



Mapping the Data Economy Landscape in the Middle East and North Africa (MENA)

Key Stakeholders, Opportunities, Challenges and Recommendations

Desk Research

July 1st, 2019



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| Executive Summary

Data sharing economy is at the center of the fourth industrial revolution and the MENA region is no exception. Data economy generates social or economic value from the data (and big data) value chain like data acquisition, processing, analysis, management and sharing. Artificial intelligence (including machine learning and deep learning) and other emerging technologies are helping enterprises and the public sector improve operational efficiencies and customer service offering in addition to automating repetitive processes. Young entrepreneurs and startups are leading the disruptive economy where data is an asset and a supportive ecosystem is available.

Arab MENA countries are embracing the fourth industrial revolution at various levels and extents with some countries in leading positions and others lagging behind.

This study explores the data economy landscape, looking at key players and enablers (entrepreneurs, startups, incubators, accelerators, investors and other programs, initiatives and events) in 12 relatively stable countries. The main objective is to inform stakeholders and plan interventions.

While the region has produced a few successful and bright examples, and despite efforts from various stakeholders and players in the data startup scene, most of the countries in the region are not ready as active actors in the data economy. Local or regional datasets (especially open data) are missing, research and development in data analytics is scarce and weak, market is fragmented with repetition of ideas, hard regulations, lack of supportive policies, and inadequate infrastructure. The educational systems are not data enabled or entrepreneurship friendly and there is lack of talent in most countries due to lack of capacity building programs with regional context (both technical and entrepreneurship skills). The region also has a specific cultural legacy preferring secure work in the public sector with lack of trust, integrity and freedom of thought. Startups and entrepreneurs find themselves struggling against traditional enterprises and international companies with better access, and more influence, in the business and regulatory frameworks. Furthermore, data ethics and inclusion are not introduced or discussed in most countries.

The stakeholders in the data economy are decision and policy makers, academic and training institutions, entrepreneurs and startups, investors and funding providers, local and international organizations, and the media. They should all work together to realize the benefits of the data economy as actors rather than passive consumers. In addition to regional collaboration to provide a healthy and competitive ecosystem, localized training programs need to be designed and implemented for various stakeholders including technical, business and ethical aspects. Success and failure stories should be disseminated to learn from best practices and avoid repeating mistakes. The region has a great potential and synergies (high penetration of smart devices, internet connectivity and social media use among youth who form a large percentage and share common culture) but challenges are so serious and the speed of sweeping changes of the fourth industrial revolutions require an immediate action at all levels and by all players

including civil society. There are various resources to tap into and learn from best practices if learning is cast within local context.

The region can lead by focusing on solving local or regional problems in several sectors including digital content creation, data collection and analytics (including social media and IoT), data visualization, data journalism, data security and integrity (including blockchain), capacity building, green energy, fintech, digital health, transportation and logistics with social good in mind. Islamic or Shari'a compliant products and services like fashion, fintech and tourism is a promising area of entrepreneurship activity (there are markets for such activities outside MENA).

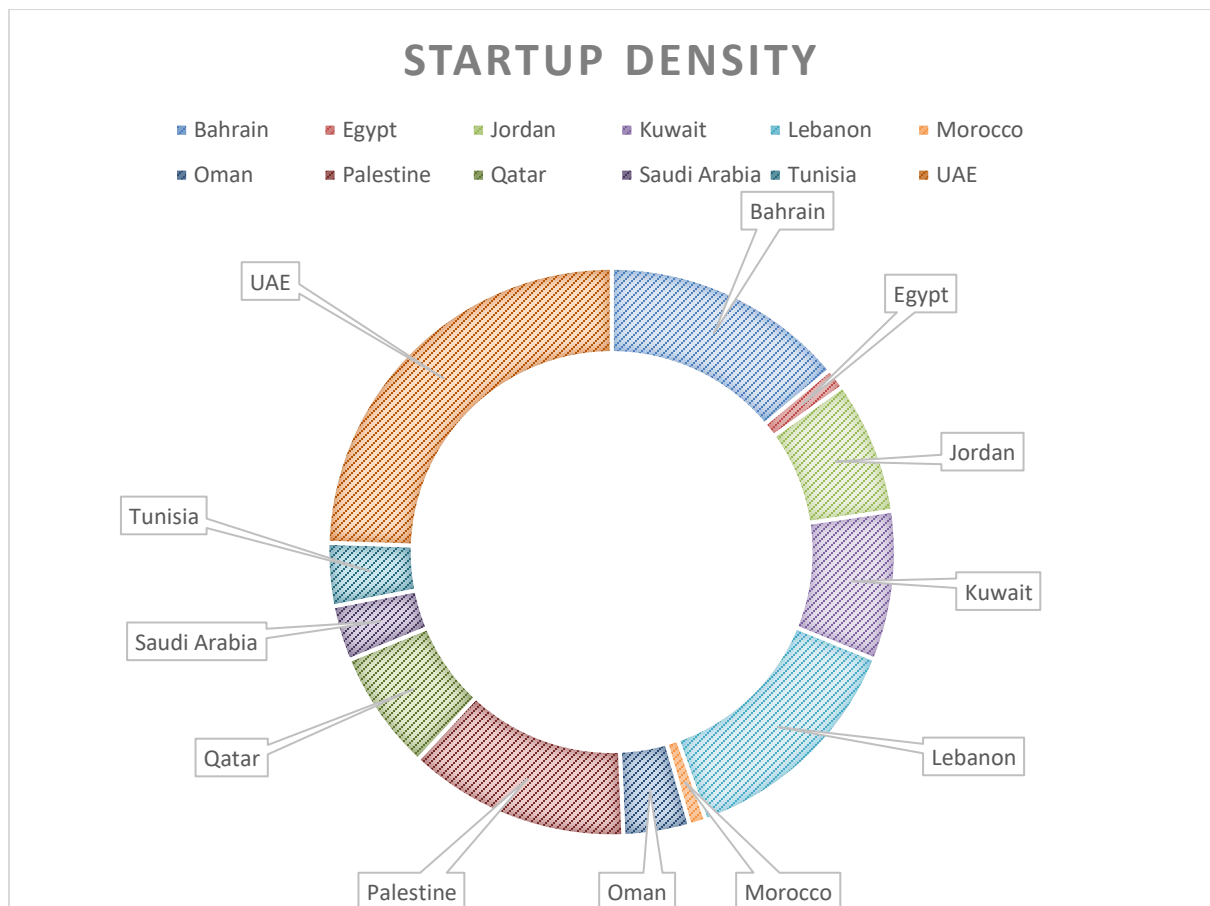


Figure 1: Number of data startups per 100,000 (ranges between 0.08 – 2.0)

| Introduction

Data is the fuel of the fourth industrial revolution. It is being labeled as the new oil and artificial intelligence as the new electricity. Data is already shaping and disrupting different economies and regions in the global economy, and MENA is no exception. The Middle East and North Africa share several opportunities and challenges that mandate the application of data empowered approaches for social and economic good. The region faces geopolitical and socio-economic challenges that call for innovative, multidisciplinary and multi stakeholder cooperation. Data is not just a way to measure or monitor Sustainable Development Goals' (SDGs) indicators, it applies to economic growth in agriculture, adds value to the health and wellness of a society, improves education, optimizes employment and helps solve climate change among many other applications. Data driven policy making is no longer restricted to national statistical offices' annual reports as new data sources are now available in a timely manner and easy to generate and analyze, whether using IoT devices or social media where measuring trends and national sentiment can provide immediate insights. Conflict outcomes and the global economy effect are two additional challenges where data can help understand and respond to emerging needs and become active participants in the global data economy.

Recent technical developments in big data analytics, machine learning and artificial intelligence present both opportunities and challenges for different stakeholders and at different levels. Awareness and readiness are needed to realize the data potential and avoid drawbacks but these never happen overnight or at the same speed of advances in algorithms and applications – both good and bad. With data comes power which can be easily manipulated against economic and social good.

Several international organizations have identified data as an enabler of sustainable development in MENA region and countries of similar economies. Over the past few years, the International Development Research Center (IDRC) started a number of important initiatives and projects to harness the power of data in the MENA region. The project at hand focuses on mapping the data economy landscape in the region to inform decision makers and the so-called data-natives and datapreneurs and also plan capacity building and awareness raising interventions.

| A Brief History of IDRC Data Activities in MENA

This effort complements an earlier IDRC study titled “Harnessing the Economic Power of Data in the Middle East and North Africa (MENA)¹” where the data economic potential is highlighted. Most of the content in that study is still valid and relevant but there have been tremendous technical advances over the past few years since then. This work follows

¹ <https://drive.google.com/file/d/11js5HFW-CRFLyLPZ1bO4pmDFtcNDAaKE/view?usp=sharing>

several data for development activities supported by IDRC including:

- The Regional Workshop² on Data Driven Innovation (Cairo, 2016)
- Visualising Impact (Impact Data Lab)³: focuses on mobilizing data and storytelling for social impact through data visualization. A workshop was held in Amman, Jordan in March 2018 where data related to education, gender and mapping were visualized.
- Researching Gender Dynamics Within Syrian Refugee Communities in Lebanon and Jordan⁴: explores the approaches and tools for city resilience in the wake of the refugee influx in Lebanon and Jordan, focusing specifically on the role of digital technologies in building gender sensitive resilience strategies and tools to respond to the refugee crisis. March – August, 2018.
- Health SystemEye (Lebanon)⁵: online platform dedicated to making data about all types of cancer available to the public for the purpose of improving and driving policy, by Knowledge to Policy Center at the American University in Beirut.
- Igniting the OD4D Maghreb (WebRadar / Innova Tunisia)^{6,7}: Sentiment analysis on gender equality and media debates in Morocco, Algeria, Tunisia, Egypt, Jordan and Lebanon. 2018.
- Developing Air Quality Heat Map for Cairo: A Citizen-Centric Sensing Approach^{8,9}: to harness the advances in technology through mobile sensors to create an informative mapping of air quality in Cairo. 2017.
- Transportation and Urban Mobility Project^{10,11}: two research papers that focused on the intersection of data and transportation for the purpose of understanding how open data can better serve the community on the issue of public transportation. 2016 – 2017.
- Solar Data Platform¹²: an interactive platform focused on opening up data on the solar energy sector in Egypt. 2016 -.
- Understanding City Resilience within MENA in Relation to SDGs and Availability of Data¹³: to study cities' resilience within the MENA region in terms of how Amman and Beirut are coping with the Syrian refugees' crisis. 2017.
- Data Revolution Project: Open Data Management Plan (ODMP) and Harnessing the Economic Power of Data in MENA^{14,15}: the challenges and considerations considered immediately necessary for the release of open data.
- Data Literacy Camp: A workshop focused on capacity building for young researchers and

² <http://schools.aucegypt.edu/business/a2k4d/pages/story.aspx?eid=62>

³ <http://menadata.net/public/dataset/101552810875>

⁴ <http://menadata.net/public/dataset/181552821873>

⁵ <http://www.healthsystemeye.com/>

⁶ <http://menadata.net/public/dataset/151552818109>

⁷ <http://menadata.net/public/dataset/161552818245>

⁸ <http://menadata.net/public/dataset/21539400046>

⁹ <https://setsna1.shinyapps.io/airquality-first-run/>

¹⁰ <http://menadata.net/public/dataset/71539516038>

¹¹ <https://setsna2.shinyapps.io/smart-for-da2ery/>

¹² <https://solardataegypt.info/>

¹³ <http://menadata.net/public/dataset/11539400046>

¹⁴ <http://menadata.net/public/dataset/81539516969>

¹⁵ <http://menadata.net/public/dataset/41532401646>

practitioners in the region to develop their skills with data, held with Arab Digital Expression Foundation in Egypt. 2018.

- a number of other data-enabled case studies and activities that took place in Morocco (blind spots alerting system), and Palestine (air quality egg using IoT as data generation and sharing, training in Data Science and data Journalism) and the most recent Africa Data Revolution¹⁶ project, State of Open Data¹⁷ book and Government AI Readiness Index¹⁸.

| Research Objectives

The main objective of this mapping exercise is to inform all stakeholders about the state of data economy in the Arab MENA region and provide a roadmap to decision makers and data practitioners on how to leverage data for economic and social good. The final report serves as awareness raising tool for the general public, a reference for decision makers and capacity building professionals and a knowledgebase for datapreneurs and startups.

| Research Questions

In mapping the data economy landscape, we are looking at the key players, policies, infrastructure and other aspects (including opportunities, gaps and social impact) of the data empowerment eco-system. Specifically, we try to identify (on local and regional level):

1. Economic establishments and enterprises (especially startups) that leverage data, in a significant way, for economic or social good
2. Funding and investment institutions
3. Technical capacity in data literacy (different levels and formats: courses, programs, MOOCs, bootcamps)
4. Events related to data (sources, management and applications including conferences, exhibitions and competitions)
5. Media and awareness (including access to data, citizen and data journalism)
6. Incubators, accelerators and similar enabling programs
7. Technical and academic research and products or tools
8. Data infrastructure (datasets, compute and storage hardware and communications)
9. Data policies and governance
10. Data advocacy (access, inclusion, equity, fairness) and ethics

Countries with special focus are likely to be covered in depth by exploring all of the above sources. Other countries will be profiled based on available sources and what sets them apart.

