesis Background and Motivation

Having lived and worked in a high-growth startup in the Middle East region prior to MIT, I was aware of its potential to grow manifold as a hub for entrepreneurship, innovation, and tech transformation – things it largely hasn't been known for in modern history. Being in Dubai, UAE, I also noticed how it attracted talent from across the region and beyond to enable collaboration of ideas and expertise, without the usual hurdles of borders. There was, however, still one 'forbidden fruit', Israel, which despite being the "start-up nation" and located inside the Middle East region, was beyond the reach of collaboration and learning at the time. In 2020, Israel Lab at MIT provided me an opportunity to explore Israel's entrepreneurial ecosystem and its evolution firsthand. Not only it was an incredible academic experience, I also was able to visit Tel Aviv and Jerusalem, work for an Israeli start-up and experience the culture. During this time, I helped facilitate a joint Israeli-Palestinian hackathon – not much different from MIT Bootcamp for Entrepreneurship that I attended in 2018. It was amazing to witness Israelis and Palestinians working side by side to solve local challenges that either affected both communities or could bridge the gap between them. In all of this however, there was this constant un-articulated feeling that these efforts are heavily dependent on the volatile geopolitical climate which casts a shadow on the long-term sustainability of these efforts, no matter how transformative.

In the summer of 2020, with the signing of the Abraham Accords, there was a renewed hope that such regional collaboration could be extended well beyond the borders and into the neighboring countries in the region. I assisted David Dolev and the team with the development of a project in the Summer of 2021, drawing insights from the successful MIT REAP (Regional Entrepreneurship Acceleration Program) model, with emphasis on identifying areas of mutual collaboration for the region. This thesis is an extension of my work to analyze how can these countries in the region collaborate for innovation-driven entrepreneurship sustainably with MIT as an enabler with its network of programs, researchers, students, and alumni.

This thesis is my personal attempt to recommend a framework that could help consolidate MIT programs focused on the Middle East region where their impact can go beyond a specific country. This is also an effort to consolidate efforts and programs that have taken shape since the Abraham Accords in order to collaborate on multiple fronts and what opportunities lies ahead.

To that end, I conclude by proposing a framework, entitled the **MIT Middle-East Multi Partner Innovation Model (M³- π Model)**, which I have designed, as a result of my research and in the light of my interviews, without commitments from within MIT or from across the regional players. That said, I believe it worthwhile to make a proposal which others can then consider.

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Part-I

1

Introduction

1.1 The Region in Focus

1.1.1 Defining Middle East

The term ‘Middle East’¹ is a geopolitical one, that is usually used to describe the region of pre-dominantly Arab countries in south-west Asia, the Arabian Peninsula, and the countries in North Africa. It is also a fairly flexible term that can include or exclude countries surrounding this region based on the context. For the purposes in this research, we will focus on a subset of these countries that have either long-standing agreements - or more recent Abraham Accords - with Israel, but also include Palestine and Saudi Arabia. Most of these countries have relatively stable governments, similar socio-economic conditions, and sizeable economies, like the United Arab Emirates (UAE), Bahrain, Jordan, Egypt, Saudi Arabia, and Qatar. Palestine is included because it is geographically closely linked to Israel and any programs that can help both are of interest.²

1.1.2 Structuring into Priority Groups

Within the subset, the countries described above are further divided into three groups based

¹ [What and Where is the Middle East, Greta Scharnweber – Middle East Policy Council](#)

² [Wilson Center: Abraham Accords – One Year Later](#)

their past and expressed intent for cross-border collaboration in the sectors of economy, trade, and entrepreneurship.

Group A – Champions: Israel, UAE, and Bahrain

Group B – Conservatives: Palestine, Jordan, Egypt

Group C – Future Potential Partners: Saudi Arabia, Qatar



Fig 1.1 The Middle East Countries in this Study

The rationale for this division is based upon the levels of current and expected level of economic and entrepreneurial activity between these countries, the formal agreements of

engagement between them and how actively the governments are building these linkages. A key indicator to this trend is the rate of trade increase in dollar terms between the countries.

The following shows the trade numbers between each country with Israel in 2021 ³:

- \$1.15 Billion in trade between Israel and UAE in 2021 (511% increase from 2020)
- \$6.5 Million in trade between Israel and Bahrain in 2021 (up from 0 in 2020)
- \$246.1 Million in trade between Israel and Egypt in 2021 (43% increase from 2020)
- \$455.8 Million in trade between Israel and Jordan in 2021 (83% increase from 2020)

It is unavoidable to discuss Middle East without mentioning its politics, history, and conflicts. Without going into details, because Israel shares a turbulent relation with Egypt and Jordan in the sense that despite the apparent normalcy of relations for several years, there is minimal people-to-people contact. Even though a peace treaty exists between Israel and Jordan since 1994, the relations between the two countries have been strained. As recently as late 2019, King Abdullah of Jordan described the relations between the two countries “at an all-time low” ⁴. Even the recent energy and water deal between the two countries was facilitated by the UAE ⁵ which will also build the facility in Jordan that will benefit both Israel and Jordan ⁶.

Similarly, the relations between Egypt and Israel have been turbulent despite a peace treaty between the two countries since 1979. Even though the trade between the two countries is sizeable, standing at \$246.1 Million for 2021, according to the 2019-2020 survey, 13% of

³ Israel Central Bureau of Statistics: (https://www.cbs.gov.il/he/mediarelease/doclib/2021/427/16_21_427t1.pdf)

⁴ (<https://www.timesofisrael.com/king-abdullah-israeli-jordanian-relations-are-at-an-all-time-low/>)

⁵ (<https://www.brookings.edu/blog/order-from-chaos/2021/11/23/israel-jordan-and-the-uaes-energy-deal-is-good-news/>)

⁶ (<https://www.brookings.edu/blog/order-from-chaos/2019/10/23/25-years-on-remembering-the-path-to-peace-for-jordan-and-israel/>)

Egyptians support diplomatic recognition of Israel while 85% oppose ⁷. In May 2022, Air Cairo launched the planned direct flight route between Tel Aviv, Israel and Sharm e-Sheikh, Egypt, marking the first time an Egyptian airline has operated a flight from Israel's Ben Gurion Airport to Egypt. This marks a gradual path to more tourism between the countries, but a more intertwined collaboration will take time.

What holds back the wide-scale economic cooperation despite decades of peace treaties is the political climate in the countries, and differences over Palestine. For instance, after the peace treaty between Israel and Egypt, Air Sinai ⁸ operated flights from Cairo in unmarked planes with no public schedule of flights to avoid public backlash. Similarly, there have been milestone projects that Israel, Jordan and Egypt have undertaken jointly like the Qualifying Industrial Zones ⁹ that allow Egypt and Jordan to export product to U.S. if contains inputs from Israel and Free Zone Industrial Park ¹⁰ in Jordan aims to gives access to ports in Jordan and Israel to attract investment and business. These projects have, no doubt, created economic outcomes for the countries as evident by significant trade figures between Israel and Egypt and Israel and Jordan. However, comparing these joint projects that have been in operations for decades in some case and their associated trade outcomes with Israel-UAE trade will show that one year of normalization, that too during economic downturn brought by COVID-19, resulted in trade that is 2.5 times that of Israel and Jordan and 4.7 times that of Israel and Egypt. Beyond the scale of economic ties, there is little sustainable people-to-people contact to speak of when it comes to Israel-Jordan and Israel-Egypt relations. As discussed in later sections, in addition to policy, key constituents of entrepreneurial ecosystem stakeholders are

⁷ (<https://www.dohainstitute.org/en/Lists/ACRPS-PDFDocumentLibrary/Arab-Opinion-Index-2019-2020-Inbreef-English-Version.pdf>)

⁸ [Air Sinai – Ghost Flight](#)

⁹ [Qualifying Industrial Zones-Egypt, Jordan, Israel](#)

¹⁰ [Free Zone Industrial Park-Jordan](#)

people. Without the connections built by the people, collaborations are always dependent on short term policy boosts – which cripples the process of building a cross-border network of entrepreneurial ecosystems without thorough political engagement.

The conflict between Israel and Palestine is many orders of magnitudes more complex and is outside the scope of this research. Based on the reaction of the Palestinian Authority regarding the Abraham Accords ¹¹ and my interviews with Palestinian entrepreneurs (names included in Research Methodology), it is my understanding that while Palestine will currently have only fringe benefits at best from any collaboration that is the objective of this research, I will detail ways in which these efforts could make an impact ^{12 13}.

For the reasons described above, Palestine, Jordan and Egypt are placed in Group B, where entrepreneurship collaborations with Israel will require significant amount of government and people interventions that are not seen as of now, along with significantly more time. It is also safe to assume that Israel – UAE – Bahrain collaboration, supported by all the governments along with increasing people-to-people contact, provides the highest probability of success for an MIT-led collaboration effort targeted at cross-border innovation led entrepreneurial ecosystem, should MIT be interested in such a sub-set. Therefore, these three countries are placed in Group A – Champions and major portion of research and recommendation have been focused here. Group C countries have maintained somewhat neutral stance ¹⁴ to the Abraham Accords and could be partners in the future.

¹¹ (<https://blogs.timesofisrael.com/analyzing-the-palestinians-reaction-to-the-abraham-accords/>)

¹² (<https://foreignpolicy.com/2021/10/29/why-the-abraham-accords-wont-bring-israeli-palestinian-peace/>)

¹³ (<https://insidearabia.com/abraham-accords-one-year-later-the-palestinian-question-still-matters/>)

¹⁴ [Lessons from Israel and Egypt's lukewarm peace, Atlantic Council \(2021\)](#)

UAE-Israel provides that success story where a model can be built, proved with tangible results, and then expanded or emulated for more countries. This does not mean that the other countries placed in Group B and Group C are excluded from a joint program. This only translates to the structure of the model where these programs could be help in either UAE and Israel, with greater engagement with stakeholders from ecosystem from both countries, but open to participants and stakeholders from Group B and Group C countries. Effectively, Israel and UAE will act as champion super-stakeholders (drawing on the REAP Model discussed later) with active involvement in this larger ecosystem facilitated by MIT that will build the system for others to join and benefit.

1.2 Goal of Research

This research uses the frameworks from MIT's Regional Entrepreneurship Acceleration Program (REAP) ¹⁵ and the class on 'Innovation Ecosystems for Regional Entrepreneurship-Acceleration Leaders' (iEco4REAL) ¹⁶. It draws on their principles, frameworks and learnings, as well as wider literature, to analyze the stakeholders required for the multi-partner entrepreneurship collaboration and design a plan to answer the following three questions:

1. With MIT at the center, what is the most effective way to setup the program for long term continued results and what models will facilitate the greatest collaboration?
2. What areas MIT should focus on that gives MIT-facilitated collaboration a unique strength both on broad category level and specific problems within category?
3. Explore all the challenges involved, course of action and identifying stakeholders that need to be involved within the region.