¹⁶ <http://webfoundation.org/docs/2019/03/Africa-data-revolution-report.pdf>

¹⁷ <https://www.stateofopendata.od4d.net/> (pdf version: <https://www.idrc.ca/en/book/state-open-data-histories-and-horizons>)

¹⁸ <https://www.oxfordinsights.com/ai-readiness2019>

At the end of the mapping exercise, we aim to answer the following **questions**:

1. What is the state of the data economy in Arab MENA region?
2. Who are the key regional players in data applications, investment and capacity building?
3. What are the gaps between abilities and potential and how to bridge them in the regional context?

Listing active players serves a number of goals: it provides general awareness of the extent of dataconomy activity and scale, offers a selection of successful ideas and business models around data to explore and build on, saves entrepreneurs from duplicating efforts, and provides insights about ideas that can be built upon utilizing synergy or needs from existing startup ecosystem in addition to networking and collaborating.

On the dark side, there are dozens of failed ideas and startups. These are not part of this study despite their importance (they warrant a separate study that does not fit in the current scope of work). For completeness, we provide brief general analysis of why certain data startups could not make it. Failed startups may provide great insights or send signals of despair to inexperienced entrepreneurs but things are not that simple.

| Research Methodology

For this task, we are using an exploratory approach and trying to identify key data players and other elements of the data economy ecosystem in the region. To achieve this, we are looking at the communication space across the data value chain. The value chain consists of data generators (data sources), data managers, data engineers, data consumers and practitioners, data trainers, data advocates, and data policy makers.

To identify key players and stakeholders, a wide number of data sources were used either directly as main sources of information) or indirectly (as leads or insightful). These are:

1. Media outlets (international, regional or country based) that specialize in economic coverage and focus on entrepreneurship and startups.
2. Author's network (persons and entities known to the author based on data interest and related work and activities)
3. Regional reports or regional coverage in international reports
4. Databases of regional startups and profiles (ex. Magnitt database, Crunchbase and Zawya)
5. Funding or investment agencies, including funding for social good (ex. by int'l agencies like UN organizations or cooperation agencies)
6. Country and regional events and activities like conferences, exhibitions, competitions and training activities
7. Professional groups, associations (ex. ICT or Open Source) and social media networks
8. Research and publications outlets and reports (ex. The Open Data Barometer)
9. Reach out activities (group and individual communication, direct and indirect, semi-structured interviews, networks of practitioners)

10. Regional and local employment agencies and platforms (ex. Dubizzle, Bayt, Jobs, Akhtaboot, Wuzzuf)
10. Country round table of key stakeholders
11. Regional workshop and feedback on draft report

The selection of countries was based on geographic representation of Arab states in MENA and the ability to gather information (depth of coverage) within project timelines. Countries with socio-political instabilities or scarce sources of information were not included. It is worth mentioning that this effort is not conclusive and coverage differs across countries (some of which use French besides Arabic and English for business communications and auto translation may not be accurate). Events were limited to those occurring since the beginning of 2019 and earlier ones with lasting outcomes (like multiyear programs or strategies). Established enterprises or those who have adequate access to financial resources try to keep their data efforts in the lime light to keep a competitive advantage. As a result, it is very likely that key stakeholders and players (or their data activity) are missing. However, this should not affect the main purpose of this report as the focus is informing and equipping stakeholders based on local, regional and international trends in data economy.

Also, due to the fast-moving developments in the data landscape, some players may appear or disappear at very short notices and technical trends may shift across different disciplines, thematic areas and sectors.

We did not focus on revenue stream and business models for the startups as most businesses do not fully disclose these, others have several revenue streams and some are not utilizing data in a direct or measurable way. Startups are also in a continuous pivoting process and revenue generation changes as they restructure, receive funds, scale or move into different markets. At times, we struggled to write a few words describing a startup based on available marketing or media content appealing to wider ranges of audiences, and locations are not always explicit as some startups try to indicate a regional coverage or start in one country and move to better markets or ecosystems. In a few cases, we listed some startups that are not dealing with data directly either due to their expected educational impact or their role in serving marginalized communities. Part of the media outlets are also startups and some venture capital and investment programs can be considered as startups even if not listed as such. Established companies or establishments (including government agencies and entities, utility and service providers, telecom, insurance, banking and financial services institutions, logistics and retail, outsourcing companies, international and relief organizations) that use data as a medium, enabler or optimizer are not listed in this report. They usually do not disclose their data powered operations and rely on enterprise software and services from international firms for operations and development plans.

Determining if a startup is still active or not (or entered operational phase) was not an easy task as some had impressive web presence and appear to accept business transactions when in fact they were no longer in business or generating income. Most of the listed

startups were based on recent media coverage or extracted from the portfolios of successful investors with recent investing rounds, but we also consulted Magnitt records (MENA startups database) and since it does not track business activity, we limited inspection to startups that got funding or investment due to time limitation as over ten thousand entities are registered at Magnitt. Funding or investment is not an accurate indicator of success (several startups with six figures of funding were found dead). Also, startups listed under a data related category (AR/VR, analytics, robotics, fintech, cryptocurrencies, IoT and blockchain) in the Magnitt database were checked regardless of funding and some heuristics were applied to determine activity including news, social media, followers, app date and job announcements. For countries with special focus, like Palestine with around 130 entities, we inspected each startup and tracked social media activity as an indicator in addition to domain name functionality and recency (an online tool¹⁹ that returns server response metadata on *last updated* which is an approximation of *last modified date*). Recent news and job postings were also considered as a sign of recency. Less than 10% were found active. In the Palestinian case, the jobs site “jobs.ps” was also searched and listed companies were scanned for potentially related entities. In a fast-moving landscape, things change overnight. Startups surface, relocate or disappear at a very short notice, investments and acquisition happen, regulations and policies take place (ex. ride hailing apps were banned by some countries), events get cancelled and unforeseen incidents affect everything. For example, Careem was acquired by Uber during the data collection phase of this report and this is likely to disrupt the transportation scene in the region. It is also very likely that some of the great startups (whether at very early stage or already established) were not mentioned here either due to limited time (cut-off for data collection was end of June 2019) or because such entities are keeping quiet at the media and public relations side. For this reason, we provide a list of resources to stay in touch on new developments.

| The Data Economy: An Overview

For the purpose of this mapping exercise, data economy refers to the economic, social and financial value created through the collection (acquisition), processing, analysis, storage, retrieval, management or sharing of data (business, organizational or governmental) regardless of size or speed. This means both data and big data are included. Part of the indirect, yet sizeable, data economy comes from enabling products and services. For example, data storage, exchange, processing, security, analytics and presentation require a wide range of hardware and software tools ranging from cloud-based data centers with compute power (GPU and quantum computing) to networking and communication infrastructure along with specialized software tools and frameworks. Data collection can be done through IoT devices and data security and integrity services may use technologies like

¹⁹ <http://www.visiospark.com/last-modified-time-checker/> is web based, more options at <https://stackoverflow.com/questions/23644436/how-do-i-find-when-a-web-page-was-last-updated>

Blockchain enabling fintech industry, and data governance calls for regulations, policies and advocacy.

Financial or economic value may come from operational efficiency within an organization (production, management, marketing, logistics, ... etc.), innovative data products or services (smart apps, robotics, drones, self-driving vehicles, data analytics, software tools, e-commerce, sharing economy ... etc.) or through the creation of new roles (employment opportunities in training and operations serving the data economy). It should be noted here that the data economy will also put other employees out of work unless they re-skill or upskill.

Recent advances in digital technologies, the availability of connected devices and sensors (IoT), social media platforms and the decreasing cost of storage, connectivity and computational resources have led to the generation and storage of large amounts of data in different formats and at high speed (commercially known as big data). To realize the data potential, data analytics was revived thanks to powerful computing resources (initially developed for gaming purposes). What used to be limited to some statistical methods is now called data science or generally known as artificial intelligence (AI) with machine learning and deep learning (neural networks) at its heart. Both AI and big data are seen as the main drivers of the data economy but that doesn't mean the exclusion of small amounts of data and simple algorithms or even specialized data economy activities like data collection or annotation. Data journalism deserves a special mention here as both a means of awareness raising and application of different levels of data sizes and algorithmic complexities.

If data is the new oil, we may see new economic powers based on data assets and technologies. In fact, certain enterprises are already emerging as super data powers like Google and Facebook in the US or Baidu and Tencent in China. Other companies like Uber and Airbnb run their whole business on data thus disrupting traditional economy without physical assets (Uber is now using self-driving cars and Airbnb is constructing new homes).

In her keynote address at the MIT Enterprise Forum in Beirut (March, 2019), Huma Abidi from Intel spoke about industries being transformed by AI. These include consumer, health, transportation, government, finance, retail, energy, industrial sectors and other areas like advertising, education, gaming and sports²⁰. It is beyond the scope of this report to dive into details on how each sector will be affected, but there are use cases from precision agriculture to medical robotics and AI powered news anchors. Most of us come across one or more automated or AI powered services on a daily basis whether it is a timeline on social media, ads displayed along search results, a self-checkout store or AI enabled chatbots and personal assistants like Siri, Alexa or Cortana.

²⁰ <https://twitter.com/EuromenaTeam/status/1111639066716631040>

| The Data Economy Ecosystem

For a vibrant data driven economy, the efforts of key stakeholders should be consistent and add up. Several other factors and elements are also needed to sustain the momentum.

Leveraging data for social good may be less demanding on certain levels but the process is similar and interrelated. The main components of a healthy data economy are:

1. Public awareness: to realize the potential of data for economic development and social good requires sincere efforts from the public and private sectors as well as civil society and academia. The media is no exception. Awareness needs to be available at different levels of complexity using different methods and formats, and targeting different audiences.
2. Technical capacity: being able to gather smart data and apply the required analytics
3. Technical infrastructure: compute, storage, communications and general logistics (ex. payments, addressing, ease of establishing business etc.)
4. Funding and investment: financial and human capital for establishing and growing a startup business
5. Data in different formats, structures and governance models: ex. tables, texts, images, audio and video, open data
6. Leadership, championship and advocacy (data access, fairness of algorithms, equal opportunities, inclusion and representation of all groups, protection against fake generated content)
7. Markets: depth (size and segments), need and purchasing power
8. Policies and governance (protection of market, startups support, data governance, regulations, ethics enforcement)
9. Mentorship, networking and incubation, success stories and good examples (role models) and lessons learnt from success and failure stories.

| General/Global Outlook

The World Economic Forum (WEF) introduced The Fourth Industrial Revolution (4IR) concept in 2016 to highlight the social, political and economic impact of technologies like artificial intelligence (AI), robotics (automation) and internet of things (IoT). As the interconnectivity and access to information and systems increase, the world is becoming more connected and industries and markets become progressively interdependent²¹. While automation and AI applications may help alleviate some of the world's problems of poverty, food security and health or rid humans from doing dangerous or repetitive tasks, it is likely to concentrate wealth where new technologies are developed, produced and operated. The world's top nine AI companies (Google, IBM, Apple, Microsoft, Facebook and Amazon in the US, and Baidu, Alibaba and Tencent in China) are publicly traded and driven by capitalism. There are various estimates of the impact on the work force and it is expected that jobs lost will outnumber those generated by AI and automation. The McKinsey Global Institute report on automation predicts that two-

²¹ <https://www.wamda.com/2019/04/middle-east-snail-pace-fourth-industrial-revolution>

thirds of the world's jobs, about 800 million, will be lost to automation by 2030²². Vulnerable groups (youth and women) are expected to be most affected as their entry roles in the job market are likely to be automated. There are efforts to predict which roles will disappear like 'Will Robots Take My Job'²³ and discussions are underway to solve a future-of-jobs situation where too many people end up doing nothing and not affording living expenses with Universal Basic Income (UBI)²⁴ being experimented with in some countries²⁵ possibly by taxing robots if tech giants agree. Unlike earlier industrial revolutions, the fourth one is quick, far reaching and targets the near cognitive skills of workers, so unless they re-skill or up-skill fast enough, more jobs will be lost than created.

The global artificial intelligence market size was estimated at over 600 million USD in direct revenue in 2016 and around 6 billion for enabled revenue reaching around 60 billion by 2025 at 57% annual growth rate²⁶. AI is becoming a secret sauce for marketing and funding with AI focused startups enjoying 15% in extra funding and up to 40% may have nothing to do with AI as a London investment firm fund out for European companies²⁷. There are major efforts by leading AI nations (China, US, UK, EU, Germany, France, Canada and Russia²⁸ with some, like Canada, also leading in ethics^{29,30,31}) to raise awareness, build capacity, introduce policies and regulations and, above all, take advantage of recent advances in AI for economic and social good. Tech giants are releasing tools and frameworks, providing access to computing resources and offering learning resources. Microsoft launched AI for executives³² a non-technical course³³ to raise awareness and inform them of potential and opportunities. Many universities are partnering with learning providers and MOOC platforms to provide continuing education in data literacy. Imperial college, for example, introduced a masters in AI with Coursera³⁴ and Lambda School³⁵ pays students for a 9-month program so they can focus on their studies (they pay a percentage of their salary after they get employed).

In the top 10 startup industries for 2018³⁶ (based on Inc. 5000 list), AI plays different roles. These include health, financial services, consumer products and services, logistics and

²² <https://www.wamda.com/2019/05/artificial-intelligence-blessing-curse-waiting-unfold>

²³ <https://willrobotstakemyjob.com/>

²⁴ <https://basicincome.org/>

²⁵ <https://www.weforum.org/agenda/2019/03/what-happened-to-all-the-hype-about-universal-basic-income/>

²⁶ <https://www.grandviewresearch.com/industry-analysis/artificial-intelligence-ai-market>

²⁷ <https://www.technologyreview.com/f/613078/about-40-of-europes-ai-companies-dont-actually-use-any-ai-at-all/>

²⁸ <https://qz.com/1264673/ai-is-the-new-space-race-heres-what-the-biggest-countries-are-doing/>

²⁹ <https://techvibes.com/2019/03/08/canadas-new-federal-directive-makes-ethical-ai-a-national-issue>

³⁰ <https://www.montrealdeclaration-responsibleai.com/>

³¹ <https://montrealaiethics.ai/>

³² <https://www.cmswire.com/digital-workplace/microsoft-launches-free-ai-business-school-for-execs/>

³³ <https://www.microsoft.com/en-us/ai/ai-business-school>

³⁴ <https://www.imperial.ac.uk/news/190523/imperial-launches-worlds-first-online-masters/>

³⁵ <https://lambdaschool.com/>

³⁶ <https://www.inc.com/emily-canal/2018-inc5000-biggest-industries-us-businesses.html>

transportation, business products and services, construction, government services real estate, retail and security.

The top four manifestations of AI as a data economy enabler are deep learning, machine learning, natural language processing and understanding (NLP and NLU) and machine vision. State of the art AI technologies now beat humans in tasks like translation, transcription, and medical image diagnosis. AI algorithms based on deep learning can generate text³⁷, images³⁸, audio and video³⁹ that are hard to tell apart from authentic counterparts – a capability that can be misused with potential negative impact.

These technologies power different industries and services at the individual, institutional and government levels across various themes ranging from agriculture to genetics.

In the health sector, AI use cases include robot assisted surgery, virtual nursing assistants, hospital workflow management, dosage error reduction, clinical trial participant identifier, preliminary diagnosis and automated image diagnosis.

In banking, financial services and insurance, AI is helping reduce risk, optimize operations and profits, personalize services and speed decision making with fast and accurate analytics of big data.

AI is revolutionizing retail through supply chain planning, demand forecasting, customer intelligence, pricing and promotions, marketing and advertising and store operations.

In the legal practice, AI and machine learning are replacing human effort in legal research and due diligence in addition to predicting legal outcomes and automating standard procedures.

In media and advertising, AI takes care of ad creation, performance and spend optimization, and audience targeting. Content creation is now a standard capability thanks to recent advances in NLP and NLU as we have seen in cases where a smart agent (human-like robot or humanoid) is replacing a human news anchor⁴⁰.

Robots are already transforming manufacturing and replacing workers in warehouses and assembly lines. AI is also widely used in predictive maintenance based on machine operational data. Self-driving vehicles and automotive AI use cases (ex. drones) are mainstream now and even in agriculture, AI is being utilized in a wide range of operations from uprooting weeds or precision pesticide spraying to crop and fruit picking, sorting and packaging. Industry 4.0 is a term commonly used to describe the current trend of AI enabled automation and data exchange in manufacturing technologies⁴¹.

Today smart mobile phones and IoT devices are powerful enough to carry out several AI tasks due to embedded sensors and software frameworks in addition to relatively cheap and fast connectivity (including 5G mobile networks) allowing some operations to be delegated to equipped data centers. Virtual, mixed and augmented reality with less or no additional head gear are enabled on new smart devices and serve a wide range of industries

³⁷ <https://openai.com/blog/better-language-models/>

³⁸ <https://www.thispersondoesnotexist.com/>

³⁹ <https://www.csoonline.com/article/3293002/deepfake-videos-how-and-why-they-work.html>

⁴⁰ <https://www.cnbc.com/2018/11/09/the-worlds-first-ai-news-anchor-has-gone-live-in-china.html>

⁴¹ <https://www.linkedin.com/pulse/guide-real-world-ai-machine-learning-use-cases-imtiaz-adam/>

and applications like education, sports, fashion and furniture. This means that the impact of AI is already affecting communities at the individual level.

With such a huge market, fast and significant advances, and far reaching impact, there are plans to maximize profits and some concerns about the negative effects like algorithm bias and job replacement. A few guidelines⁴² and predictions⁴³ are provided by the global company PricewaterhouseCoopers (PwC) which predicts AI to contribute around \$16 trillion to global economy by 2030. The Management consulting firm, McKinsey provides extra insights⁴⁴ on AI adoption by various industries along with common enablers and barriers. As any human-made product, AI is never perfect nor it is always fair or just. Bias in AI decisions and outcomes may start with the underlying data (ex. lack of representation) and in explanation or clarity in decision paths.

Regional Outlook

The Arab MENA region is a significant part of the global market and has a role to play in the data economy. It is also a central part of the Belt and Road Initiative⁴⁵ originating from China (Saudi Arabia, UAE, Egypt and several others are partners) and other counter initiatives led by the US. In this section, we present a general background and examine parts of the data economy infrastructure and ecosystem. Key players and country specific activities are discussed in the next section on country profiles.

Background:

With around 400 million people (30% of which are youth), 60% of world's oil reserves and 45% natural gas⁴⁶, in addition to geolocation, great heritage, cultural richness and common language, the Arab MENA region is a key player in world economy and geo-political stability. Major events that took place in the last decade, including the first and second wave of the 'Arab Spring', conflicts and proxy wars in Syria, Iraq, Libya and Yemen, and the recent tension between Qatar and the rest of the GCC countries, presented a number of challenges and consequences along with incentives or stimulations that are enhancing economic activity and entrepreneurship. Several parts of the region suffer from various levels of poverty, illiteracy, unemployment, gender gap, poor education and lack of infrastructure on top of totalitarian corrupt public sector restricting freedom of thought and innovation. These developments and the adoption of the 2030 agenda for sustainable development leading to the framing of the 17 sustainable development goals (SDGs)⁴⁷ were key drivers

⁴² <https://www.pwc.com/ai2019>

⁴³ <https://www.pwc.com/us/en/services/consulting/library/artificial-intelligence-predictions.html>

⁴⁴ <https://www.mckinsey.com/featured-insights/artificial-intelligence/ai-adoption-advances-but-foundational-barriers-remain>

⁴⁵ <https://www.worldbank.org/en/topic/regional-integration/brief/belt-and-road-initiative>

⁴⁶ <https://www.investopedia.com/terms/m/middle-east-and-north-africa-mena.asp>

⁴⁷ <https://sustainabledevelopment.un.org/sdgs>

for innovation and entrepreneurship. The region was in dire need of this as a means of problem solving and diversification of income in a global economy where green enterprises, sharing economy and significant technical advances in data technologies and infrastructure were (and still are) high on the agendas. AI, now a reality rather than science fiction, is being billed as the solution to the world's problems although the major players are publicly traded companies responsible for generating profit in the first place and may generate extra trouble as algorithm bias, privacy invasion or hostile regulations⁴⁸.

In a recent survey by Forbes Insights that was released at the "AI Everything" summit in Dubai (April 30 – May 1st, 2019), 55% of surveyed companies in the Middle East were found to be piloting or testing AI compared to 58% globally and several countries including Saudi Arabia, UAE, Egypt and Jordan have AI and digitization strategies⁴⁹ (UAE has a cabinet minister of AI). Top business values of AI (according to surveyed executives) were improved operational efficiency, enhanced customer acquisition and improved customer experience (all less important globally where focus on improved products and services innovations rates higher). This may not mean much for startups and entrepreneurs in the immediate future as current activity is led by established enterprises using technology from global providers, but the ecosystem is forming, awareness is being raised and some startups are finding niches for organic intervention on the AI level. The same Forbes report highlights lack of technical talent (both attracting and maintaining top AI talent) as a major drawback in the region (and higher than global average). Other challenges cited by the report⁵⁰ include data issues, infrastructure and computational power in addition to research and development. These challenges are viewed to be more severe than global estimations which was evident in the 4th edition of the Open Data Barometer report⁵¹ (2016).

On the social aspect, the AI for Social Good⁵² conference, organized by the United Nations Development Programme (UNDP) and the Qatar Center for Artificial Intelligence on February 17, 2019, was an indicator of the role of AI and its real potential in supporting humanitarian causes⁵³ despite impeding obstacles. A form of public-private partnership, known as data collaboratives⁵⁴ was suggested as a promising approach.

While Arab youth are expected to be at the heart of AI activities, and there are increasing numbers of graduates in science, technology, engineering and mathematics (STEM), they are not fully equipped to do so. In the 2019 Arab Youth Survey⁵⁵, three out of four were

⁴⁸ <https://www.wamda.com/2019/05/artificial-intelligence-blessing-curse-waiting-unfold>

⁴⁹ <http://www.arabnews.com/node/1491216/middle-east>

⁵⁰ <https://ai-everything.com/wp-content/uploads/2019/04/State-of-AI-in-the-Middle-East-Forbes-Report.pdf>

⁵¹ <https://opendatabarometer.org/4thedition/>

⁵² <https://qcai.qcri.org/index.php/events/ai-for-social-good/>

⁵³ <https://medium.com/data-stewards-network/data-collaboratives-as-an-enabling-infrastructure-for-ai-for-good-99aeb1192c10>

⁵⁴ <http://datacollaboratives.org/>

⁵⁵ <https://www.arabyouthsurvey.com/pdf/downloadwhitepaper/download-whitepaper.pdf>

unhappy with the quality of education quality and their top concerns are the rising cost of living and unemployment.

Datasets, Open Data and NSOs:

Data is at the center of machine learning and artificial intelligence algorithms and by data we mean the raw granular and detailed datapoints, media or corpora. National statistical offices (NSOs) in the region and worldwide provide statistics (aggregated or summarized data). In some cases, NSOs, upon request from research institutes may also provide raw data from surveys and censuses. Aggregated data is not suitable for smart analytics or machine learning leading to predictions and insights but can provide some indicators on the size of opportunities and challenges but will not reveal geographic or demographic distributions, temporal development or personalized insights.

Data collection and processing is a costly process and some businesses make a living doing one step of the data value chain, be it collection or acquisition, cleaning, labeling, reshaping, integrating, storing, securing, visualization or analytics.

There are several datasets that were made available, initially, for academic research under different usage licenses. Most of these datasets were developed outside the MENA region and while they may apply for algorithm development in general, they do not fully represent unique cultural, linguistic, business structure and environmental settings from the region. A few MENA datasets are locked behind academic and company walls (or firewalls) under different fears of privacy and trade secrets. The known datasets are limited media and text corpora in addition to some social media and web scraped collections for Arabic NLP related purposes. Arabic Speech⁵⁶ is one good example in this context. Several international datasets, including Arabic related ones, are mentioned under the global overview above.