¹⁵ MIT's REAP (<https://reap.mit.edu>)

¹⁶ iEco4REAL (<https://innovation.mit.edu/education-community/classes/real>)

2

Research Methodology

The main research techniques leveraged in this thesis are:

- Extensive literature review on ‘innovation-driven entrepreneurship’, MIT’s REAP and REAL frameworks, the state of Middle East entrepreneurial ecosystems and the impact so far of the Abraham Accords
- Expert interviews to understand perspectives of stakeholders in the region. List of expert stakeholders interviewed:
 - Aviad Tamir; Head of Israel's Economic and Trade Mission to the UAE
 - Ingrid Toppelberg (MIT MBA 2010); Chief Digital Transformation Officer, ThriveDX, Israel; Head Coach MIT Bootcamps
 - Dan Feferman; Director of Communications and Global Affairs, Sharaka, Israel
 - Bassel Al Nahlaoui; Managing Director – Mobility, Careem, UAE
 - Fawad Mehmood (MIT Sloan Fellow 2015); CFO Siemens, UAE
 - Ahmed Magdy Sharafeldin (MIT Sloan MFin '23); Former Experience in Risk Capital in Egypt and currently working with a Saudi-Egypt-UAE Fintech startup, Amwal

- Sadia Khuram (MIT Sloan Fellow 2017); Group Chief Strategy Officer at Pure Health, Former General Manager at Careem
- Ayesha Muzaffar; Portfolio Head MENA Region at IFC, World Bank
- Stella Penso, Former Senior Director of Revenue Management at Careem, UAE
- Sameer Farooqi, Co-Founder and COO at Ilara Health, Africa, Former Careem Employee
- Najeeb Aqel; Past Participant in MIT Innovation and Entrepreneurship Bootcamp, Palestine
- Hassaan Ali; Past Participant in MIT Innovation Leadership Bootcamp, UAE
- Anonymous *, Past Participant in MIT Innovation and Entrepreneurship Bootcamp, Lebanon
- Anonymous *, Founder E-Commerce Start-Up in UAE, Saudi Arabia and Pakistan
- Anonymous *, Managing Partner of VC firm in Middle East, UAE

In addition to the above interviews, there were more informal interactions that involved some of the stakeholders that will form the foundation of the innovation-driven entrepreneurial ecosystem discussed later in this research. These included sessions from David Dolev's course SP.258 Middle East Cross-border Development and Leadership in Spring 2022 and various live and recorded talks from entrepreneurs, NGOs and VCs from the region.

* Names have been redacted as per interviews request

Part-II

3

Review of MIT REAP and REAL Framework and MIT's literature on Innovation and Entrepreneurship

The MIT Regional Entrepreneurship Acceleration Program (MIT REAP) ¹⁷ provides opportunities for communities around the world to engage with MIT in an evidence based, practical approach to strengthen innovation-driven entrepreneurial (IDE) ecosystems. The objective of the MIT REAP and REAL frameworks is to understand the key strengths and weaknesses of the region's innovation ecosystem and evaluate the engagement and level of collective impact by regional stakeholders.

3.1 Innovation-Driven Entrepreneurship

Over the years, the culture of start-ups has become mainstream outside of hubs like Silicon Valley in the U.S., but 'innovation' and 'entrepreneurship' have become somewhat of buzzwords with malleable definitions based on who is using them. While there exists a difference of opinion regarding these terms, we are going to focus only on 'innovation-driven entrepreneurship' ¹⁸.

¹⁷ [Overview - MIT REAP: Achieving Economic Growth Through Innovation-Driven Entrepreneurship](#)

¹⁸ [Differentiating Small enterprises in the Innovation Economy' by Phil Budden and Fiona Murray](#) which updates the seminal Bill Aulet and Fiona Murray (2012) piece on the 'Tale Of Two Entrepreneurs: Understanding Differences in the Types of Entrepreneurship in the Economy'

MIT's Innovation Initiative defines 'innovation' as the "process of taking ideas from inception to impact" ¹⁹. This essentially makes the act of innovation a structured and a sustained process of building ideas from inception and work till it creates an impact, e.g., in the form of job creation, among other outcomes. This is important because innovation, by this definition, is not restricted to a singular moment in time when a new idea is thought of. This process inevitably involves and requires a range of roles, expertise, individuals, teams, and organizations.

3.2 SME versus IDE

Innovation-Driven Enterprises (IDEs), created from innovation-driven entrepreneurship, pursue global opportunities based on bringing to customers new innovations that have a clear competitive advantage and high growth potential. From the perspective of the Middle East region, some of the examples would include Careem (Ride Sharing, acquired by Uber) and Souq (E-commerce, acquired by Amazon) in the UAE, Retailo (E-Commerce) and NearPay (Fintech) in Saudi Arabia, and Fiverr and Waze (Maps, acquired by Google) in Israel. It is also important to note that IDEs are not restricted to technology-driven enterprises. Innovation can come in many varieties including technology, processes, business models and more ¹³. In contrast, small and medium enterprises (SMEs) serve local markets with traditional, well-understood business ideas and limited competitive advantage.

Expanding on Careem's example, IDEs might start small, test a niche market and then expand beyond a region, also creating exponential number of jobs in the process. Careem started with just one city, Dubai in UAE but quickly expanded to other countries in the Middle East including Saudi Arabia, Qatar, Lebanon, and Bahrain. Their reach became wider and Careem started operations in Pakistan, Turkey, Morocco, and Palestine, eventually becoming the region's first unicorn ²⁰. The goal of this research will be to find ways to eventually accelerate the creation of IDEs through collaboration in the region. The following table compares two types of enterprises.

¹⁹ [An MIT Approach to Innovation, Phil Budden and Fiona Murry \(Oct 2019\)](#)

²⁰ a unicorn is a privately held startup company valued at over US\$1 billion

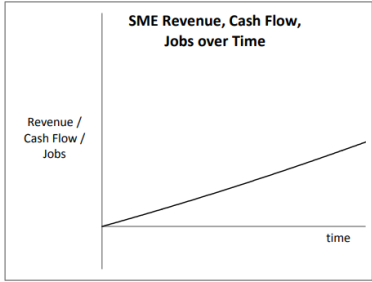
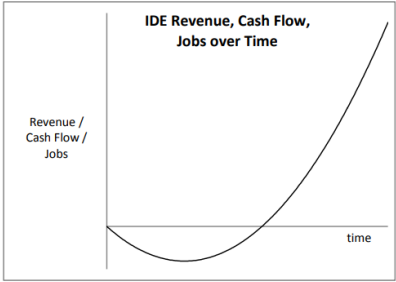
SME Entrepreneurship	IDE Entrepreneurship
Focus on addressing local and regional markets only.	Focus on global markets.
Innovation is not necessary to SME establishment and growth, nor is competitive advantage.	The company is based on some sort of innovation (tech, process, business model) and potential competitive advantage.
"Non-tradable jobs"—jobs generally performed locally, e.g. restaurants, dry cleaners, service industry.	"Tradable jobs"—jobs that do not have to be performed locally.
Most often family businesses or businesses with very little external capital.	More diverse ownership base including wide array of external capital providers.
The company typically grows at a linear rate. When you put money into the company, the system (revenue, cash flow, jobs, etc.) will respond quickly in a positive manner.	The company starts by losing money, but if successful will have exponential growth. Requires investment. When you put money into the company, the revenue/cash flow/jobs numbers do not respond quickly.
	

Table 3.1 SME versus IDE

3.3 Innovation Ecosystems

Innovation is not uniformly distributed ²¹, whether based on proxy metrics such as the number of startups, VC investment quantum, jobs created by the IDE or any other such metric. Rather, it is concentrated in geographically linked hubs or clusters ²². These hubs are usually dense concentrations of a few key resources and entities which include somewhat like-minded expert

human capital, financial resources, educational institutions, political and government foundations that ensure trust and ease in the systems, and associated industries. The ecosystem is the result of the linkages and interactions between these entities that create a network effect or a chain reaction for further growth.

²¹ [Tech Clusters, William R. Kerr, Frederick Robert-Nicoud, HBR; Clusters and Entrepreneurship, Mercedes Delgado, Michael E. Porter, Scott Stern](#)

²² [Defining Clusters Of Related Industries, Delgado, Porter, Stern \(Aug 2014\)](#)

Based on MIT's model²³, the 'system' consists of a pyramid with one fundamental layer on top of the other. At the base exists the foundational institutions which ensure that the more evolved functions of the ecosystem can exist, perform well, and flourish. These can include rule of law, reasonable level of political and socio-economic stability, adequate IP laws, basic infrastructure, financial institutions, and state level systems to setup and sustain businesses with ease. Above the base layer lies two distinct capacities: Innovation Capacity (I-Cap) and Entrepreneurial Capacity (E-Cap).

Quoting from the working paper on MIT's Approach to Innovation by Dr. Phil Budden and Prof. Fiona Murray, the two distinct Capacities provide the 'twin engines' of innovation. Innovation Capacity (I-Cap) is the one most associated with traditional inputs, such as R&D spend or spending on science and technology (S&T). While important and necessary, they are not sufficient in explaining the range of innovation 'impact' outcomes that places like Silicon Valley in the U.S. achieve. This is because the common outcome of this capacity is academic research that doesn't necessarily translate into action. The second Capacity is that related to Entrepreneurship (E-Cap). In some countries, the rules around the economy are optimized to encourage enterprise-formation (e.g., start-ups) and their growth (e.g., scale-up) and expansion (e.g., through export promotion). These inputs clearly go beyond just the funding aspect of E-Cap (such as 'risk capital', including formal Venture Capital (VC) firms), and also harness other aspects, such as existing human capital with a propensity and the incentives to be entrepreneurial. By itself, a strong Entrepreneurial Capacity (E-Cap) should lead to more enterprises, but many of these will be of the 'small and medium-sized enterprise' (SME) variety, rather than the high-growth, high-potential IDEs. Innovation ecosystems do best when the two capacities interact, leading to 'innovation-driven entrepreneurship'.



Fig 3.1 Innovation-Driven Entrepreneurship's System

²³ [An MIT Approach to Innovation, Phil Budden and Fiona Murray \(Oct 2019\)](#)

3.4 Innovation Ecosystems: Stakeholders

The most successful ‘innovation ecosystems’ have active engagement from five key stakeholder groups. Each stakeholder group has its own role to play, but it is also essential that they do not work in isolation from each other. In this model of 5 stakeholder groups, MIT includes:

1. **Entrepreneurs who create the IDEs:** These are founders of an IDE, usually a tech-based start-up, and are often respected leaders in the entrepreneurial community. They work collaboratively with other key stakeholders in the regional entrepreneurial ecosystem by representing the needs and challenges of IDE founders.
2. **‘Risk Capital Providers’** who assess and invest funds in new ventures: This is a leader in the local investment community who has an intricate knowledge of the challenges and opportunities of risk capital in their region. This stakeholder ensures qualified entrepreneurs have access to capital and helps build strong risk capital networks regionally.
3. **Government:** The government stakeholder is typically a senior government representative or a team from an associated office whose mission is to drive entrepreneurship and innovation in their region. Government REAP stakeholders are able to significantly influence policy and strategic programs at a higher level. In the context of the Middle East, they are sometimes the most active drivers of entrepreneurial activity in the region.
4. **Universities and other higher education institutes:** This is an influential administrator or academic who is responsible for university engagement with the entrepreneurial ecosystem. They will be focused on the process of bringing ideas to market.
5. **Corporate:** A corporate REAP stakeholder is employed by a large, influential corporation in the region and is responsible for relationships with startups, regional innovation, or helping entrepreneurs through mentorship, partnerships, or investment.

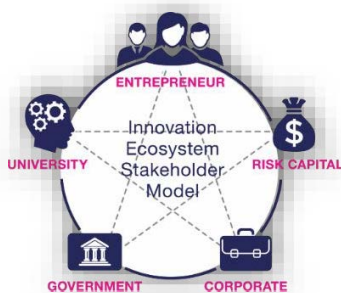


Fig 3.2 Stakeholder Model

3.5 Clusters and Comparative Advantage ²⁴

Unique strength to a region that are difficult to replicate elsewhere give its economy a comparative advantage. For ‘innovation-driven entrepreneurship ecosystems’, such ‘comparative advantage’ is constituted by its underlying strengths in both innovation and entrepreneurship capacities but is also distinctive. Usually, this comparative advantage is expressed based on some characteristics of the region such as geographical clusters or industrial sectors. In addition to existing well-defined clusters, this comparative advantage can also be future leaning in areas of expertise and specialization, e.g., Food Security and Cyber Security for Israel. The following set of measures from MIT’s framework were used to quantify the existing or expected comparative advantage of the Middle East region:

Leading current economic clusters	Ranking the three to four strongest economic sectors or clusters in the region, with additional ranking information on the degree of competitiveness of those sectors/clusters at the international level.
Leading assets	Ranking of the three most important assets in the region e.g. physical assets.
Leading areas of expertise and talent	Ranking of the three most important areas of expertise and talent in the region e.g. AI, creative arts etc. with ranking information on the degree of competitiveness at the international level.
Critical problems/ challenges	Ranking of the three most critical challenges for the region e.g. water shortages, defense security, that might be of broader relevance to other markets.