Open data is one of the themes of the Open Government Partnership (OGP) themes⁵⁷. By opening up data, and making it sharable and reusable, governments enable informed debate, better decision making, and the development of innovative services. Open government data refers to the free use, reuse, and redistribution of government data by anyone. As of this writing (Mid 2019), only Jordan, Morocco and Tunisia have joined the OGP⁵⁸. Open data is not restricted to government data and can be released and utilized without OGP membership. The Open Data Charter⁵⁹ outlines the basic principles of open data as: open by default, timely and comprehensive, accessible and usable, comparable and interoperable, for improved governance and citizen engagement and, for inclusive development and innovation. A few years ago, there has been noticeable interest in releasing open data sets in the region. The Web Foundation

⁵⁶ <https://arabicspeech.org/resources>

⁵⁷ <https://www.opengovpartnership.org/theme/open-data>

⁵⁸ <https://www.opengovpartnership.org/participants>

⁵⁹ <https://opendatacharter.net/principles/>

produced a number of open data barometer (ODB) reports ranking different countries based on readiness, implementation and impact. The 4th edition⁶⁰ included ranks and scores of 114 countries with UK scoring 100 (rank 1). The best Arab score was 32 for Tunisia. The report also indicated a decline in the open data trend. ODB looks at 15 datasets (mapping data, land ownership, national statistics, detailed budget data, government spending data, company registration data, legislation data, public transport, international trade, health sector performance, primary and secondary performance, crime statistics, environmental statistics, national election results and public contracting data). Another measure close to NSOs work is the Open Data Inventory (ODIN)⁶¹ and looks at social, economic and environmental statistics⁶². While some of these datasets are not directly related to the data economy or not actionable due to aggregation nature, most are relevant for operational, healthy and transparent business ecosystem.

Open data, along with open source software and tools, democratize access to data and enables data economy especially for startups and entrepreneurs with limited resources. Disruptive startups, the sharing economy and recent advances in machine learning and data analytics are largely powered by open and publicly available data. Ride sharing platforms like Uber and logistical startups rely heavily on mapping data (from Google and OpenStreetMap). Social media and web content (ex. Wikipedia) provide text corpora for NLP and ImageNet dataset was essential for computer vision. Several publicly available datasets, development frameworks, free learning content and even compute resources are used for learning purposes. This can empower innovators and entrepreneurs in the MENA region, but local and regional datasets are still required to solve local problems and realize the potential of local and regional opportunities.

National statistical offices for the countries in this study are listed on the Arab Institute for Training and Research in Statistics website⁶³ and are likely to be updated there in case of changes. A brief description of these NSOs follows.

Bahrain⁶⁴: no datasets available online but Bahrain has an open data portal⁶⁵ which provides an open data policy⁶⁶, open data strategy⁶⁷ and a wide range of datasets under different topics some of which are reasonably recent (2018 or early 2019).

Egypt⁶⁸: provides stats and charts for various topics, GIS, access to databases and some raw (approved) data. The Egyptian Open Data Initiative⁶⁹ seems outdated with broken links.

Jordan⁷⁰: provides data, publications, infographs and access to databases as well as an option to request data (Jordan has a freedom of information law). Selected stats are

⁶⁰ https://opendatabarometer.org/4thedition/?_year=2016&indicator=ODB

⁶¹ <https://odin.opendatawatch.com/>

⁶² https://docs.google.com/document/d/1ubPL1l_3im9bjlCVZ6W2ICAy6UAIxI1hGeA1aXImkxl/edit

⁶³ http://www.aitrs.org/en/statistic_indicators

⁶⁴ <http://www.iga.gov.bh/en/>

⁶⁵ <http://www.data.gov.bh/ar/>

⁶⁶ <http://www.data.gov.bh/ar/ODPolicy>

⁶⁷ <http://www.data.gov.bh/en/strategy>

⁶⁸ <http://www.capmas.gov.eg/>

⁶⁹ http://egypt.gov.eg/english/general/open_gov_data_initiative.aspx

⁷⁰ <http://dosweb.dos.gov.jo/>

relatively recent and some are available per locality. Jordan has an open data portal⁷¹ with different datasets under various topics (including openness indicator) but some datasets are a bit old.

Kuwait⁷²: provides indicators, statistical bulletins and report, some data and systems requires login. Some report and stats are available under an open data heading⁷³.

Lebanon⁷⁴: apart from a few topics under time series, most available stats on this site are outdated. A recent Medium article on Open Data in Lebanon⁷⁵ indicates little progress on this front.

Morocco⁷⁶: provides reports, indicators, surveys and access to statistical databases with charts. Morocco also has an open data portal⁷⁷ and both sites are mainly in French.

Oman⁷⁸: indicators, surveys, charts, geospatial data and publications. Datasets are also available at the data portal⁷⁹. Oman also has an open data section at the e-government services portal⁸⁰.

Palestine⁸¹: indicators and time series for different topics, some raw data, surveys and reports. Open data in Palestine is not institutionalized yet (there is an early attempt⁸² by the Ministry of ICT and Leaders Organization) but the statistical data is released under terms⁸³ influenced by the Creative Commons license.

Qatar⁸⁴: indicators, topical statistics, GIS and publications with a link to request data. Qatar has an open data portal⁸⁵ with clear policy, license and handbook.

Saudi Arabia⁸⁶: indicators, surveys, censuses and publications under different topics (including Hajj) in addition to progress report on SDGs. Saudi open data portal⁸⁷ has some datasets but doesn't seem up to date.

Tunisia⁸⁸: provides access to indicators, GIS, censuses and data under several topics with an option to request data. Tunisia has an open data portal⁸⁹.

United Arab Emirates⁹⁰: The Federal Competitiveness and Statistics Authority provides

⁷¹ <https://jordan.gov.jo/wps/portal/OpenData>

⁷² <https://www.csb.gov.kw/>

⁷³ <https://www.e.gov.kw/sites/kgEnglish/Pages/OtherTopics/OpenData.aspx>

⁷⁴ <http://www.cas.gov.lb/index.php>

⁷⁵ <https://medium.com/data-and-society/open-data-in-lebanon-52b334504fbb>

⁷⁶ <https://www.hcp.ma/>

⁷⁷ <http://data.gov.ma/fr>

⁷⁸ <https://www.ncsi.gov.om/Pages/NCSI.aspx>

⁷⁹ <https://data.gov.om/>

⁸⁰ <https://www.oman.om/>

⁸¹ <http://www.pcbs.gov.ps/>

⁸² <https://opendata.ps/>

⁸³ <http://www.pcbs.gov.ps/articlesar.aspx?TabID=1150&lang=ar>

⁸⁴ <https://www.mdps.gov.qa/ar/Pages/default.aspx>

⁸⁵ <https://www.data.gov.qa/pages/home/>

⁸⁶ <https://www.stats.gov.sa/en/node>

⁸⁷ <http://www.data.gov.sa/en>

⁸⁸ <http://www.ins.tn/en/front>

⁸⁹ <http://www.data.gov.tn/>

⁹⁰ <http://fcsa.gov.ae/en-us>

standard statistics, a section on SDGs and open data⁹¹. Some emirates and cities also provide their own data (ex. Abu Dhabi⁹² and Dubai⁹³).

There are regional and international attempts to aggregate data from official and academic providers with some added value like charting and comparison. At the regional level, Arab Development Portal⁹⁴ (ADP) is a multi-stakeholder initiative to collect data and knowledge especially SDG indicators (more on SDGs at Data4SDGs⁹⁵). Africa Information Highway⁹⁶ covers the African continent and international organizations like UN⁹⁷, World Bank⁹⁸, ILO⁹⁹, Gapminder¹⁰⁰ and OECD¹⁰¹, among others, cover several countries with most data provided by official country institutions. Numbeo¹⁰² uses crowdsourcing to get data and indicators on some topics not usually covered by NSOs and Knoema¹⁰³ provides search and exploration across topics and countries, Additional raw datasets can be found through Kaggle¹⁰⁴, a special Google¹⁰⁵ or Microsoft¹⁰⁶ datasets search. The 100 Questions Initiative¹⁰⁷ is a notable effort by the GovLab¹⁰⁸ aims at formulating pressing questions in various domains and providing the needed datasets required to solve them. The author also maintains a list of datasets and related resources on Github¹⁰⁹.

There are a few major issues with data provided by NSOs. Timeliness (especially open data) is a common problem where collecting, compiling and publishing data takes long time and by the time data reaches end users it is already outdated or no longer applicable.

Partial coverage and data gaps are also common where some topics are not included or not fully covered in addition to missing data for certain time periods or locations (data needed for advocacy work like public spending or for entrepreneurs like company and land registry are examples of coverage). Some datasets are only available as PDF format or some proprietary storage or file format this requiring extra effort or technical resources. Data authenticity, integrity, cleanliness and clarity are also common among local and regional

⁹¹ <http://bayanat.ae>

⁹² <https://www.scad.gov.abudhabi/ar/pages/default.aspx>

⁹³ <http://dubaidata.ae/>

⁹⁴ <http://www.arabdevelopmentportal.com>

⁹⁵ <https://twitter.com/Data4SDGs>

⁹⁶ <http://dataportal.opendataforafrica.org/>

⁹⁷ <http://data.un.org/>

⁹⁸ <https://data.worldbank.org/>

⁹⁹ <https://www.ilo.org/global/statistics-and-databases/lang--en/index.htm>

¹⁰⁰ <https://www.gapminder.org/data/>

¹⁰¹ <https://data.oecd.org/>

¹⁰² <https://www.numbeo.com/>

¹⁰³ <https://knoema.com>

¹⁰⁴ <https://www.kaggle.com/datasets>

¹⁰⁵ <https://toolbox.google.com/datasetsearch>

¹⁰⁶ <https://msropendata.com/>

¹⁰⁷ <https://the100questions.org/>

¹⁰⁸ <https://www.thegovlab.org/>

¹⁰⁹ <https://github.com/abedkhooli/ds2/blob/master/notes.md#datasets>

datasets despite efforts by NSOs to provide metadata and data entry and management guidelines.

Aggregated data is not actionable. For example, Palestinian unemployment rate in 2018 is 31% and this illustrates the size of the problem but is not enough to advise on required interventions in terms of demography. On May 1st, 2019 (int'l workers day), PCBS released some detailed labor force indicators¹¹⁰ disaggregating the 31% as 18% in West Bank and 52% in Gaza in addition to some more details on wages, age groups and women participation in the workforce. As more granular details are provided, more accurate policies and interventions (ex. training and educational programs or reskilling) can be planned and applied. For a data economy product, individual profiles (can be anonymous to guard personal data and privacy) are required. Data product examples include predicting who needs reskilling after a certain period of time, who is likely to be employed, expected wage, best fit for a position and even employee churn (based on detailed profile, educational and work history).

Educational Programs:

Up until Mid-2019, there were very few regular programs (certificates, masters or diplomas only) in data analytics, data science, machine learning or artificial intelligence in the Arab MENA region and in most cases such programs are run jointly with outside universities (or their local branches). Most computer science and computer engineering departments offer traditional related undergraduate courses under the titles of data mining, machine learning or artificial intelligence but they are limited in depth, scope and application. Examples of the current programs are:

1. Master of Science in Computing (Data Analytics)¹¹¹: by Princess Nourah bint AbdulRahman University (Saudi Arabia) in collaboration with Dublin City University (Ireland). Consists of 8 courses and a capstone project, on campus, in English, part time over 4 semesters, includes statistical data analysis, data management and visualization, cloud architecture, mathematical methods, analytics and data mining, and machine learning. First batch (women) graduated¹¹² already (PNU is for girls only).
2. Data Analytics Graduate Business Certificate¹¹³: by St Joseph University in Lebanon, statistical and scientific methods for data analysis through hands-on exercises and video instruction. The university also offers online masters in BI and analytics¹¹⁴.
3. Master of Science in Data Science and Engineering¹¹⁵: at Khalifah Bin Hamad University in Qatar, 33 credits taught in English over two years in addition to 9 credits thesis or 6 credits industrial project. Core courses include research and ethics, applied statistics, advanced data

¹¹⁰ <http://www.pcbs.gov.ps/post.aspx?lang=en&ItemID=3453>

¹¹¹ <http://www.pnu.edu.sa/en/faculties/computerscience/Masters/pages/about/about.aspx>

¹¹² <https://www.arabianbusiness.com/education/402480-first-batch-of-female-data-scientists-certified-in-saudi-arabia>

¹¹³ <https://www.sju.edu/majors-programs/graduate-business/certificates/data-analytics>

¹¹⁴ <https://online.sju.edu/graduate/masters-business-intelligence>

¹¹⁵ <https://www.hbku.edu.qa/en/cse/ms-data-science-engineering>

management systems, computational data analytics and tools. The rest are elective courses (machine learning and leadership & innovation are recommended electives). The program also includes seminars and invited talks.

4. MS in Professional Studies – Data Analytics¹¹⁶: by Rochester Institute of Technology (RIT) – Dubai (UAE). Has 33 credits including a 3-credit capstone project. Less technical, focus on analytics and visualization. RIT and Smart Dubai signed an MOU to develop master of data science in 2017¹¹⁷.

5. MSc Program in Data Science¹¹⁸: offered at the Dubai (UAE) campus¹¹⁹ of the Heriot Watt University. One-year full time or 2 years part time. Core courses are: Big Data Management, Data Mining and Machine Learning, Statistical Modelling and Analysis Research Methods, and Project Planning.

6. MSc in Artificial Intelligence¹²⁰: taught at the Dubai campus of Heriot Watt University, 1- 2 years (full/part). Core courses: Biologically Inspired Computation, Data Mining and Machine Learning, Research Methods and Project Planning, Masters project and dissertation.

7. Professional Diploma in Big Data and Data Science¹²¹: offered by Nile University in Egypt. Consists of 4 courses and a project completed in two semesters.

8. Undergraduate program in Data Science at American University of Cairo¹²²: starting in September, 2019 with 15 students and then 20 each year, leading to bachelor in data science degree.

9. Undergraduate program in Data Science at the American University of Madaba¹²³: starting October, 2019.

10. Undergraduate program in Data Science and AI at Princess Sumaya University for Technology (PSUT)¹²⁴ starting in the 2019/2020 school year. PSUT also runs MSc in Data Science¹²⁵ in collaboration with the German Jordanian University¹²⁶.

11. Data Science, Artificial Intelligence and Virtual Reality undergraduate programs at Al-Balqa Applied University¹²⁷: part of the AI faculty, planned for 2019/2020 school year.

12. Computer Science Apprenticeship Program¹²⁸ at An-Najah National University has an artificial intelligence track with industrial experience.

13. Lebanese University license in data science¹²⁹: announced in August 2019 under the faculty of information.

¹¹⁶ <https://www.rit.edu/dubai/ms-data-analytics-dubai>

¹¹⁷ <https://www.rit.edu/dubai/data-science-mou>

¹¹⁸ <https://www.hw.ac.uk/study/dubai/postgraduate/data-science.htm>

¹¹⁹ <https://www.hw.ac.uk/dubai.htm>

¹²⁰ <https://www.hw.ac.uk/study/dubai/postgraduate/artificial-intelligence.htm>

¹²¹ <http://bigdata.nu.edu.eg/>

¹²² <https://sse.aucegypt.edu/programs/undergraduate/data-science>

¹²³ <https://www.linkedin.com/feed/update/urn:li:activity:6549270932278644736>

¹²⁴ <https://www.psut.edu.jo/content/computer-science-bsc>

¹²⁵ <https://www.psut.edu.jo/content/about-2>

¹²⁶ <http://www.gju.edu.jo/>

¹²⁷ <https://www.bau.edu.jo/>

¹²⁸ <https://www.najah.edu/ar/academic/undergraduate-programs/program/computer-science-apprenticeship-program/info-card/>

¹²⁹ <https://www.ul.edu.lb/faculte/departement.aspx?facultyId=9&departmentId=340>

14. Artificial Intelligence program¹³⁰ at Al-Zaytoonah University in Jordan (since 2018).
15. Saudi Digital Academy¹³¹: an initiative by Ministry of ICT to build capacities for the fourth industrial revolution, conducts data science bootcamps¹³².
16. Master of Intelligent Systems at Palestine Polytechnic University¹³³: announced in September, 2019 and has two tracks: robotics and data science.
17. Master in Data Science and Business Analytics¹³⁴: at Arab American University, offers exam and thesis tracks.
18. Masters in digital media and communications¹³⁵: announced in October 2019 at Alquds University, includes data journalism.
19. Birzeit University's Data Journalism and Data Science training courses: conducted as part of an earlier IDRC project (2017) and planned as part of this project. Data journalism is also being institutionalized as part of the professional digital media diploma¹³⁶ and economic journalism at the Media Development Center at the University. Birzeit University also has a master program in statistics and data science¹³⁷ with more statistical content.

MOOCs, Training Providers and Open Education:

Massive Online Open Courses (MOOCs) have become a great source of personal capacity building. Some of these have tight schedules, provide mentorship and grade learners' work (for a fee) and others are free with flexible learning pace and only charge a small fee for a certificate. There are also plenty of paid and open resources through different channels and from different providers including tech giants like Google, Microsoft, and IBM. Some of these resources provide end to end programs and learning paths while others cover specific areas like math, statistics or programming in certain languages like python, R, or Swift (recent popularity). Regionally, both Idraak¹³⁸ and Rwaq¹³⁹ offer continuing education courses (free and paid) in various topics including data science. Rwaq has an introductory course in data science using Python¹⁴⁰ in Arabic and Idraak has an introduction to Python course¹⁴¹ with started a course (in Arabic) on data science and machine learning¹⁴² in collaboration with Facebook¹⁴³. Google is also

¹³⁰ <https://www.zuj.edu.jo/faculty-of-science-and-information-technology/departments-of-science-and-information-technology/%d8%a3%d9%82%d8%b3%d8%a7%d9%85-%d8%b9%d9%84%d9%85-%d8%a7%d9%84%d8%ad%d8%a7%d8%b3%d9%88%d8%a8/artificial-intellegance/>

¹³¹ <https://sda.edu.sa/>

¹³² <https://sda.edu.sa/bootcamp>

¹³³ <http://dsr.ppu.edu/ar/gs/ai>

¹³⁴ <https://www.aaup.edu/Academics/Graduate-Studies/Faculty-Graduate-Studies/Natural-Engineering-and-Technology-Sciences-Department/Master-Data-Science-and-Business-Analytics>

¹³⁵ <https://t.co/esN4DjcHjv?amp=1>

¹³⁶ <https://www.mdc-diploma.birzeit.edu/shafh-albyanat>

¹³⁷ <https://www.birzeit.edu/en/study/programs/applied-statistics-and-data-science>

¹³⁸ <https://www.edraak.org>

¹³⁹ <https://www.rwaq.org/>

¹⁴⁰ https://www.rwaq.org/courses/sea_python_level1-2

¹⁴¹ https://www.edraak.org/en/course/course-v1:PSUT+PL101+2018_SP/

¹⁴² <https://www.edraak.org/course/course-v1:Edraak+DS100+2019SP/>

¹⁴³ The course started in late July, 2019. In the first round, the completion rate was 8.5% with 12700 total registrants, 36% were females (of the 87% registrants who disclosed gender). Source: private communication with Edraak course management.

getting some of its courses¹⁴⁴ translated into Arabic¹⁴⁵. Of course, translated content is not fully localized as datasets and underlying contexts stay the same.

Major MOOCs platform like Coursera¹⁴⁶, edX¹⁴⁷, Udacity¹⁴⁸, Cognitive Class¹⁴⁹, Future Learn¹⁵⁰ and Udemy¹⁵¹ provide a wide range of courses and online degrees in data science, machine learning and artificial intelligence. Data journalism courses are now at a dedicated site¹⁵². Local and regional bootcamps and coding initiatives (ex. Kuwait's Coded¹⁵³ programming bootcamps and One Million Coders¹⁵⁴ with courses from Microsoft and Udacity) are also good learning venues.

Commercial training providers organize specialized training sessions and some of these are scheduled in MENA either on demand or as part of events like workshops and conferences. Commercial platforms like LinkedIn Learning¹⁵⁵ and Pluralsight¹⁵⁶ offer several data science and data analytics courses at different levels of complexity. Some training providers also offer mentorship to trainees. These resources are adequate for general capacity building but they lack the local and regional perspective in terms of content, context, examples and case studies. Even the datasets used in standard generic training are not always representative of the regional context. For example, in computer vision, a model trained on data from the US may not work well in the Gulf region as the environment is different (weather, roads, obstacles and how people dress and behave). Capacity building in data literacy in MENA needs to take the local context into account.

Several university professors (outside MENA) have made their courses available online (some popular ones are listed by the author along with other resources¹⁵⁷ like industry recommendations¹⁵⁸ for data science programs). An exhaustive list of resources is beyond this scope and learners are advised to check the above regularly and follow some influencers and practitioners on Twitter.

One other technical requirement is computing power (along with storage and connectivity). These resources are available to major enterprises and government agencies but are not generally accessible to individual researchers and small research groups with limited financial and technical resources (some universities have adequate computing hardware on premise or through cloud access).

¹⁴⁴ <https://learndigital.withgoogle.com/maharatgoogle/course/machine-learning-basics>

¹⁴⁵ <https://www.linkedin.com/feed/update/urn:li:activity:6518018540979785728/>

¹⁴⁶ <https://www.coursera.org/>

¹⁴⁷ <https://www.edx.org/>

¹⁴⁸ <https://www.udacity.com/>

¹⁴⁹ <https://cognitiveclass.ai/>

¹⁵⁰ <https://www.futurelearn.com/>

¹⁵¹ <https://www.udemy.com>

¹⁵² <https://datajournalism.com/>

¹⁵³ <https://www.joincoded.com>

¹⁵⁴ <http://www.arabcoders.ae/>

¹⁵⁵ <https://learning.linkedin.com/>

¹⁵⁶ <https://www.pluralsight.com/>

¹⁵⁷ <https://github.com/abedkhooli/ds2/blob/master/notes.md>

¹⁵⁸ https://github.com/brohrer/academic_advisory/blob/master/README.md

Individuals learning data science and analytics can access cloud-based computing power either free of charge or for a fee. Both Kaggle¹⁵⁹ (data science learning, datasets and competitions platform) and Google¹⁶⁰ provide free (limited) compute power (including GPU) along with data science frameworks, tools and programming languages. Other providers like Amazon and Microsoft offer educational access in collaboration with professors teaching data science courses. These resources are available to trainees from the region except where restricted for political or security reasons in some countries.

Research:

Scientific research is not a top priority in the Arab MENA region and data science is no exception. The region was late to the first, second and third industrial revolutions (several countries are still not ready for digital transformation), and countries generally spend less than 1% of their GDP on R&D, compared to the OECD average spend of 2.5%¹⁶¹. By comparison, a 2017 report on Israeli innovation ecosystem puts the number of multinational R&D centers at over 300¹⁶² including those by Intel, Google, IBM, and Apple. The Arab MENA countries may also be late for the fourth industrial revolution despite its high youth percentage (an advantage counter balanced with highest rate of unemployment at 21%¹⁶³ that may witness more job losses than creations).

There are various efforts at the individual level and a few at the institutional level. Here we list the institutional efforts as individual researchers are hard to track due to different levels of involvement and unclear country affiliation.

1. Visualization Core Lab¹⁶⁴: part of the core labs at King Abdullah University of Science and Technology (KAUST), works on data exploration, visualization and understanding. The lab has access to the Shaheen II supercomputer.
2. Qatar Computing Research Institute¹⁶⁵: operates under the umbrella of Hamad Bin Khalifah University and works in the areas of Arabic language technologies, cyber security, data and social analytics. It also hosts the Qatar Center for AI¹⁶⁶.
3. Oujda NLP Team¹⁶⁷: part of the Mohammad I University in Morocco, focuses on Arabic NLP. Works on several projects and provides Arabic corpora and NLP tools.
4. CAMEL (NYU Abu Dhabi)¹⁶⁸: Computational Approaches to Modeling Language (CAMEL) at New York University in Abu Dhabi, focuses on Arabic natural language processing, machine translation, text analytics and dialogue systems.

¹⁵⁹ <https://www.kaggle.com/>

¹⁶⁰ <https://colab.research.google.com/>

¹⁶¹ <https://www.weforum.org/agenda/2019/04/the-middle-east-needs-a-technological-revolution-start-ups-can-lead-the-way>

¹⁶² <https://nocamels.com/2017/10/israel-innovation-authority-growth/>

¹⁶³ <https://www.wamda.com/2019/04/middle-east-snail-pace-fourth-industrial-revolution>

¹⁶⁴ <https://corelabs.kaust.edu.sa/visualization>

¹⁶⁵ <https://www.qcri.org/>

¹⁶⁶ <https://www.qcri.org/our-research/qcri-qcai>

¹⁶⁷ <http://oujda-nlp-team.net/en/>

¹⁶⁸ <https://nyuad.nyu.edu/en/research/centers-labs-and-projects/computational-approaches-to-modeling-language-lab.html>

5. Iwan Group¹⁶⁹: a team of women researchers at King Saud University, focuses on Arabic NLP, semantic web and tools for people with special needs.
6. AUB Research¹⁷⁰: Machine Learning algorithms and platforms with special interests in opinion mining, context aware sensing, and platforms for accelerating machine learning algorithms.
7. Birzeit Arabic Ontology¹⁷¹: linguistics search engine, Arabic multilingual dictionaries, Arabic ontology and related research.
8. Prince Sultan University Center of Excellence¹⁷²: has data mining unit and robotics and IoT lab.
9. Careem developed Yoda¹⁷³, a machine learning platform.
10. Other studies conducted as case studies within the data driven innovation project (IDRC) including air pollution with IoT sensors and traffic data from the Cairo ring road.