Fig 5.3 Quantifying Comparative Advantage ²⁵

²⁴ [Based on the working paper, An MIT Approach to Innovation by Phil Budden and Fiona Murray](#)

²⁵ [Phil Budden and Fiona Murray \(2019\), ‘A systematic MIT approach for assessing ‘innovation-driven entrepreneurship’ in ecosystems’ \(https://innovation.mit.edu/assets/Assessing-iEcosystems-V2-Final.pdf\)](https://innovation.mit.edu/assets/Assessing-iEcosystems-V2-Final.pdf)

4

The Abraham Accords: An overview and Assessing Government and Political Will

4.1. The Agreement's Impact

4.1.1 Overview

It has been a more than a year since the August 2020 announcement of the Abraham Accords, which normalized diplomatic relations for Israel with the UAE, and subsequently with Bahrain and Morocco. The accords were later signed at a White House ceremony attended by President Donald Trump that September. In less than a year, the UAE and Israel swiftly exchanged ambassadors and opened embassies. This was the highlight of the first year of normalizing relations between Tel Aviv and Abu Dhabi.

4.1.2 Key Takeaways

- One of the most important outcomes of the Abraham Accords is the increase in people-to-people relationships between the signatory countries. This last year has seen a blossoming of bilateral initiatives within the private sector and civil society.
- The geopolitical and economic benefits could have spillover effects across the region. The Accords establish a foundation for peace and collaboration that can be tapped into by any country interested in cooperation.
- Since Abraham Accords, there are two clear pillars of regional cooperation in Middle East, namely Israel and the UAE. Several projects are underway with full support from the

governments and of the people from both countries.

4.1.3 A Year in Review: 2021 – Diplomatic Events

- On February 14th, the first ever UAE Ambassador to Israel Mohamed Al Khaja took office.
- On September 14th, President of Israel, Isaac Herzog, accepted the credentials of the first Bahrain ambassador to Israel Khaled Yousif al-Jalahma.
- On September 30th, Israel Foreign Minister Yair Lapid visited Bahrain, where he signed numerous agreements and inaugurated the Israel embassy in Bahrain.
- On October 12th and 13th, officials from Israel and the six Arab countries with which it has normalized relations met in the United Arab Emirates for a multilateral meeting
- On November 15th, the first Israeli ambassador to the UAE Amir Hayek presented his credentials to Vice President and Prime Minister of the UAE Mohammed bin Rashid Al Maktoum.
- On December 8th, the Abraham Accords Peace Institute (AAPI) convened its inaugural “Trade and Investment Forum” in Abu Dhabi, accelerating economic and business ties between the Abraham Accords countries.
- On December 13th, Israel Prime Minister Naftali Bennett became the first Israeli Prime Minister in history to make an official visit to the United Arab Emirates, where he met with Abu Dhabi Crown Prince Sheikh Mohammed bin Zayed
- On December 16th, Bahraini Ambassador to Israel HE Khaled Al Jalahma hosted the first ever Bahraini National Day celebration in Israel.
- On December 28th, the first Israeli ambassador to Bahrain Eitan Na’eh presented his credentials to King Hamad bin Isa Al Khalifa (having arrived in Bahrain in November).

4.1.4 A Year in Review: 2021 – Trade and Investment

- On January 17th, the National Bank of Bahrain signed agreements to strengthen banking cooperation with Israel's Bank Leumi and Bank Hapoalim.
- In February, Israeli Orange Blossom Ventures (OBV) investment boutique signed a cooperation agreement with the Emirati Hamdan AlShamsi (HAS) law firm to locate, initiate, and progress mutual investments in relevant technological sectors.
- In March, the UAE established a \$10 billion fund aimed at investing in specific sectors in Israel.
- In March, the Dubai Investment Development Agency (Dubai FDI), signed an agreement with the Manufacturers' Association of Israel to explore collaboration in promoting cross-border business and investment opportunities.
- In March, the UAE's EDGE Group and Israel Aerospace Industries (IAI) signed an MOU to develop an advanced C-UAS (Counter- Unmanned Aircraft System) tailored to the UAE market.
- In April, Abu Dhabi's G42 and Israel's Rafael Advanced Defense Systems formed a joint venture to commercialize AI and big data technologies.
- On May 31st, the UAE and Israel signed a tax treaty to avoid double taxation that will help promote bilateral trade and investment.
- On June 30th, the foreign ministers of the UAE and Israel signed an agreement on economic and trade cooperation to foster economic ties.
- In July, it was announced that the UAE will cooperate with Israel's Start-Up Nation Central to promote Agrifood-Tech innovation and startups.
- In August, Israel Aerospace Industries (IAEI) signed an agreement with Etihad Engineering to establish a facility in Abu Dhabi that will convert Boeing passenger planes into cargo aircraft.
- In September, Bahrain's Electricity and Water Authority signed an agreement with Israel's Ministry of Water Resources to cooperate on innovation and development of water resources
- On September 2nd, Israel's Delek Drilling finalized a deal to sell its 22% stake in the Tamar Gas field to UAE's Mubadala Petroleum.

- In November, Israeli defense firm Elbit systems launched a UAE venture, seeking to foster “long-term cooperation” with the UAE.
- On November 16th, Israel and the UAE officially launched talks on a Free Trade Agreement.
- In November, Israel, UAE, and Jordan signed an agreement to build a desalination plant to provide water to Jordan.
- In November, Israeli company SolconIGEL and UAE’s CMETS Engineering Solutions signed a distribution agreement whereby CMETS will stock, sell, and service SolconIGEL’s soft starters in Abu Dhabi.
- In November, Israeli VC OurCrowd began to operate out of the UAE, becoming the first Israeli VC to do so.
- In November, Israel and the UAE signed an MOU to deepen relations related to the energy sector and to launch a bilateral partnership that supports their clean energy goals.

4.1.5 A Year in Review: 2021 – People to People Relations

- On January 11th, Israel’s Bar-Ilan University signed an agreement with the UAE’s Gulf Medical University to promote medical research and improve public health throughout the Middle East
- On February 2nd, Zulekha Hospital in the UAE and Israel-based Health Plus signed an agreement to cooperate in the field of medical tourism
- In July, the Department of Health-Abu Dhabi signed MOUs on healthcare cooperation with Israel’s Sheba Medical Center and Clalit Health services.
- In July, Dubai-based SJM Group and Israeli medtech startup INMED agreed to partner on creating a digital health platform for remote patient management in Dubai.
- In September, the Jerusalem Symphony Orchestra performed in Dubai for the first time.
- On October 2nd, Israel inaugurated its pavilion at Expo 2020 Dubai.
- In October, UAE’s Khalifa Empowerment Program (known as Aqdar) launched a program with the Israeli Emirates Leadership Program (ILEP) on leadership workshops.
- On October 30th, an orthodox Israeli singer performed at the Dubai Fashion Festival, and another Israeli won first place for best bridal designer.

- In November, Sheba Hospital in Israel signed a first of its kind agreement with Salmaniya Medical Complex and King Hamad University Hospital of Bahrain strengthening cooperation and allow the institutions to learn from each other.
- In November, UAE's Zayed University and Israel's University of Haifa signed an MOU agreeing to exchange knowledge, conduct joint-research projects, and organize events.
- On November 18th, UAE and Israel signed an Memorandum of Understanding in educational affairs, which covers general, higher, technical and vocational education.
- On November 15th, the first official interfaith delegation from Israel to the UAE attended an event at Expo 2020 to mark the start of Tolerance week.
- In November, Emirati and Israeli artists collaborated to create an exhibition in Jerusalem featuring calligraphy in Hebrew and Arabic.

4.2. Future Developments

The Abraham Accords have heralded what could be the start of a dramatic shift in the relationship between Israel and parts of the Arab World in the Middle East ²⁶. Beyond the implications on the peace and trust-building process for these countries, this is a milestone on an economic and entrepreneurial front. This is non-trivial because Israel is the most technologically advanced country in the region with an innovation driven economy. It is no surprise then that many major high-tech companies from Silicon Valley and beyond have invested heavily in the country ²⁷.

However, there are two serious bottlenecks in the growth of Israel's innovation driven economy. First, Israel has a shortage of skilled human capital within the country and routinely outsources and employs high-tech workforce outside the country ²⁸. There is an opportunity to fulfill the demand for human capital from UAE and Bahrain, two countries in close proximity in the region and a high ratio of expat skilled workers along with relaxed regulations that allow for

²⁶ [Abraham Accords Progress Report: 2021 – Abraham Accords Peace Institute](#)

²⁷ [The Israeli Technological Eco-system – Deloitte](#)

²⁸ [Wired: Israeli startups are battling for talent](#)

skilled workers to move to these countries much easier than Israel ²⁹ (More on this in the recommendations section). One such instance is Rapyd ³⁰, an Israeli payments firm that twice raised \$300 million in funding rounds this year. It started a large advertising campaign this week targeting coders in eastern Europe open to relocating to Dubai, where the standard of living is higher, and which imposes no income tax. It's a remedy that may increasingly appeal to other startups navigating a market where job openings far outnumber applicants as record investment pours into Israel. According to its CEO Arik Shtilman "Getting a hundred people from all over the world to work in Israel is a mission impossible," who is seeking to fill about 350 positions. He said, "by contrast, the process with the regulators in Dubai was "very smooth, very clear, like slicing butter" ³¹. This trend was also confirmed when I spoke to Aviad Tamir; Head of Israel's Economic and Trade Mission to the UAE.

Secondly, since Israel itself is a small market, it exports high technology services, mainly to Unites States and Europe which amount to 51% of the country's total exports in 2021 ^{32 33}. The Middle East region, which has largely been closed for such business, provides a major market for those exports ^{34 35 36 37}.

²⁹ [Bloomberg: Dubai Is Bait in War for Coder Talent Fought by Israel Firms](#)

³⁰ [Dubai Is Bait in War for Coder Talent Fought by Israel Firms](#)

³¹ [Dubai Is Bait in War for Coder Talent Fought by Israel Firms](#)

³² [An Innovation Driven Economy in the Periphery – Israel Innovation Authority](#)

³³ [Tech sector leads Israeli exports, projected to reach record high of \\$140b in 2021](#)

³⁴ [Peace Dividend: Widening the Economic Growth and Development Benefits of the Abraham Accords; Egel, Efron, Robinson \(rand.org March 2021\)](#)

³⁵ [How the Abraham Accords Are Shaping a New Technological Covenant, Tony Blair Institute for Global Change](#)

³⁶ [The Abraham Accords Anniversary Brochure, UAE-Israel Business Council](#)

³⁷ [The Abraham Accords: Politico-Economic Drivers and Opportunities](#)

Part-III

5

Evaluating Entrepreneurial Ecosystems and Stakeholders in the Middle East

5.1. Overview

5.1.1 Population

Egypt is the 14th most populous country in the world with and the only country with more than 100 million inhabitants. Saudi Arabia is at the second spot with has 34.8 million inhabitants. Compared with the population size of the UAE and Israel that stand at 9.9 million and 9.2 million respectively, both Egypt and Saudi Arabia present an opportunity of a much bigger market size to expand into for entrepreneurs in both the UAE and Israel. The table below shows the population size of region by country ³⁸.