The above examples indicate that research focuses mainly on Arabic NLP, the foundation of which were developed outside the region. It is also worth pointing out that many MENA expatriates are leading data science research labs and projects in major institutions, organizations and enterprises outside the region and many are starting or launching their businesses there.

As the region is still struggling with the third industrial revolution (apart from a few exceptions), and despite the ambitious country visions and strategies promoting innovation and entrepreneurship, an R&D ecosystem does not happen overnight and the current structures and frameworks are very weak (this also applies to regional framework like Arab League and affiliated institutions). The educational systems need to be transformed to support innovation and develop research skills in the first place. Thus, it is expected that the region will continue to import the knowledge and technologies of the fourth industrial revolution at higher costs and without customization as the rooted culture prefers buying to local development. The major international players implementing the third industrial revolution in the region area already taking advantage of their presence and networks to market their state-of-the-art solutions keeping the region in the consumer seat and discouraging or sidelining local efforts by entrepreneurs and startups some of whom choose to take their ideas and nourish them outside the region.

Inclusion and Ethics:

Working in the data economy brings issues unknown to traditional economy or introduces various aspects to already known ones. Some of the global issues are imported with the technology or arise as part of its applications and these are mostly social in nature. The way these issues are framed and approached is usually different for the MENA region. After all, the region has its own culture, business environment and legacy of the way relations are made, work is done and transactions are completed. There are also fundamental differences across sectors and industries even within the same country. Two global and regional trends that relate to the data economy are inclusion and data ethics.

¹⁶⁹ <http://iwan.ksu.edu.sa/en>

¹⁷⁰ <https://feaweb.aub.edu.lb/personalwebsites/hhajj/>

¹⁷¹ <https://ontology.birzeit.edu/about>

¹⁷² <http://psu.edu.sa/en/Research/CenterOfExcellence/Units/Pages/default.aspx>

¹⁷³ <https://medium.com/careem-tech/yoda-scaling-machine-learning-careem-d4bc8b1be195>

Inclusion refers to equal access, opportunities and socio-political status for all groups in the society without any discrimination or favoritism against any based on who they are. This could mean gender, color, country of origin, province, tribe, wealth, age, political affiliation, religious belief or physical ability.

There are articles in constitutions and other legislations, policies and bylaws and international conventions that support equality and discourage discrimination, but there are also practices against the text or spirit of these instruments. In the data economy field, the extent of malpractices may not be as severe or widespread but that doesn't mean it is all nice and shiny out there. Data economy is not an isolated activity and it is not easy to measure or track inclusion in the data industry even if stats are available as this issue is not just about numbers. For example, numbers say that 1 in 3 startups in MENA are founded or led by a woman¹⁷⁴ but that does not tell much about how these founders or leaders are treated in the society or even at their own businesses. According to OECD, women owned startups get 23% less in funding¹⁷⁵ at the global level and are less likely to exit positively, but a recent inquiry resulted in a slightly different picture with around 16% (out of a sample of around 4000 MENA startups) led by females who raised a little over 20% of the total venture capital¹⁷⁶. Another indicator comes from a recent report on applicants to Wamda X program where female founders were 25.5% out of 627 total applicants¹⁷⁷. Numbers also indicate that women form the majority of enrollments¹⁷⁸ in sciences (in Palestinian territories, United Arab Emirates, Saudi Arabia, Egypt and Lebanon) compared to 12% in USA and this could lead to future improvement. There is also an increasing activism and advocacy effort to increase inclusion and narrow the gender gap. In MENA, according to Effective Measure (now Narratiive), 44% of Internet consumers were females in February, 2018¹⁷⁹. In 2012, the Arab Women in Computing (ArabWIC) organization was formed by Sana Odeh and Kaoutar el-Maghraoui and there are now Arab women in data science. Inclusion efforts for other groups are not noticeable despite the bold discrimination they suffer. For example, in some countries, refugees are deprived from basic rights like health or education and when it comes to economic activity they are entitled to very limited options. In other countries, children are deprived from citizenship because one of the parents is not a citizen and there is a 'resident only' status in some countries that gets inherited by their offsprings who also inherit economic and social limitations.

Data ethics is a major concern worldwide and the MENA region adds additional complexities as consumers with a special context. Ethics here refers to the moral principles governing the 'data into value' process¹⁸⁰. From data privacy to fairness of algorithms, fake content (or identity, for

¹⁷⁴ <https://www.weforum.org/agenda/2018/07/start-up-middle-east-arab-women-transforming-entrepreneurship>

¹⁷⁵ <https://www.oecd.org/science/empowering-women-in-the-digital-age-brochure.pdf>

¹⁷⁶ Data provided by PitchBook (<https://pitchbook.com>), private communication

¹⁷⁷ <http://backend.wamda.com/api/v1/downloads/publications/state-pre-seed-startups-mena>

¹⁷⁸ <https://the arabweekly.com/greater-opportunities-entrenched-stereotypes-arab-women-data-science>

¹⁷⁹ <https://blog.effectivemeasure.com/mena-online-feb-2018>

¹⁸⁰ <https://towardsdatascience.com/ethics-of-ai-a-comprehensive-primer-1bfd039124b0>

example, there were 3 billion fake Facebook accounts in few months¹⁸¹) or manipulation of public and consumer opinions to job security, ethical considerations are serious and carry major potential impact. Data enabled technologies like robots, drones, self-driving cars and applications of artificial intelligence have already set a foot in the region with little, if any, regulations, policies, legislations or enforcing powers other than possibly guarding against national security threats.

It is not fairness of algorithms, privacy or fake content that will set alarms in the region. After all, these are enhanced manifestations of what is being practiced already to various extents in this part of the world. Job security in a region with higher rates of unemployment is the major concern with potential economic, social and political instability. There are no set standards, governing bodies or ethical codes for AI (some initiatives are being launched by tech giants and UAE has an AI minister of state) and this raises more concerns and calls for immediate and serious local and regional action especially taking into account that AI power is concentrated in two countries that are at economic and social conflict and both have their eyes on the region as easy and rich markets.

In several MENA countries, inclusion even applies to entrepreneurs and startups. Despite announced encouraging efforts and initiatives, legal frameworks and policies favor enterprises and foreign companies.

There are no known efforts to address inclusion in the data economy in the Arab MENA region. In fact, the global efforts are not many and most are at the individual level and probably based on personal experience. For additional information, there is a list of resources on data ethics¹⁸².

Challenges and Opportunities

The MENA region is at the center of the fourth industrial revolution and the global economy. Natural resources and wealth have always been a blessing and a curse. The human capital (especially the youth) is one of the great assets if empowered and directed towards participation is economic and social good. The region has the full potential to be a key player in the data economy at the national, regional and global levels.

Some of the challenges in realizing the full potential of the data economy are relatively easy to overcome while others require time and collaboration such as regulations and policies. Legal frameworks are missing or inadequate in several countries (insolvency/bankruptcy¹⁸³ is one common issue preventing entrepreneurs from trying again and causing them hardship at the personal levels). Market fragmentation and cross-country regulations are two major problems that complicate logistics, increase cost and limit market depth. For example, the GCC being one customs unit facilitates the flow of goods and extends local markets while other neighboring countries may find it easier to deal with international providers due to regulatory and logistical complexities. Several countries are lacking data privacy and protection laws and intellectual property is widely violated in the absence of relevant legislation or enforcement.

There are challenges that can be turned into opportunities with affordable effort. Examples include capacity building, compute and datasets. Localizing and transferring technology is

¹⁸¹ <https://apnews.com/d276ebdec5224398b9d70a6424bdee7b>

¹⁸² <https://github.com/abedkhooli/ds2/blob/master/notes.md#ai-ethics>

¹⁸³ <http://www.oecd.org/corporate/ca/corporategovernanceprinciples/44375185.pdf>

another opportunity and rather than staying at the consumer end, the region can explore markets in Africa and beyond without too much effort.

Policies, regulations and initiatives

The above few paragraphs provide a brief summary of the status, readiness, challenges and opportunities of the data economy in the MENA region. As can be seen from these paragraphs and the country profiles a few sections ahead, the challenges and threats are serious and far-reaching. Most countries have drafted strategies and visions for the year 2030 or earlier in which they indicated the value of knowledge and data economy and promised some commitment for entrepreneurship and innovation. However, these documents are usually drafted by management consulting firms and it remains to be seen if governments institutions and the traditional economic ecosystem will deliver on these shiny promises.

There are noticeable country and regional efforts that aim at diversifying income, finding alternative to fossil fuel (like green or renewable energy) and enhancing the entrepreneurial ecosystem. For example, Saudi Arabia, UAE, Egypt and Jordan have AI and digitization strategies. The UAE has a state minister of AI and a national AI program¹⁸⁴ that launched the Think AI initiative¹⁸⁵ and organizes events like AI Everything¹⁸⁶. Several countries are trying to become regional hubs either by partnering with successful enterprises or by providing incentives and enforcing supportive regulations to attract investments and encourage entrepreneurs. After the World Economic Forum selected and featured the top 100 startups at its last retreat in Jordan, several countries announced measures to attract those startups¹⁸⁷. The UAE offered them a five-year visa (20 are already there) but since it is more expensive to set up a business and afford the high cost of living (especially in Dubai), other destinations are emerging. Abu Dhabi is launching Hub71¹⁸⁸ providing investment, ecosystem and networking. Saudi Arabia is offering what most startups look for – easy access to the market (largest in GCC with great purchasing power) in addition to venture capital and adoption of SMEs and startups in the 2030 vision, a great combination that lacks the availability of required talents. Jordan and Egypt are pitching their talent (human capital) which is less expensive in Egypt leading to their choice as back office options for GCC startups. Bahrain, which is less expensive than UAE, has a bankruptcy law and tech funds (with focus on fintech) is also attractive with its cloud first policy and Amazon Web Services (AWS) infrastructure launching this year (2019). Such efforts are indicative of interest but competition may fragment or weaken the ecosystem even further as more collaboration and synergies are needed.

There are regional tech hubs like FlatLabs, funding and investment entities, fintech and logistical solutions that facilitates and simplified doing cross-border business in the region.

¹⁸⁴ <https://ai.gov.ae/>

¹⁸⁵ <https://ai.gov.ae/the-uae-government-launches-think-ai-initiative/>

¹⁸⁶ <https://ai-everything.com/>

¹⁸⁷ <https://www.wamda.com/2019/05/battle-middle-east-startup-hub>

¹⁸⁸ <https://www.wamda.com/2019/03/abu-dhabi-offers-startups-dh535-million-new-hub>

Arab Monetary Fund is setting up the Arab Regional Payment System (ARPS) to increase intra Arab financial and economic transactions¹⁸⁹. Media coverage focusing on startups is also a regional effort with examples like Wamda, ArabNet and MenaBytes to name just a few. The same applies to regional and international events that help in networking and framing issues with a regional context.

Selected Indicators

To illustrate the characteristics and diversity in the ecosystem among the profiled countries, the following table lists a number of indicators (see Annex 1 for additional information). The numbers show some correlation with the success of entrepreneurship and point out some challenges and opportunities. For example, EODB (ease of doing business) score is highest in UAE and that, along with a few more indicators like GII, CPI and HCI, may explain why some startups move there in search for success. These indicators are not necessarily directly related to the data economy. The country profiles may provide a better picture.

indicator\Country	Bahrain	Egypt	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	UAE
Population (m)	1.6	100.3	9.99	4.22	6.08	36.41	4.92	5.2	2.72	33.85	11.72	9.61
Urbanization	89%	43%	91%	100%	89%	63%	85%	76%	99%	84%	69%	87%
Mobile	164%	93%	80%	168%	76%	120%	135%	84%	157%	129%	150%	200%
Internet	96%	49%	87%	98%	91%	62%	77%	60%	99%	89%	67%	99%
Unemployment%	1.20	11.80	14.70	2.10	6.70	9.30	3.20	26.80	0.10	5.40	15.30	1.70
Female Unemp.	4%	24%	25%	4%	10%	10%	13%	46%	50%	21%	23%	5%
CPI score	36%	35%	49%	41%	28%	43%	52%	na	62%	49%	43%	70%
ODIN Score	43	38%	45%	49%	33%	56%	64%	54%	40%	34%	50%	49%
Gender gap Internet	85%	86%	89%	81%	88%	82%	84%	na	100%	86%	87%	100%
Gender gap mobile	72%	85%	76%	71%	66%	79%	71%	na	100%	61%	93%	96%
HCI score	67%	49%	56%	58%	54%	50%	62%	55%	61%	58%	51%	66%
EODB Score	70%	59%	61%	62%	54%	71%	67%	59%	66%	64%	66%	81%
NECI Score	na	4.70	na	na	4.70	4.30	na	na	6.70	4.40	na	5.90
GI Index	31.73	27%	31%	34%	28%	31%	33%	na	37%	34%	33%	43%
Prosperity rank /149	51.00	122.00	91.00	66.00	107.00	103.00	69.00	na	46.00	86.00	102.00	39.00
Freedom Score 100	12.00	22%	37%	36%	45%	39%	23%	25%	25%	7%	69%	17%
ODB Score 2016	19.00	14.00	13.00	na	6.00	17.00	na	8	19.00	19.00	32.00	26.00
Gov. AI Readiness	3.962	3.492	4.927	4.725	3.487	4.717	5.321	na	6.035	4.779	5.652	7.445

Table 1: selected indicators for 12 MENA countries

Country Profiles

Countries are listed in alphabetical order. For each country, a brief background is provided followed by major players (enablers like accelerators, incubators, programs and investors, and startups) and related events and activities during 2019.