Countries	Population (Millions)
United Arab Emirates	9.9 m
Israel	9.2 m
Qatar	2.9 m
Bahrain	1.9 m
Saudi Arabia	34.8 m
Jordan	10.2 m
Egypt	102.3 m
Palestine	4.8 m

Table 5.1 Population of Middle East 2021 (Source: World Bank)

³⁸ Source: World Bank, Statistica

Another factor to consider in conjunction would be to determine how these populations are currently connected to the internet, since most of the ventures in the countries under consideration are internet/software based.

5.1.2 Internet Connectivity

All GCC countries have over 90% internet penetration rates; and Qatar, Bahrain and the United Arab Emirates all have internet penetration rates above 99%. This is remarkable, meaning that nearly every person in each of these countries has access to the internet. For comparison, the United States, the United Kingdom, and Israel have lower internet penetration rates at 90.8%, 94.6% and 86.8% respectively. Digital consumption is similarly high in some countries; for example, Saudi Arabia ranks seventh globally in social media engagement, with an average of seven accounts per individual ³⁹.

5.1.3 Entrepreneurial Activity

However, despite the sizable appetite for online content and services, key digital sectors have been relatively nascent, and entrepreneurship potential is yet to be fully tapped into. The Middle East is experiencing a startling growth in both the number of successful start-ups and the amount of investment funding available to them. Where Israel has several unicorns under its belt, the rest of the Middle East saw its first ever unicorn, Careem, founded in 2012 ⁴⁰. This began a new era of potential transformation for the Middle East region. Fig 5.1 shows 5 unicorns from the region all founded within a decade, with no prior history of unicorns in these countries ⁴¹.

³⁹ “Media use in the Middle East 2017: A seven-nation survey,” Northwestern University in Qatar, 2017

⁴⁰ Acquired by Uber for \$ 3.1 Billion in 2019

⁴¹ [Meet The Middle East's 5 Unicorns, Forbes](#)

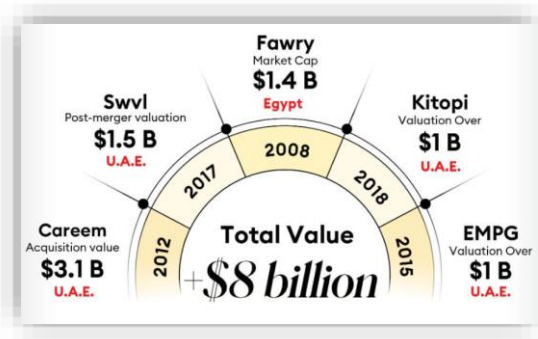


Fig 5.1 5 Unicorns of Middle East and Years of Founding (Source: Forbes)

5.2. VC Capital Investment Trends

Israel has been at the forefront of entrepreneurial activity in the Middle East region as shown in Fig 5.2; other countries in the region are showing signs of growth in innovative start-ups and services demonstrated by Fig 5.3 that shoes cumulative VC capital deployed in Bahrain, Egypt, Jordan, Palestine, Qatar, Saudi Arabia, and UAE ⁴². Looking at VC capital invested as a metric, two distinct trends can be observed:

- In 2021, the Middle East excluding Israel, stands at almost the same level as Israel alone was in 2017 at ~\$2B. This indicates that there is a clear lag of at least 3 years in risk capital invested compared with Israel, the region’s dominant player. Israel’s VC capital investments in 2021 stand at ~\$11 B compared to ~\$2 B for the rest of the rest of the countries combined (5.5 times more).
- Excluding Israel, there is a steady positive growth of VC capital investments in the region since 2015 with no significant prior track record of VC capital investments. Of note, the first 4 months of 2022 attracted close to 2021’s entire year of investment, indicating that the entrepreneurial ecosystem is accelerating.

During my research, I had an opportunity to interview Bassel Al Nahlaoui, Managing Director – Mobility, Careem in the UAE. Careem is the first unicorn born out of the UAE and has contributed to the creation of several other startups within the UAE, as well as Saudi Arabia, Egypt, and Pakistan through its former employees, including Swvl, that recently went public

⁴² Source: Pitchbook

on NASDAQ in 2022. According to him the entrepreneurial ecosystem has been rapidly growing over the past few years. Investors, especially international ones, have shown higher interest in the regional markets than they have had in the past. It is then no surprise that Sequoia Capital ⁴³, U.S. based VC giant that had previously backed Google, made its first move in the region by investing \$5 million in an Egyptian digital banking app, Telda ⁴⁴ in 2021 followed by the second investment of \$33 million in a Saudi fintech startup, Lean Technologies ⁴⁵.

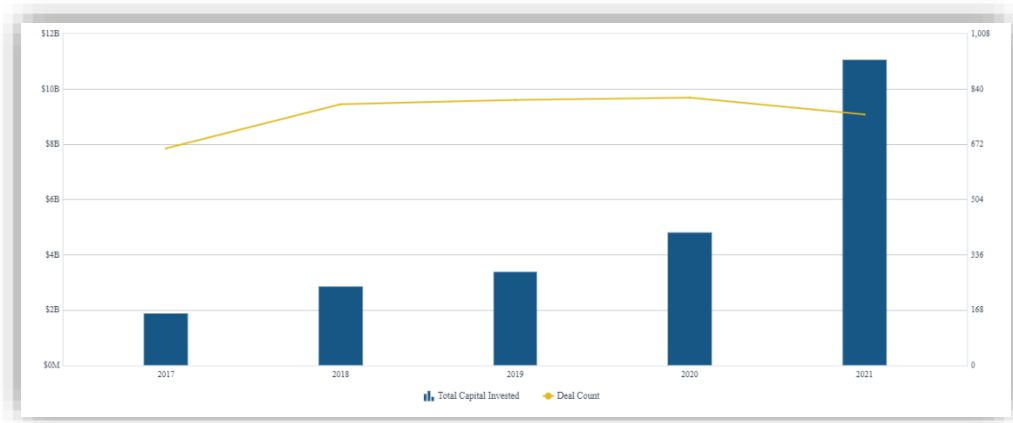


Fig 5.2 VC capital Invested and Deal Count – Israel (Pitchbook)

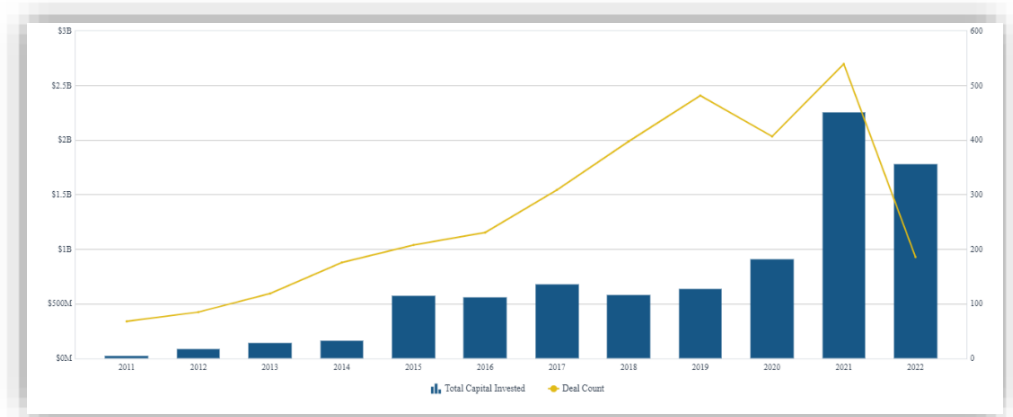


Fig 5.3 VC capital Invested and Deal Count – Middle East (excl Israel) (Pitchbook)

⁴³ [Sequoia Enters Mideast, Bloomberg](#)

⁴⁴ [Sequoia Expands Mideast, Bloomberg](#)

⁴⁵ [Sequoia Capital makes Gulf debut with \\$33 million investment in Saudi fintech Lean Technologies](#)

“the entrepreneurial ecosystem has been rapidly growing over the past few years. Investors especially international ones have shown higher interest in the regional markets than they have in the past.”

Within this group of countries, the UAE which makes almost two thirds of the total VC capital investment for these countries and is home to 4 out of the 5 unicorns discussed earlier as shown in the Fig 5.4. Among the remaining countries, Saudi Arabia and Egypt take lead.

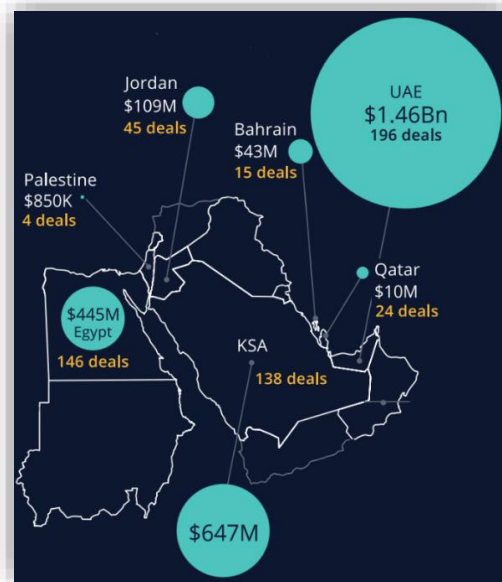


Fig 5.4 VC Capital Investment and Deals in Middle East – 2021 (Source: [Wamda](#))

5.2.1 VCs as Stakeholders

It is also important to note that the local VCs are becoming more mature both in terms of size and number of deals. Several VCs have their accelerator programs, startups from which are raising investment rounds. In fact, the most active investor in 2021 was Egypt’s Flat6Labs ⁴⁶ that has accelerators in Egypt, UAE, Saudi Arabia, and Jordan. They graduated 59 startups that raised investment in 2021. Accelerators/incubators based and seed stage startups

⁴⁶ [Flat6Labs: https://www.flat6labs.com/programs-type/accelerator-programs/](https://www.flat6labs.com/programs-type/accelerator-programs/)

accounted for 85% of total deals in 2021 as shown in Fig 5.5. This indicates that the accelerator/incubator programs are benefitting the ecosystem.

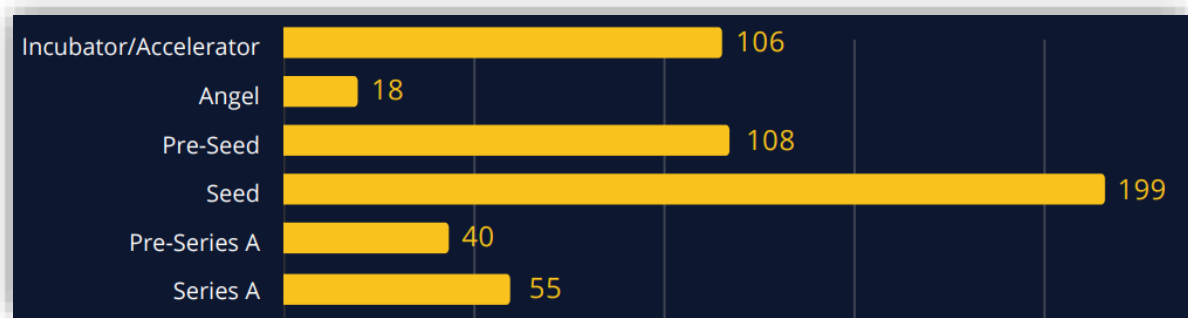


Fig 5.5 Deal Breakdown of 85% of deals in Middle East for 2021 (Source: [Wamda](#))

These accelerator/incubators programs can be one of the most responsive partners for a collaboration with MIT for following reasons:

1. Accelerators and Incubators pool several startups and entrepreneurs from the local ecosystem together. This not only aggregates entrepreneurs for MIT to connect under a single entity making the task of managing stakeholders for MIT straightforward, but it also ensures a vetting through first round of review of the startups and entrepreneurs when they are admitted to the respective programs.
2. Each cohort of startups in an accelerator or incubator program have actively expressed a need for networking, knowledge sharing, mentoring and possibly finding partners/teams' members. A collaboration through MIT with similar IDE founders in other countries will not only cater to the needs mentioned above, but also accelerate the IDE evolution through transference of MIT frameworks. This can be achieved through in-person, online (both recorded and live), or a hybrid of these two.