¹⁸⁹ <https://gulfnews.com/business/banking/intra-arab-payment-system-eyed-in-uae-to-cut-remittance-costs-boost-investments-1.62943551>

Startups are grouped by industry or area of activity. Each startup is listed one although some startups belong to more than one category. The classification is just for easy reading and reference. The categories are: Advertising and Marketing, Agritech, AI and Analytics/VR/AR, Careers, Edutech, Energy, Fashion (clothing, beauty and eyewear), Fintech, Food/groceries online, Health and Fitness, Logistics and delivery, Media and content, Retail/ecommerce, Services and Management (catch-all-other), Sports and Entertainment, Telecom and Mobile, Transportation and logistics, Travel and Tourism.

There are two scopes of the data ecosystem that are not country specific. Some are regional (pan-Arab) and others are carried out by Arab diaspora (or entrepreneurs who took their ideas and left for better markets or ecosystem or even registered their startups in tax havens like Delaware or Cayman Islands). Examples of these are Al Masah Capital¹⁹⁰ (Cayman Islands with offices in UAE) which investment in health, food and logistics, Zoomaal¹⁹¹ (crowdfunding by Wamda, MVP, N2V, Cairo Angels¹⁹², Hivos and Sawari Ventures), Digital Arabia Network¹⁹³ (based in Germany) that ran the digital transformation road show in early 2019 (Cairo, Beirut, Tunis, Casablanca and Amman), 500 Falcons¹⁹⁴ (part of the Silicon Valley's 500 Startups¹⁹⁵ with partners in Qatar and Oman), Middle East Venture Partners¹⁹⁶ with offices in Bahrain, Dubai (HQ) and Beirut and invests in innovative startups with focus on GCC and the Levant (see investment chart¹⁹⁷), Startup Istanbul¹⁹⁸ (a four-day event connecting east and west with startups and investors participants from MENA and Zomato¹⁹⁹ (food delivery) operates in UAE, Qatar and Lebanon, Inevert²⁰⁰ (founded by a Saudi woman and based in London, brings corporates and startups together, offers funding, support and advice, Deepor.ai²⁰¹ (listed in France but most likely originated in Maghreb).

Fakespot²⁰² (originated in Jordan or Kuwait, now in USA, detecting fake reviews), Quiqup²⁰³ operates as last mile logistics in London and Dubai but originated from Lebanon, Captain Panel²⁰⁴ (growth partner for water sports companies, now in USA), Analytica Space²⁰⁵ (relay network providing high-speed data connection for earth observation satellites),

¹⁹⁰ <http://www.almasahcapital.com>

¹⁹¹ <http://www.zoomaal.com/>

¹⁹² <http://cairoangels.com/>

¹⁹³ <https://digitalarabia.network/contact-us/>

¹⁹⁴ <https://500.co/announcing-500-falcons-first-closing-15m-30m-target/>

¹⁹⁵ <https://500.co/>

¹⁹⁶ <https://mevp.com/>

¹⁹⁷ <https://mevp.com/chart.aspx>

¹⁹⁸ <https://startupistanbul.com/>

¹⁹⁹ <https://www.zomato.com>

²⁰⁰ <https://www.inevert.com/>

²⁰¹ <https://deepor.ai/>

²⁰² <https://www.fakespot.com/>

²⁰³ <https://www.quiqup.com>

²⁰⁴ <https://www.captainpanel.com>

²⁰⁵ <https://www.analyticalspace.com/>

Deepenai²⁰⁶ (now in USA, data labeling and annotation), Aumet²⁰⁷ (medical distributors and manufacturers connection platform, registered in California), Kirontech²⁰⁸ (predicts fraud in health insurance, probably started in Lebanon, listed as UK), Meacor²⁰⁹ (biotech, probably Lebanese, listed as Canada and USA), StallionAI²¹⁰ (AI solutions, Canada and UAE), Ooda Health²¹¹ (US), Qordoba²¹² (US, started by May Habib in UAE) and Megalix²¹³ (cloud infrastructure intelligence, started by Egyptians, now in Seattle, US).

Events like WSIS2019²¹⁴ (Geneva, April 8 – 12, 2019) had significant regional participation and Support Legal²¹⁵ (legal services platform for entrepreneurs and emerging companies) Arabized its platform and Arabic NLP workshop²¹⁶ (Jul-Aug, 2019) in Italy is organized with the help of several people from the region and UNDP is establishing innovation/accelerator labs (around SDGs, with Unleash²¹⁷) in several Arab countries²¹⁸.

This is not an exhaustive list, just some examples to indicate the regional and diaspora activity in the data economy. The expected impact of regional efforts is obvious while diaspora activity is probably more of a brain drain than temporary economic opportunities coming back or participating in bridging technical and marketing gaps back home.

A common activity across the profiled countries that falls under the data economy to some extent is the small e-shops or sales of certain goods and services through social media. While such activities are limited in size, they are widespread and contribute toward the livelihood of their owners. Some of these activities are limited to a small neighborhood (like the sale of cookies or tutoring on demand through Facebook, Instagram, WhatsApp or Snapchat) while others may be at the city or national level (small businesses run from home and dependent on third parties for fulfillment).

²⁰⁶ <https://www.deepen.ai/>

²⁰⁷ <https://aumet.me/>

²⁰⁸ <https://www.kirontech.com>

²⁰⁹ <http://meacor.com/>

²¹⁰ <https://stallion.ai>

²¹¹ <https://www.ooda-health.com/>

²¹² <https://www.qordoba.com/>

²¹³ <https://www.magalix.com/>

²¹⁴ <https://www.itu.int/net4/wsis/forum/2019/>

²¹⁵ <https://www.supportscaleup.com/>

²¹⁶ <https://sites.google.com/view/wanlp-2019/home>

²¹⁷ <https://unleash.org/>

²¹⁸ <https://www.linkedin.com/feed/update/urn:li:activity:6495594638764752897>

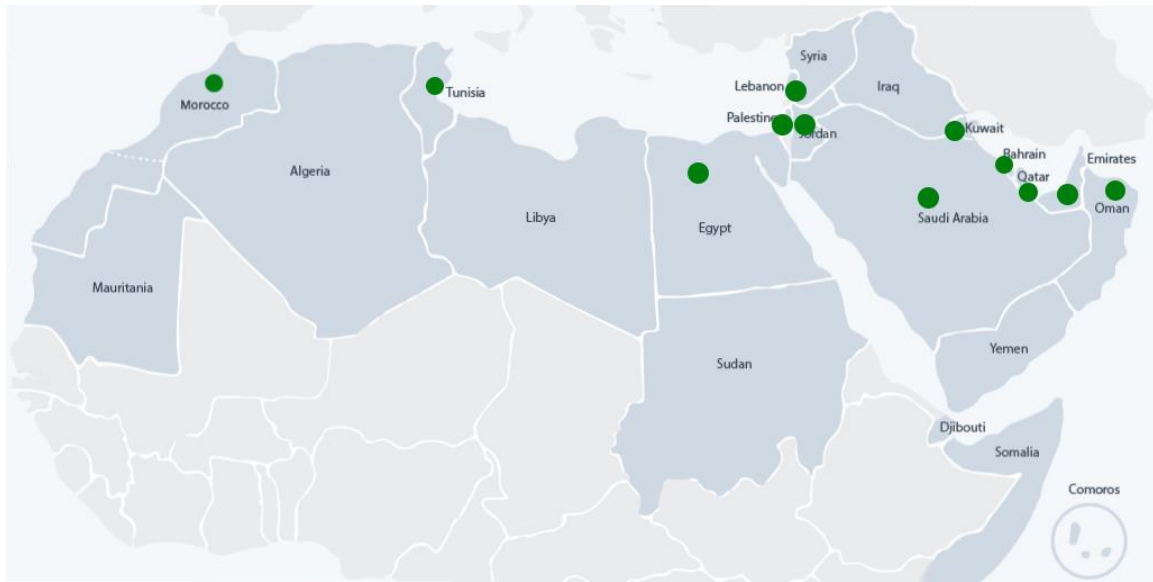


Figure 2: selected MENA countries

Bahrain

Bahrain, part of GCC, is a small kingdom but that didn't prevent it from becoming an attractive destination for entrepreneurs and startups ranking in the top 10 - 15 of the 50 ecosystems reported in the Global Startup Ecosystem Report (GSER)²¹⁹. It is cheapest within GCC and enjoys a supportive ecosystem and infrastructure with growing talent. Bahrain allows 100% foreign ownership, has a personal data protection law²²⁰ (effective as of August 1st, 2019), a bankruptcy law, no personal taxes and very few companies (mostly oil related) pay corporate taxes²²¹. The banking and investment systems are healthy with Al-Waha fund of \$100 million operating since 2018. There are several programs, initiatives, subsidies and enablers for startups including incubators, and innovation spaces including a fintech ecosystem. Bahrain is also hosting the regional Amazon cloud office and offering flexible data governance legislation. In a new step towards empowering startups, Bahrain launched a special program for the top 100 Arab startups selected by WEF encouraging them to enter the local market, establish presence and get access to funds and investment. There is also a planned Bahrain-based venture capital fund by China targeting the Middle East startups. The country has direct access to GCC markets with some disruption due to the Saudi-Qatari tension. Bahrain also suffered from internal unrest following the first wave of Arab Spring with some consequences still remaining.

Most of the data startups are enabled by data, consumer based and target the local or GCC market. This is likely to change as the country is becoming a fintech hub (including Shari'a compliant fintech through ALGO Bahrain²²²) with interest from international companies and regional startups.

Programs and Enablers:

Manamahub²²³: part of Global Shapers community, a hub of experts and achievers who contribute to their community.

Startup Bahrain²²⁴: an ecosystem (accelerators, incubators, co-working spaces, and government support entities and fund) for tech startups.

Bahrain FinTech Bay²²⁵: dedicated FinTech co-working space and ecosystem, also offers country reports. In May 2019, Bahrain Fintech Bay partnered with Visa²²⁶ to develop the ecosystem further.

²¹⁹

https://www.zawya.com/mena/en/companies/story/Startup_Genome_Global_Entrepreneurship_Network_Tamkeen_launch_2019_Global_Startup_Ecosystem_report-ZAWYA20190512102943/

²²⁰ <http://www.legalaffairs.gov.bh/AdvancedSearchDetails.aspx?id=146182#.XQJ-hI-8a00>

²²¹ <https://startupbahrain.com/why-bahrain/>

²²² <http://fintechnews.ae/1628/bahrain/research-bahrain-witnesses-key-fintech-developments/>

²²³ <http://manamahub.org/>

²²⁴ <https://startupbahrain.com/>

²²⁵ <https://www.bahrainfintechbay.com/>

²²⁶

https://www.zawya.com/mena/en/companies/story/Visa_partners_with_Bahrain_FinTech_Bay_to_further_develop_Bahrains_Fintech_ecosystem-ZAWYA20190512111208/

Tamkeen²²⁷: public authority supporting the private sector in Bahrain (individuals and companies).

Flat6 Labs Bahrain²²⁸: accelerator program of the regional Flat6 Labs, in partnership with Tamkeen.

GDG Manama²²⁹: Google Developer Group with monthly activities to share knowledge.

Nest²³⁰: accelerator program, invests in seed to growth-stage startups, based in Hong Kong and has office in Bahrain.

CH9²³¹: business accelerator to enhance the entrepreneurship ecosystem in MENA. Has offices in Palestine, Jordan and Canada.

Brinc²³²: accelerator program for connected hardware (IoT) with office in Bahrain serving the MENA region.

Women in FinTech Bahrain²³³: a network of professional women working in the fintech industry and raising awareness.