In 2021, 75% of the deals had an investor based in the Middle East as shown in Fig 5.6. Top investors in 2021 are shown below and could be potential partners for a MIT-Middle East collaboration. The Atlantic Council, Rafik Hariri Center for Middle East's Middle East Entrepreneurship tracker ⁴⁷ can be utilized to gather more information on the entrepreneurship stakeholders in the major countries of the region. It is an incredibly comprehensive graphical tool to search and analyze stakeholders including risk capital,

⁴⁷ [Middle East Entrepreneurship tracker: https://megov-entrepreneur-tracker.atlanticcouncil.org/](https://megov-entrepreneur-tracker.atlanticcouncil.org/)

government institutions, accelerators/incubators, and universities actively involved in entrepreneurship.



Fig 5.6 Top Investors in the Middle East Region (Source: [Wamda](#))

5.3 Other Innovation and Entrepreneurship Metrics

5.3.1 Global Innovation Index (GII) ⁴⁸

The Global Innovation Index is an annual ranking of countries by their capacity for and success in innovation. The 2021 GII report declared both Israel and UAE as the top two economies in the Middle East based on their high GII rank. This is of great significance because it shows that there are two powerhouses in the region, albeit different in scale, that could potentially kick-start the trend of mutual collaboration, exchanging ideas, resources, and expertise for mutual benefit.

Countries	GII Rank
United States of America	3
Israel	15
United Arab Emirates	33
Saudi Arabia	66
Qatar	68
Bahrain	78
Jordan	81
Egypt	94

Table 5.2 Country GII Ranks (Source: [Global Innovation Index 2021](#))

⁴⁸ [Global Innovation Index 2021: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf](https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf)

5.3.2 E-Cap Culture and Incentives Indicators

One dimension of measuring the Entrepreneurship Capacity (E-Cap) of a region is culture and incentives that either help grow or retard the capacity ⁴⁹. Here we consider 4 indices to quantify this:

1. **Fear of Failure:** Percentage of the population who agree that they see good opportunities but would not start a business for fear it might fail. Note that this is a percentage of those seeing good opportunities, and not the total adult population.
2. **Entrepreneurial Intentions:** Percentage of the population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years.
3. **High Status to Successful Entrepreneurs:** Percentage of the population who agree with the statement that in their country, successful entrepreneurs receive high status.
4. **Entrepreneurship as a Good Career Choice:** Percentage of population who agree with the statement that in their country, most people consider starting a business as a desirable career choice.

Figure 5.7 maps the countries under our consideration on these 4 indices for 2021. A few expected and unexpected trends emerge. First, unsurprisingly, all countries (Egypt, Israel, Qatar, the UAE, and Saudi Arabia) score high on the ‘High Status to Successful Entrepreneurs’ and ‘Entrepreneurship as a Good Career Choice’ metrics, with Saudi Arabia leading on both. Surprisingly, Egypt, Qatar, and the UAE score significantly higher than Israel on the ‘Entrepreneurial Intentions’ metric, despite their lack of IDEs. This could indicate that Egypt, Qatar, and the UAE are in the growth phase while Israel is in the mature phase. This creates a natural input-output model for a relation between the UAE, Egypt and Qatar where Israel can serve as the ‘mentor’ to share knowledge, expertise, and best practices. In return, this could potentially mean that Israel might tap into these markets for expansion of its IDEs.

⁴⁹ . Budden and Murray (2019), ‘Systematic approach for assessing’:
(<https://innovation.mit.edu/assets/Assessing-iEcosystems-V2-Final.pdf>)

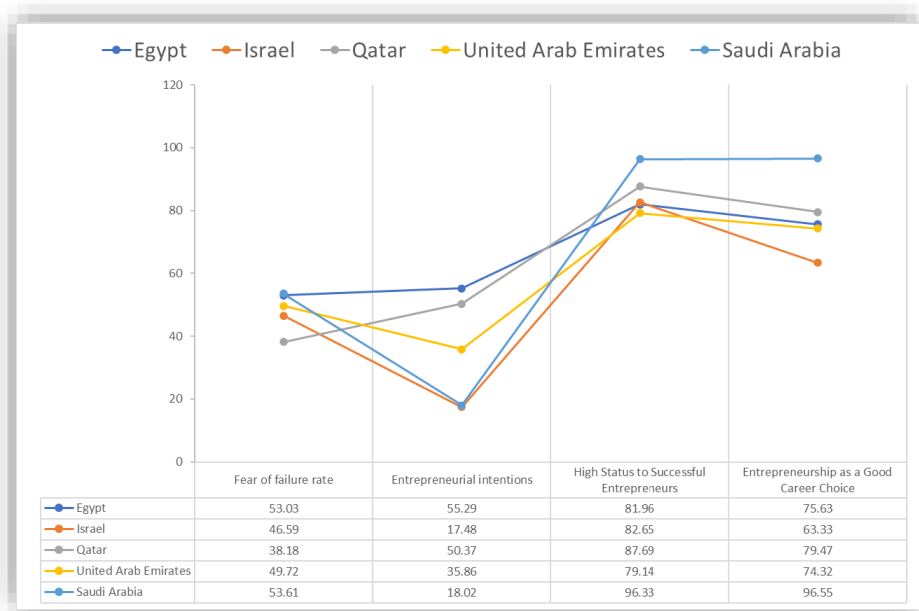


Fig 5.7 E-Cap Culture & Incentives Evaluation 2021 (Source: GEM)

5.3.3 Fragile State Index ⁵⁰

Fragile State Index is an assessment of countries to quantify political, socio-economic conditions and the state of rule of law. It is based on twelve indicators grouped in four categories of cohesion, economic, social and political. The higher the country ranks on this index, the higher is the security and safety situation, political stability, economic well-being, and growth, upholding of human rights and rule of law and state of public services. For our analysis, this index serves as a proxy for the ‘Foundation’ of the ‘Innovation Ecosystem’ pyramid discussed in Chapter 3.

Countries	Fragile State Index (2021)
United Arab Emirates	151
Israel	148
Qatar	144
Bahrain	104
Saudi Arabia	93
Jordan	67
Egypt	39
Palestine	37

Table 5.3 Fragile State Index 2021 - higher is safer (Source: Fund for Peace)

⁵⁰ Source: Fund for Peace

As shown in Table 5.3, the UAE leads the region in the Fragile index with Israel and Qatar following closely. In the middle are Bahrain, Saudi Arabia, and Jordan. Egypt and Palestine lag behind and score much lower on the index. Looking from the objective and the scope of this research, this means that the foundations of the ecosystems in both the UAE and Israel are strong, and the overall environment and infrastructure is present for MIT to have a sustained presence.

5.3.4 Ease of Doing Business Index ⁵¹

‘Ease of Doing Business’ is yet another index, published by the World Bank, that ranks countries against each other based on how the regulatory environment is conducive to business operations and stronger protections of property rights. Economies with a high rank, specially 1 to 20, have simpler and more friendly regulations for businesses.

The UAE is the only country in the Middle East region with rank under 20; it ranks at 16. The closest is Israel at 35. Bahrain and Saudi Arabia stand at 43 and 62 respectively while Qatar and Egypt are further below at 77 and 114 respectively. Fig 5.8 shows the 2021 Ease of Doing Business ranking for the countries in the region.

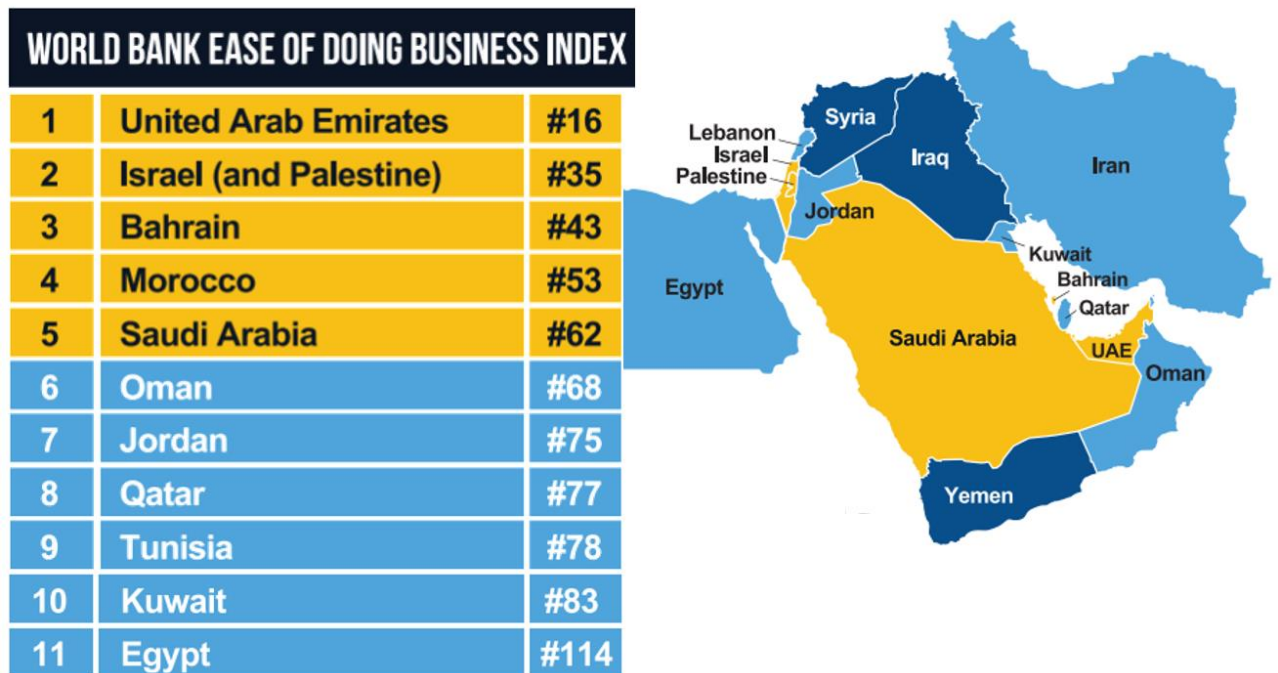


Fig 5.8 Ease of Doing Business Ranks 2021 (Source: World Bank)

⁵¹ Source: World Bank

5.4 Making Sense of It All and the Role of MIT

The lower ‘Ease of Doing Business’ indices do not necessarily mean that the countries are not ripe for innovation (as is the case for Egypt with strong entrepreneurial ecosystem, accelerators, and a homegrown unicorn – Swvl) or are not already well underway into innovation economy (as is the case with Israel which leads the region by a huge margin in IDEs). What these indices do indicate however is how are the local law and regulations help or impede the businesses to flourish with ease and this can be correlated directly with their will and reception for a program that promotes cross-border collaboration. Similarly, countries at the lower ranks for ‘Fragile State Index’ offer a subpar foundational infrastructure to the innovation ecosystem. A case can also be made that the lack of state infrastructure leaves a space for entrepreneurs to transform through IDEs in industries like fintech and transportation. These trends and indices, however, objectively support our initial hypothesis of prioritizing the countries into groups A-B.

While conducting an interview with Aviad Tamir, Head of Israel’s Economic and Trade Mission to the UAE, he mentioned the before to the Abraham Accords, GCC countries were mostly blocked for Israel to do business in. He thinks that even though trade and business relations are starting with the UAE, the opportunity for Israel is not limited to the UAE since it is a relatively small market with around the same population as Israel, and predominately comprised of expats. In his opinion, the real opportunity is the greater GCC (UAE, Saudi Arabia, Qatar, Oman, Kuwait, and Bahrain). He focused specifically on the Saudi Arabian market with a population more than 3.5 times that of UAE. Even though there are no trade relations between Israel and Saudi Arabia, the vision is to work through UAE and its strategic partners to go to Saudi Arabia and the greater Middle East markets. For Israel, whose high-tech exports currently make up ~12% of the GDP⁵² or roughly \$45 billion, opening of new markets in the region presents a significant opportunity.

“...if we just look at only UAE, that would be missed opportunity. The real opportunity is the GCC and working through UAE and its strategic partners to go to Saudi Arabia and greater Middle East markets.”

⁵² Source: World Bank

The UAE government also responded positively to this potential economic collaboration through a number of steps including establishing a \$10 Billion UAE Investment Fund ⁵³. The fund is aimed at strategic sectors in Israel including energy, manufacturing, water, space, healthcare, and agri-tech. The investment fund will support development initiatives to promote regional economic cooperation between the two countries. This is non-trivial because this is close to Israel's entire year of VC capital raised in 2021. The scale of both governments' collaboration possibly makes them the most active and important stakeholder in our five-Stakeholder Model discussed in Chapter 3.

This sheds light on the sectors governments are interested to invest and collaborate. Water, healthcare, and agri-tech are all three areas where MIT can share expertise as well as provide research and entrepreneurship opportunities to students and faculty. The [UAE-Israel Business Council](#) also lists technology, agriculture, energy, water, and healthcare as the key areas of cooperation.

While speaking to Dan Feferman, Communications and Global Affairs Director at Sharaka - a joint UAE-Israel NGO and founding member of the UAE-Israel Business Council, regarding the current state of UAE-Israel collaboration and its challenges, he pointed out that UAE is very smart at adapting public policy to attract foreign companies to set-up shop in the UAE and Israeli companies are already doing that. This gives the Israeli companies a gateway to reach the greater Middle East and Asia and expand beyond the traditional focus on only U.S. and Europe. This also provides Israeli companies an opportunity to hire talent from the UAE, as currently many technology companies in Israel hire from Europe due to shortage of technical talent within Israel.

“UAE is very smart at adapting public policy to attract foreign companies to set-up shop in the UAE and Israeli companies are already doing that”

⁵³ Source: [Tony Blair Institute for Global Change](#)

According to him, it will be interesting to see a joint three-way exchange program where MIT partners with universities in both Israel and UAE to provide networking and academic research opportunities to all partners. He noted that when an elite American academic institution like MIT comes into a partnership, it offers three important advantages. First, and an obvious one is fantastic opportunities to network with students, faculty, and researchers from MIT. Second, access to expertise and knowledge sharing. Lastly and perhaps most importantly, it offers legitimacy to such a program – for which people in the region still look to the west. This removes any hesitations for people over engaging with Israelis.

Having MIT involved as a neutral non-political and academic partner would close that gap, hence the importance of MIT considering the terms on which it might lend its name to such an effort. The processes that brought about Israel-UAE Abraham Accords have been underway for a long time. The American political capital was the critical element that closed the gap to enable the countries to formalize normalization. MIT could play a similar part in these tri-lateral academic programs by bringing its academic, research and student capital. This also creates momentum for more partners to join in from the countries who have yet not normalized.

“When an elite American academic institution like MIT comes into a trilateral partnership with UAE and Israel, it offers fantastic opportunities to network with students, faculty, and researchers from MIT, access to expertise and knowledge, and, most critically, legitimacy to such a program”

To gain an insight into corporates, one of the stakeholders in the ‘REAP Stakeholder Model’, I consulted with two MIT Sloan MBA Alumni in the region. Fawad Mahmood is based in Dubai and is the Chief Financial Officer of Siemens UAE, a major multinational company that operates in the energy and infrastructure sector in the country. He thinks that it is too early to see an effect of an UAE-Israel collaboration in the corporate world and the collaboration efforts are led by the government and government owned business entities. Most major multinational companies are structured in a way where Israel and rest Middle East are not

grouped together in one region, that hints at the underlying thought process in these organizations. He also noted that the government and related institutions are making great strides to build trust and increase people-to-people interaction that will help the corporates to jump in at a later stage; and companies in the UAE, generally, have been quick to react to government policies and focus areas.

Ingrid Toppelberg is based in Tel Aviv and is the Chief Digital Transformation Officer, ThriveDX, a technology company in Israel. She is also a Head Coach for MIT Bootcamps on Innovation and Entrepreneurship in the region, and has previously worked in Saudi Arabia on start-up and workforce development. She shares similar views as Fawad and has not observed many established Israeli companies getting involved actively in UAE, but also notes that it has not even been years since the Abraham Accords and the COVID-19 pandemic has slowed down most of networking and travel. She thinks programs like MIT Bootcamps ⁵⁴ or MIT-led hackathons are very effective ways to build these cross-border networks; students and entrepreneurs forge long lasting relations that might be even more effective if focused on a small area like Middle East.

Reflecting on her experience of coaching at the MIT React Program ⁵⁵ in Jordan and MIT Bootcamps, she mentioned that an Israeli collaboration is still a 'hard sell' for most of the countries in the Middle East and thinks that an Israel-UAE-only program might have more success. She thinks the prospect of such a collaboration is exciting and would personally like to be a part of it as a coach or a trainer. It is also important to focus such a bootcamp on specific topics that are of common interest to participating countries in the region, like water and food security. Last year, the UAE government funded a program for MIT Bootcamps to focus only on UAE and solving its local problems.

Similar approach could be taken to combine the UAE and Israel as a start. In addition to such programs, she mentioned that there is a very strong need among companies in Israel to hire a great deal of talent, which they do not have enough of locally and actively hire in U.S. and Europe. If MIT can help Israeli companies hire talent from the UAE, which has expats from all over the world, it would be a real value addition. This will not only benefit by workforce being in the same time zone but would also help expand in these markets. This step might

⁵⁴ <http://bootcamps.mit.edu>

⁵⁵ [MIT ReACT](#) - an institute-wide initiative that identifies, aggregates, and cultivates ideas, solutions, and best practices that unlock educational opportunity among talented refugees and displaced populations

follow the network building, exchange programs and conferences between UAE-Israel and connecting MIT Alumni in the region might be a first step.

“there is a very strong hiring need among companies in Israel. They face a crisis as the demand is higher than the local technical talent can fulfill, resulting in active hiring in U.S. and Europe. If MIT can connect Israeli companies to technical talent in UAE, it would be a real value addition”

I also spoke to several founders of start-ups in the region who were ex-Careem employees to understand their perspective. One of them was Sameer Farooqi who now is co-Founder and COO at a healthcare startup called Ilara Health ⁵⁶ which operates in Africa. He thinks that unlike most other startups where next companies are founded by ex-co-founders, Careem enabled ex-employees to found multiple startups. He thinks that success breeds success and Israeli entrepreneurs, can be great connection for entrepreneurs in UAE and vice-versa in terms of mentorship, learning and network building. It is hard for entrepreneurs from these countries to connect with each other and if MIT could facilitate that, it can open doors for more startups in the region. He also thinks that such a program would be a great experience for MIT students who might want to work with startups in the region for internships, and full-time roles.

Drawing from these trends, various metrics, and interviews from stakeholder representatives following the REAP Stakeholder Model, the next chapter discusses actionable steps MIT could take to build programs that could bridge these gaps and apply the learnings from the insights discussed so far.

⁵⁶ <https://www.ilarahealth.com/>

6

Recommendations and a Proposed Framework

So far, I have established why it would be prudent to focus solely on Israel and the UAE as the first phase of a collaboration initiative: both the countries have a strong and flourishing innovation ecosystems and economies where there is a significant opportunity for symbiotic collaboration. I gained perspective from stakeholders from both the countries to rationalize why such a collaboration is needed and can reap dividends to both the countries and MIT. This chapter focuses on practical aspects of how MIT could set up programs for long term results by leveraging its unique strengths. I also look at areas to focus on, based on needs for these three parties involved.

6.1 Mapping Areas of Focus

There are a few common areas which concern many countries in the Middle East region. Three obvious economic ones are food security, water, and healthcare. In my focused context, Israel is a world leader in food and water security – two areas the UAE is investing in significantly as discussed in Chapter 5. In addition, looking at the areas of VC capital investment in the UAE and Israel for 2021 shows similar commonalities.

Figures 6.1 and 6.2 show that \$147 million were invested in 15 ‘Agri-tech’ deals in the Middle East for 2021, most of them located in UAE. The desert landscape of the UAE is one of the main reasons it is forced to import approximately 90% of all agricultural produce and food. While Israel does not have a natural landscape for agriculture either, its strategic decisions to invest in establishing a strong ecosystem for food security in its early days led to its reputation as a

leader in innovative agriculture and water technologies. Other areas that had high venture capital investment in both countries in 2021 were healthcare, fintech, and cybersecurity.



Fig 6.1 Value of Investments in the Region (Source: Wamda)

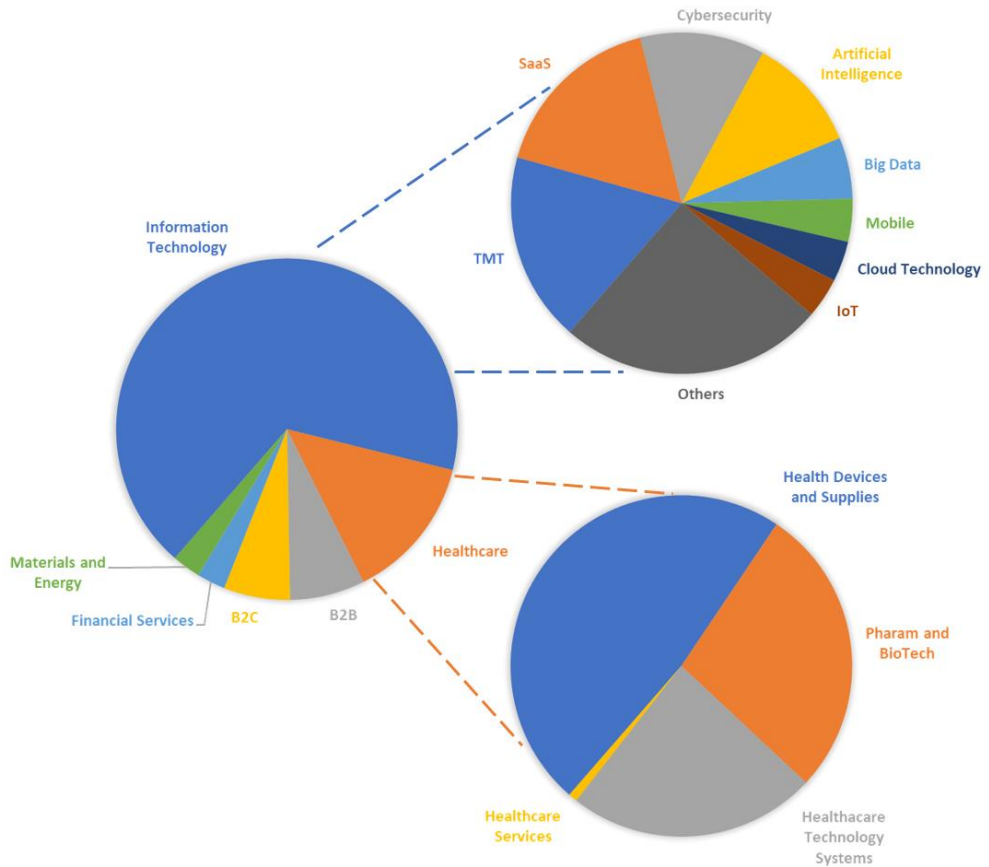


Fig 6.2 Areas of VC Capital Investment in Israel - 2021 (Source: Pitchbook)

These focus areas were also highlighted by Hassan Al Hashemi, Vice President of International Relations, Dubai Chamber of Commerce, and Industry. According to him demand for high-tech products is growing rapidly in the UAE and Israeli companies could be successful in the development of medical equipment, pharmaceutical products, and electronic components. As the UAE’s healthcare sector is quickly shifting towards privatization, digital transformation, and medical tourism, he sees potential for Israeli healthcare companies to invest in health-tech. Similarly, Danielle Abraham, CEO of Volcani International Partnerships, who has experience in promoting Israeli agricultural expertise and projects in the Arab Gulf and UAE, highlights that “there is immense potential to advance R&D and agritech innovation together to create more sustainable and resilient food systems.”



Fig 6.3 UAE-Israel Collaboration: Areas of Focus

6.2 Recommended Frameworks and Programs

To solidify my learnings into an actionable plan, I am proposing a framework, entitled the **MIT Middle-East Multi Partner Innovation Model (M³-π Model)**⁵⁷. I have designed this, as a result of my research and in the light of my interviews, without commitments from within MIT or from across the regional players. That said, I believe it worthwhile to make a proposal which others can then consider.

Recognizing that the initial steps may be trilateral, I propose a core of MIT, Israel, and the UAE in a ‘hub and spoke’ model with MIT at the center. The black-colored connection lines

⁵⁷ M³ = MIT Middle-East Multi; π = Greek Letter ‘pi’ for Partner Innovation

represent the trilateral collaboration arrangement where MIT interacts with the two countries jointly, and both these countries simultaneously are collaborating with each other. These connections could include the current programs MIT has with both countries, future proposed programs discussed later, and some cooperation between Israel and UAE under the Abraham Accords.

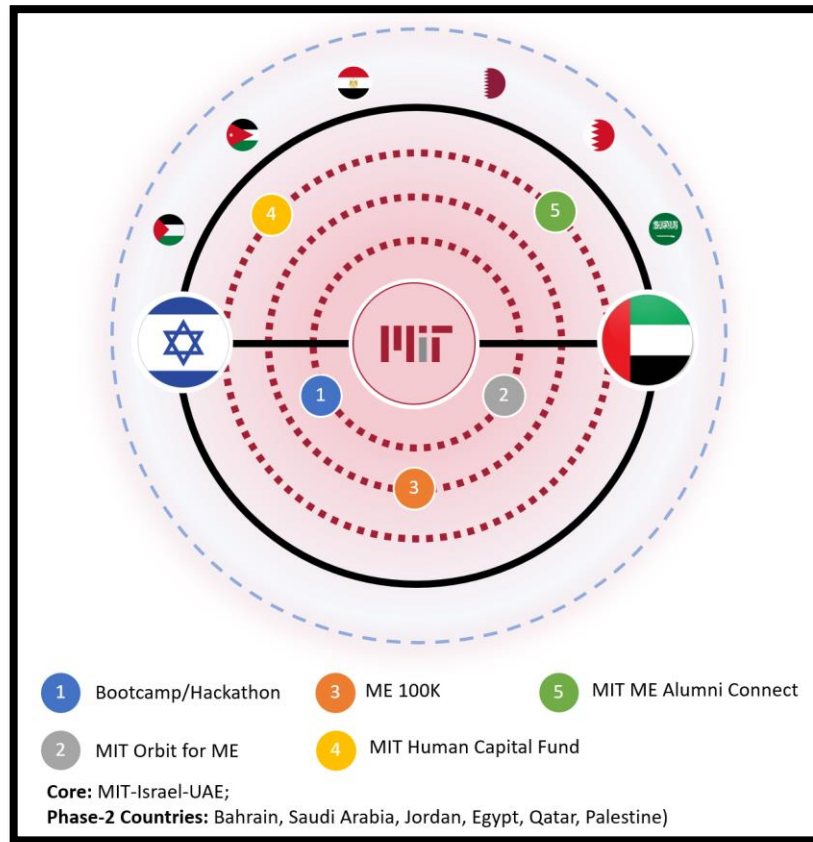


Fig 6.4 MIT Middle East Mukti-Partner Innovation (M³-π) Model

The focus of this model is within the black circle that encompasses key elements of the Abraham Accords and gives MIT the greatest influence and effectiveness in this circle. Within this focus area, there are 3 red circles with dotted lines representing varying levels of external collaboration and resources needed for MIT to build and run a program. Circles closer to the center would be the most straightforward and where MIT had the greatest expertise and effectiveness. Each level has proposed programs represented by numbered circles. As of now, this document recommends five such programs. However, in the future more programs can be added to the appropriate level.

The outer-most circle with blue dashed lines represents fringe network effects that could be created by this proposed tri-lateral collaboration. As discussed in earlier chapters, it is recommended to

engage with additional countries in later phases once a successful model has been established with Israel and the UAE – which can then be emulated later. This space includes already established programs that MIT has or would undertake with these countries separately in the future. These programs might benefit from the core focus of this model through either participation or learning.

6.2.1 Bootcamps/Hackathons

MIT has a history of various hackathons and bootcamps that go beyond the institute and students, researchers, and entrepreneurs from all over the world to participate in. These bootcamps and hackathons generally have functional focus area such as innovation & entrepreneurship, healthcare, and energy to name a few. These bootcamps also provide certifications for the participants, that facilitates them for both professional development and entrepreneurial endeavors. Therefore, the bootcamps have an admission cycle and an associated fee. Each hackathon or bootcamp has a team of experts, facilitators, coaches, and faculty from MIT related to the specific area of focus. Hackathons that do not have a fee associated, have a sponsor to cover the cost. Tables 6.1 and 6.2 share a list of such programs underway at MIT.

Bootcamps and hackathons are both suitable for an UAE-Israel focused program, which revolve around one of the focus areas discussed before, or multiple tracks for a longer program. My recommendation is to start with an Agri-tech UAE-Israel hackathon/bootcamp. Israel already has world-leading expertise in the area, whilst the UAE imports 90% of its food supply is in dire need for innovation; and both countries have committed to invest in joint programs in this area. In addition, it is a focused topic that can be effectively covered in a short duration (1-2 weeks) and could engage researchers and faculty from MIT, UAE and Israeli universities with participants also from MIT, the UAE and Israel.

It is also important to note that, as of now, there does not seem to have been an MIT hackathon/bootcamp focused on agri-tech. The COVID-19 pandemic caused disruption in global supply chains that sparked renewed interest in this area. As the COVID restrictions have decreased, it would be a good opportunity to plan this hackathon/bootcamp in-person in the UAE with the possibility of side-visits to Israel. From MIT's point of view, this could give its community participants a unique opportunity to learn and engage with the stakeholders and experts from both countries. The following figure shows the stakeholders involved in such a bootcamp.

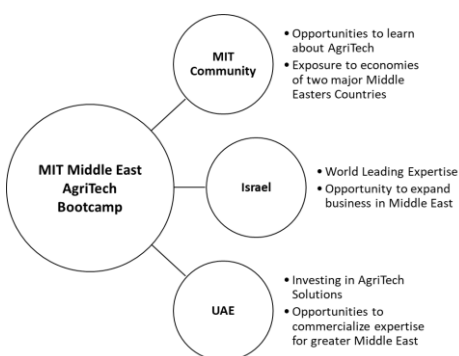


Fig 6.3 MIT Middle East Agritech Bootcamp/Hackathon

Bootcamps	Location and Duration	Current Tuition
MIT Innovation Leadership Bootcamp	Live Online/In-Person in Multiple Countries; 10 Weeks/2 Weeks	\$3,800 per participant
MIT–Harvard Medical School Healthcare Innovation Bootcamp	Live Online; 10 Weeks	\$5,300 per participant

Table 6.1 MIT Bootcamps

Hackathons	Location and Duration
MIT–Harvard Medical School Healthcare Innovation Bootcamp	Live Online; 10 Weeks
MIT Policy Hackathon	Hybrid Virtual/In-Person; 3 Days
MIT Energy Hack	In person at MIT; 3 Days
MIT Bitcoin Expo Hackathon	Online; 2 Days
MIT Hack for Inclusion	Virtual; 2 Days
MIT Water Hackathon	-
MIT Hacking Medicine	In person in Boston; 3 Days
Hack MIT	In person at MIT/Hybrid; 2 Days
MIT FinTech Challenge	In person at MIT; 2 Days

Table 6.2 MIT Hackathons

6.2.2 MIT Orbit for Middle East

MIT Orbit ⁵⁸ is an online tool specifically designed for student entrepreneurs, started from one of the MIT's accelerator Delta V's ⁵⁹ cohorts. It's a one-stop shop for MIT student entrepreneurs, with extensive resources, including knowledgebase and programs from the Martin Trust Center for MIT Entrepreneurship. It serves as a hub to connect founders seeking co-founders, teams, and advice from more experienced entrepreneurs. It also has curation of MIT classes for entrepreneurship, both recorded sessions and current classes. Most of the resources are open for all, while some (like more detailed information on MIT classes and job/internship boards) are for MIT students only. In fact, the Martin Trust Center for MIT Entrepreneurship is collaborating with Queensland University of Technology ⁶⁰ in Australia to replicate the tool.

I spoke with three past MIT Innovation Bootcamp participants from UAE, Palestine, and Lebanon to understand their perspectives about the effectiveness of the program and its shortcomings. All three participants agreed that it was an incredible opportunity to get first-hand exposure to MIT entrepreneurship frameworks like Bill Aulet's '24 steps' for Discipled Entrepreneurship ⁶¹, learning from MIT faculty and coaches, and forming a long-term network with fellow participants from their respective cohorts. However, a common theme emerged which is that, soon after the bootcamp ends, the connections begin to fizzle out with only remaining interaction being the WhatsApp groups. The second observation was that most of MIT resources lack connections with, success stories in, and network building across the Middle

⁵⁸ <https://orbit.mit.edu/>

⁵⁹ <https://entrepreneurship.mit.edu/accelerator/program/>

⁶⁰ <https://www.qut.edu.au/about/entrepreneurship>

⁶¹ <https://www.d-eship.com/>

East. MIT already has a fully built and functional platform (MIT Orbit) that serves the needs described above, in addition to resources to create even more collaboration opportunities. It is my recommendation that a version of MIT Orbit specially targeted to Middle East, with curated resources specific to the region will fulfill these needs to create long term and sustainable network for participants from past MIT Bootcamps/Hackathons as well as wider audience.

This wider audience would include MIT Alumni in the region, current students looking to move to the region or start a venture in the region post MIT graduation, researchers and faculty from MIT interested in the region and its innovation ecosystems. From the context of Israel and rest of Middle East, this also creates a very fruitful, and perhaps the first of its kind, platform that can connect entrepreneurs and members of the ecosystem in Israel to UAE and beyond, and vice versa. This will be the first step towards and Israel-UAE entrepreneurship community building and will put MIT at the center for bridging this gap.



6.2.3 Phase-II Programs:

The first two programs form the first phase of this multi-partner collaboration initiative. The next three programs build on the foundation set by the Bootcamps/Hackathon and MIT Orbit Middle East. These programs will require commitment of more resources, funding, time and people.

1 MIT-Middle East 100K Competition

MIT's flagship Entrepreneurship Competition is the student-run [MIT \\$100K](https://www.mit100k.org/)⁶² where teams pitch their ideas, accelerate through multiple rounds with mentorship from MIT faculty and coaches, and winners receive funding to launch. It brings together a network of resources,

⁶² <https://www.mit100k.org/>

including mentorship from venture capital, serial entrepreneurs, corporate executives, and attorneys; media exposure; prototyping funds; and business plan feedback. Both Israel and UAE have some of these elements, where MIT could emulate 100K competition jointly for UAE and Israel. The 100K competition requires participating teams to have at least one member who is a current MIT student. MIT could partner with a university in UAE and Israel each and the competition could be open to teams that have at least one member from one the partner universities or MIT. This will also provide opportunities for entrepreneurs from a more mature market, Israel, to mentor founders from UAE.

2 MIT-Middle East Alumni Connect

Both UAE and Israel based MIT Sloan Alumni that I spoke to expressed the need for a joint UAE-Israel MIT Alumni engagement to connect with their fellow MIT graduates. Many of the MIT Alumni who are in places of influence within companies in both countries, will find this engagement helpful to involve their respective companies in potential collaborations.

3 MIT-Middle East Human Capital Connect

There is clearly a strong need in Israel for highly skilled technical talent based on its successful innovation driven economy. Israel is a country with a population of only nine million, and the demand outstrips the supply of homegrown talent provided by Israeli universities. Therefore, companies and start-ups in Israel are actively hiring technical workforce from abroad, especially Europe and U.S. This was confirmed by all three stakeholders from Israel that I spoke to as discussed in earlier chapters. This need for talent maps well with what the UAE has to offer. Almost 90% of the UAE's population is comprised of expats from all over the world and contains a sizeable technical talent. This combined with other factors such as regulations that are pro work, visas and highest levels of ease of doing and starting a business in the region; highly stringent work visa laws in Israel; and a lower compensation level ⁶³ compared with U.S. and Europe for comparable technical talent, creates an optimal need-solution mapping.

Companies from Israel are already opening offices in the UAE to expand to markets into the GCC and south/east Asia. MIT students and researchers could be connected to these companies for internships, research work and possibly full-time roles. With UAE's work visa regulations, MISTI could provide internships, co-ops and research opportunities in UAE based offices of

⁶³ Ima's 2021 United Arab Emirates Salary Survey

Israeli companies and startups to MIT students and researchers. MIT Orbit for Middle East can also be used as a platform to post such roles.

6.3 Conclusions

The UAE-Israel-Bahrain links through the Abraham Accords did not materialize in silos and in a singular moment. The deal is the result of prolonged efforts by the countries to resolve differences, find ways to collaborate and have reasonable assurances in place to have a sustained momentum. But the vital element that cemented this deal was the direct involvement of the United States, specifically the then U.S. President, to form a 4-way collaboration that ultimately realized into the deal. On a political level, all participating countries gained assurances, legitimacy, and resolution of past issues through such a partnership. Since the deal, public political and economic will to collaborate exists within all concerned governments and industries.

All these parties could benefit if an external partner like MIT would play a role of catalyst, much like U.S., to provide similar legitimacy, expertise, and ease to collaborate. At the start, it would be rational to commence such a project with only the UAE and Israel, based on number of factors discussed in this document. The following reasons make such a 3-way collaboration beneficial to the two countries involved.

1. The normalization in the region will follow a long process. Despite all the local incentives, many cross-border collaborations require a ‘middle-man’ to help with the trust building process and brokering of collaboration. People and organizations would find it far easier on all sides to have a world class educational institution facilitating these connections.
2. For innovation-driven entrepreneurship, the Middle East region still looks towards the West, and particularly leaders in IDE-rich places like MIT, to ‘shepherd’ the process of cross-country collaboration. This was expressed clearly by interviewees from both Israel and UAE. Being associated with MIT provides a legitimacy and prestige that comes with the MIT brand.
3. Universities in both countries would welcome the expertise from years of structured innovation frameworks and learnings at MIT.

For MIT, this 3-way collaboration could offer transformative educational experiences for MIT students and meaningful research opportunities for MIT faculty in the region.

6.4 Future Work and Open Points

In addition to the programs mentioned above, I also did research on mapping cities in the Middle East based on clusters of common local economies and similarities in ecosystems, population, and scale of innovation. The selection of the cities was focused on Tier-2 cities in each country. The rationale for this was that these cities might be more willing to invest time and resources and value collaboration through MIT (perhaps through an MIT REAP Focus program⁶⁴) compared to flagship cities. The countries included are Israel, UAE, Egypt, Jordan, Palestine, and Bahrain.

The four categories researched were:

1. Red Sea Tourist Cities:
Cities along the Red Sea that have a significant tourist economy
2. Port Cities:
Cities with large ports and face similar challenges
3. Technology Innovation Hubs:
Tier-2 cities with flourishing technology startup ecosystems
4. Traditional Industry Hubs:
Cities with industries that can find collaboration opportunities in man

The link to a presentation on the city profiles, details on the innovation ecosystems and stakeholders can be found [here](#). The link to the city mapping tracker with organization from all 5 REAP Model stakeholders in each city can be found [here](#).

⁶⁴ <https://reap.mit.edu/focus-program/>

Fig 6.7 shows a snapshot of the tracker with the cites included so far.

Countries: Israel, UAE, Egypt, Jordan, Palestine and Bahrain							
	Raison D'etre	Cities	Population (in M)	Higher Education Institution	Regional Port	Industry	Entrepreneurial Hubs / Potential Hubs
1	Red Sea Tourist Cities	Eilat, Israel	53 K	Ben-Gurion University of the Negev - Eilat Campus	Sea Port and Eilat Ramon Airport with land border crossings with Egypt and Jordan	Tourism, Scuba Diving, Port and a Free Trade Zone	Eilat Hub, CEEINCA, MaofTech Eilat, The Interuniversity Institute for Marine Sciences in Eilat
		Bethlehem, Palestine	29 K	Bethlehem University	N/A - closest Airport is TLV	Tourism (65%), handicrafts, spices, textiles	Bethlehem University and Business Incubation Center at Bethlehem University
		Aqaba/Petra, Jordan	194 K	Aqaba University of Technology and University of Jordan - Aqaba	Aqaba Port	Tourism, logistics, aluminum and solar and LED manufacturing, phosphates	IFark
		Sharm-El-sheikh, Egypt	75 K	King Salman International University	Sharm El Sheikh International Airport	Tourism, Scuba Diving, Resorts	King Salman International University
2	Port Cities	Ashdod, Israel (Previous REAP Cohort)	0.23	Sami Shamoon College of Engineering	Largest Port in Israel	Heavy industry includes oil refinery, aircraft and radar, pharma	AshdodTech, The Kitchen, TheKive Ashdod
		Sharjah, UAE	1.27	University of Sharjah, American University of Sharjah and Al Qasimia University	3 ports: Port Khalid, Khor Fakkan and Hamrayah Free Zone	Oil, Real Estate, Healthcare, Tourism, Transport and Logistics	Sharjah Entrepreneurship Center
		Alexandria, Egypt	5.40	Alexandria University, Arab Academy for Science, Technology & Maritime Transport, Egypt-Japan University of Science and Technology	Alexandria Port	Chemicals, Metallurgy, Leather, Engineering, Textiles, Cement & Oil	IceAlex, Flat5labs, Inno101, Falak Startups, TIEC, Alex Angels
		Aqaba, Jordan	0.19	Aqaba University of Technology and University of Jordan - Aqaba	Aqaba Port	Tourism, logistics, aluminum and solar and LED manufacturing, phosphates	IFark
		Manama, Bahrain	0.20	University of Bahrain, Alia University, Arabian Gulf University and Bahrain Polytechnic	Khalifa Bin Salman Port and Mina Salman Port	Heavy industries (mainly aluminum), banking, finance, construction materials and tourism	BEO, Tamkeen and Flat5labs
3	Tech Innovation Hubs	Haifa / Yokneam Illit, Israel	0.29	University of Haifa, Technion - Israeli Institute of Technology	Port Haifa	Center of heavy industry, petroleum refining and chemical processing	HaifaLab, HiStart, Israel Innovation Authority, JVP Start in Haifa
		Ramallah, Palestine	40 K	Birzeit University, Arab American University	-	Stone quarrying, handicrafts	Birzeit University Innovation and Entrepreneurship Unit
		Sharjah, UAE	1.27	University of Sharjah, American University of Sharjah and Al Qasimia University	3 ports: Port Khalid, Khor Fakkan and Hamrayah Free Zone	Oil, Real Estate, Healthcare, Tourism, Transport and Logistics	Sharjah Entrepreneurship Center
		Alexandria, Egypt	5.40	Alexandria University, Arab Academy for Science, Technology & Maritime Transport, Egypt-Japan University of Science and Technology	Alexandria Port	Chemicals, Metallurgy, Leather, Engineering, Textiles, Cement & Oil	IceAlex, Flat5labs, Inno101, Falak Startups, TIEC, Alex Angels
		Amman, Jordan	4.30	University of Jordan, Al Alhaya University, Applied Science Private University, Arab Open University, German Jordanian University, Middle East Technical University of East	Two airports - hub for Royal Jordanian Airline	Phosphates, potash, cement, fertilizers, banking, telecom and tourism	IFark, ISSF, Queen Rania Center for Entrepreneurship, ERC Jordan, TTI Jordan
		Manama, Bahrain	0.20	University of Bahrain, Alia University, Arabian Gulf University and Bahrain Polytechnic	Khalifa Bin Salman Port and Mina Salman Port	Heavy industries (mainly aluminum), banking, finance, construction materials and tourism	BEO, Tamkeen and Flat5labs
4	Industrial Hubs	Haifa Bay, Israel	0.29	University of Haifa, Technion - Israeli Institute of Technology	Port Haifa	Center of heavy industry, petroleum refining and chemical processing	HaifaLab, HiStart, Israel Innovation Authority, JVP Start in Haifa
		Nablu, Palestine	160 K	An-Najah National University	-	Sap, Olive oil, and handicrafts. Furniture production, Tile production, Stone quarrying, textile manufacturing and leather tanning	Al Najah National University
		Sharjah, UAE	1.27	University of Sharjah, American University of Sharjah and Al Qasimia University	3 ports: Port Khalid, Khor Fakkan and Hamrayah Free Zone	Oil, Real Estate, Healthcare, Tourism, Transport and Logistics	Sharjah Entrepreneurship Center
		Alexandria, Egypt	5.40	Alexandria University, Arab Academy for Science, Technology & Maritime Transport, Egypt-Japan University of Science and Technology	Alexandria Port	Chemicals, Metallurgy, Leather, Engineering, Textiles, Cement & Oil	IceAlex, Flat5labs, Inno101, Falak Startups, TIEC, Alex Angels
		Zarqa, Jordan	0.64	Hashemite University, Al-Balqa Applied University, Zarqa University	Close to Amman	Leather and garment products, chemical, agricultural and pharmaceutical products	TTI and Business Incubator at the Zarqa University
		Manama, Bahrain	0.20	University of Bahrain, Alia University, Arabian Gulf University and Bahrain Polytechnic	Khalifa Bin Salman Port and Mina Salman Port	Heavy industries (mainly aluminum), banking, finance, construction materials and tourism	BEO, Tamkeen and Flat5labs

Fig 6.6 Cluster Mapping for Middle East Tier-2 Cities

7

Appendix: List of Potential Partners

7.1 UAE

Stakeholder	Organizations
Government	Dubai Future District
	Ministry of Climate Change and Environment
	Foodtech Challenge
	Sharjah Entrepreneurship Center (SHERAA)
	Federal Youth Authority – Youth X Hub
	Masdar
	Dubai Startup Hub
	Dubai Future Foundation
	Area 2071
	Dubai Future Accelerators
	Khalifa Fund for Enterprise Development
	Ghadan 21
	Abu Dhabi Investment Office Innovation Program
	Hub 71
	Sharjah Research Technology and Innovation Park
	UAE Ministry of Health and Prevention – Future Health
	The Mohammed Bin Rashid Centre for Government Innovation
UAE Innovates	
Risk Capital / Accelerators	Dubai Startup Hub
	Flat6Labs
	Dubai Future District Fund
	StartAd
	Mohammed Bin Rashid Innovation Fund
	Sharooq Partners
	Plus.VC
	Access Bridge Ventures
	Venture Souq
	Wamda
	Iliad Partners
	BECO Capital
Endeavor UAE	
Universities	NYU Abu Dhabi
	Harvard Medical School Center for Global Health Delivery—Dubai

	University of Manchester Middle East Centre
	Khalifa University
Corporate	Pepsico Greenhouse Accelerator
	Catalyst – A Masdar-BP Initiative
	Sandoq Al Watan
	Sharaka
	UAE-Israel Business Council

8

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