Amazon's Regional Cloud Office²³⁴: opening in early 2019, regional Amazon cloud services infrastructure.

Funding and Investing:

Gulf Financial House²³⁵: an investing group with Islamic banking approach

Bahrain Development Board²³⁶: public agency that attracts investment in Bahrain.

Al Waha Fund of Funds²³⁷: launched by Bahrain Development Bank with \$100m venture capital fund of funds supporting fintech startups.

Tenmou²³⁸: business angels company investing in media, technology, food and the entertainment industry (mentorship and capital).

Takamul Capital²³⁹: independent private investment and multi-family business advisory firm that also operates as a holding structure for the founding family investments.

Angivest Ventures²⁴⁰: angel investing company with focus on early stage innovative startups (most investments are outside MENA).

Dividend Gate Capital²⁴¹: private equity investment company with focus on GCC SMEs.

C5 Accelerate²⁴²: technology investment firm with offices in the UK, Bahrain and USA with focus

²²⁷ <https://www.tamkeen.bh/>

²²⁸ <https://www.flat6labsbahrain.com/>

²²⁹ <https://www.meetup.com/GDG-Manama/>

²³⁰ <https://nest.vc>

²³¹ <http://chnine.com/>

²³² <https://www.brinc.io/>

²³³ <https://twitter.com/WIFBahrain>

²³⁴ <https://aws.amazon.com/aws-me/>

²³⁵ <https://www.gfh.com/>

²³⁶ <https://bahrainedb.com/>

²³⁷ <https://bahrainedb.com/bahrain-pulse/al-waha-fund-of-funds-fintech-startups/>

²³⁸ <https://tenmou.me/>

²³⁹ <https://www.takamulcapital.com/>

²⁴⁰ <http://angivestventures.comv>

²⁴¹ <https://dividendgatecapital.com>

²⁴² <https://www.c5accelerate.com/>

on cloud technology.

Rowad²⁴³: from idea to scale, funding from Seed Fuel²⁴⁴.

MENA Venture Investments²⁴⁵: invests in early stage startups with strong growth potential in the MENA region and beyond.

Zainnovate Initiative²⁴⁶: by Zain Bahrain and Alkeri Partners to support the startup ecosystem including investment.

Startups and companies:

Advertising and Marketing

Inagrab²⁴⁷: AI powered deal assistant (decision making for buyers and marketing for sellers).

Careers

OneGCC²⁴⁸: an employment platform, focused on matching job seekers with job opportunities serving GCC (except Qatar) and GCC nationals.

Majra²⁴⁹: online career platform for young people.

Edutech

Telp²⁵⁰: online tutoring platform, matches tutors and students, allows university students as tutors, physical presence.

Fashion (clothing, beauty and eyewear)

Fleek²⁵¹: salons and spas booking platform.

Fintech

Payment International Enterprise (PIE)²⁵²: cashless payment solution provider (prepaid, online and value added), licensed by the Central Bank of Bahrain and owner of Tam Dinar e-money service.

BidayahTech²⁵³: reward based crowdfunding platform focusing on technology sector.

Verify²⁵⁴: provides instant bank payments through merchants' websites.

Wahed²⁵⁵: only has office in Bahrain, headquartered in USA, Shari'a compliant investing platform (expanding to UAE).

Food/Groceries Online

Aklati²⁵⁶: platform to provide food for parties and gatherings.

²⁴³ <http://www.rowad.co/>

²⁴⁴ <https://www.seedfuel.co/>

²⁴⁵ <http://menaventureinvestments.com/>

²⁴⁶ http://tradedarabia.com/news/IT_354268.html

²⁴⁷ <https://inagrab.com/>

²⁴⁸ <https://onegcc.com/>

²⁴⁹ <https://www.majra.me/>

²⁵⁰ <https://telpme.org/>

²⁵¹ <https://tryfleek.com/>

²⁵² <http://pie-int.com/>

²⁵³ <http://www.bidayatech.com/>

²⁵⁴ <https://verify.as>

²⁵⁵ <https://wahedinvest.com>

²⁵⁶ <https://aklati.com/>

Eat²⁵⁷: restaurant discovery and table reservation platform serving major cities in GCC, Jordan, Egypt and Lebanon.

Retail/Ecommerce

Fish.me²⁵⁸: online fish marketplace, order and delivery.

Baqala²⁵⁹: same day or scheduled delivery online groceries shopping platform.

Services and Management

SkipLino²⁶⁰: multilingual cloud-based queue management system that allows businesses to handle customer queues (waiting for service) with ratings, stats and analytics, free to end users.

Tenderd²⁶¹: heavy equipment rental platform for construction works, provides tracking, telematics and predictive maintenance.

Ship2you²⁶²: cross border shipping forwarder (allows customers to shop from China and the US with local address and consolidates orders and shipping home).

Sports and Entertainment

Malaeb²⁶³: community platform for football players helps organize or join matches and booking fields.

Tamarran²⁶⁴: find and book sport facilities and activities.

Events:

Unbound Bahrain²⁶⁵: MENA's innovation festival connecting startups with investors, March 6 – 7, 2019.

Fintech for Sustainability Hackathon²⁶⁶: innovation in fintech to support SDGs, March – April, 2019.

Global Entrepreneurship Congress²⁶⁷: a gathering of startups, entrepreneurs, investors and influences, April 15 – 18, 2019.

Seedstars²⁶⁸: global startup competition, August 15, 2019.

SmartSec Cyber Security & Blockchain Conference²⁶⁹: latest trends, innovation, and solutions featured by the international Cybersecurity and Blockchain community, September 3 – 5, 2019.

The Global Islamic Fintech Huddle²⁷⁰: an international gathering of industry influencers and fintech visionaries passionate about using technology to drive financial inclusion in a Shariah compliant and ethical manner, November 25, 2019.

²⁵⁷ <https://eatapp.co/>

²⁵⁸ <https://fish.me/>

²⁵⁹ <https://getbaqala.com/>

²⁶⁰ <https://skiplino.com/>

²⁶¹ <https://www.tenderd.com/>

²⁶² <https://ship2you.com/>

²⁶³ <http://malaebapp.com/>

²⁶⁴ <https://www.tamarran.com/>

²⁶⁵ <https://unbound.live/Bahrain>

²⁶⁶ <https://www.bahrainfintechbay.com/bfa>

²⁶⁷ <http://www.gec.co/>

²⁶⁸ <https://www.seedstarsworld.com/event/seedstars-manama-2019>

²⁶⁹ <http://smartsecme.com/about/>

²⁷⁰ <https://redmoneyevents.com/event/ifnhuddle19/>

Egypt

With around a 100 million population, 60% of whom are under 30 years²⁷¹ and a host of problems ranging from poverty to poor education and transportation systems, Egypt is attracting several startups in the fields of education, financial technology, transportation, ecommerce and logistics. In addition to local market, with Cairo itself larger than several MENA countries' markets, Egypt also has access to the African market. The country organizes several events annually including the Rise-Up Summit²⁷² in December which attracts local, regional and international attendance. Despite the great potential, Egypt still has a struggling economy and suffers from brain drain, pound valuation and official bureaucracy²⁷³. A good number of startups prefer to move their businesses to the Gulf region or other business safe havens and talent is attracted to higher pay that exists outside the country and can't be matched locally which invites back office operations by gulf companies seeking relatively cheap talents and operational costs. Several players are attempting to ease the entrepreneurship ecosystem as can be seen in the Startup Manifesto²⁷⁴ effort and the recent World Bank approval of \$200m for SMEs²⁷⁵. There are several programs and startup enablers including incubators and investing platforms. Fintech is also emerging as a vertical²⁷⁶ in Egypt.

After years of political turmoil, Egypt's economic ecosystem is still struggling with slow reforms and several state-owned enterprises and around 60% of adults lack banking accounts²⁷⁷ (10-15% of total population according to World Bank²⁷⁸) making fintech and financial inclusion an attractive area for startups thanks to the release of mobile payments regulations²⁷⁹ by the Central Bank of Egypt. In late June, 2019, several media reports²⁸⁰ appeared stating that Google will reactivate its Cairo office (opened in 2006, reduced activity in 2011 after Arab Spring moving operations to Dubai).

Due to country and market size and diversity, Egyptian startups work across different sectors with e-commerce, digital health, education, logistics, transportation and fintech being most popular. There are a few direct data powered startups in Egypt utilizing AI with fintech, health, education, transportation and HR likely to stay popular and emerging interest in clean energy (Egypt is building a huge solar plant) and agriculture expected. Several successful Egyptian startups expand operation to other MENA countries and the Egyptian market is usually a target for regional startups.

²⁷¹ <https://magnitt.com/news/egypt-poised-turn-africas-hottest-tech-scene-2-industry-veterans-say-country-against-2-major>

²⁷² <http://riseupsummit.com>

²⁷³ <https://www.businessinsider.com/egypt-tech-scene-faces-two-major-challenges-say-industry-veterans-2019-3>

²⁷⁴ <https://startup-manifesto.org/>

²⁷⁵ <https://www.egyptindependent.com/world-bank-approves-us200-million-project-for-smes/>

²⁷⁶ <https://www.arabnet.me/english/editorials/business/industry/fintech-cairo-fostering-innovation-in-financial-inclusion>

²⁷⁷ <https://www.heritage.org/index/country/egypt>

²⁷⁸ <https://www.wamda.com/2019/05/banking-unbanked-growth-fintech-egypt>

²⁷⁹ <https://www.cbe.org.eg/en/PaymentSystems/Pages/Regulations.aspx>

²⁸⁰ <https://www.menabytes.com/google-considers-reopening-egypt-office/>

Programs and Enablers:

AUC Venture Lab²⁸¹: university-based startup incubator and accelerator covering different sectors.

Flat6Labs²⁸²: regional startup accelerator program and seed investment company, provides seed funding, mentorship, workspace, and entrepreneurship focused business training. It has offices in Cairo, Jeddah, Abu Dhabi, Beirut, Tunis and Bahrain.

The GrEEK Campus²⁸³: technology park in Cairo, offers workspaces and amenities to entrepreneurs, startups and SMEs.

Information Technology Industry Development Agency (ITIDA)²⁸⁴: tasked with the development of IT industry through incubation, acceleration, networking and funding.

FEBS Business Incubator²⁸⁵: a center of excellence and hub for best entrepreneurial practices in public universities Incubation, awareness and consulting).

Injaz Egypt²⁸⁶: non-profit organization offering training in financial literacy and entrepreneurship.

Falak Startups²⁸⁷: startup accelerator program providing workspace and up to one million Egyptian pounds for 10% equity.

Fekretak Sherketak²⁸⁸: nationwide initiative supporting Egyptian youth and entrepreneurs through Falak Startups.

Mint Incubator²⁸⁹: an incubator and entrepreneur hub by EGBank.

Techne²⁹⁰: a platform for a group of initiatives that support tech and tech-enabled startups around the Mediterranean region.

Ebni²⁹¹: business incubator offering coworking space and limited seed funding, initiated by Eitesal NGO.

Inno101²⁹²: startup accelerator, from discovery to impact.

Technology Innovation & Entrepreneurship Center (TIEC)²⁹³: innovation and entrepreneurship center in ICT, recently launched Next Coders²⁹⁴ initiative.

Nahdet El Mahrousa²⁹⁵: incubator that supports social entrepreneurship.

Egypreneur²⁹⁶: network of Egyptian entrepreneurs with member directory and services.

²⁸¹ <http://schools.aucegypt.edu/business/aucvlab/Pages/default.aspx>

²⁸² <https://www.flat6labs.com/>

²⁸³ <https://www.thegreekcampus.com>

²⁸⁴ <https://www.itida.gov.eg/English/Pages/default.aspx>

²⁸⁵ <http://fepsbi.caiouni.net/>

²⁸⁶ <http://www.injaz-egypt.org/>

²⁸⁷ <http://falakstartups.com>

²⁸⁸ <http://sherketak.com/>

²⁸⁹ <https://mint.eg-bank.com/>

²⁹⁰ <http://www.techne.me/>

²⁹¹ <http://www.ebni.io/>

²⁹² <https://inno101.com/>

²⁹³ <https://www.tiec.gov.eg/>

²⁹⁴ <https://www.tiec.gov.eg/English/PressReleases/Pages/Next-Coders-Launch.aspx>

²⁹⁵ <http://www.nahdetelmahrousa.org/>

²⁹⁶ <https://www.egypreneur.com/>

302Labs²⁹⁷: a community hub in Cairo for early stage startups and freelancers.

Nomou²⁹⁸: supports SMEs in the MENA region.

HMAA²⁹⁹: pronounced *himma*, a tech incubator with focus on youth, has coworking space in Assiut University.

Endeavor Egypt³⁰⁰: part of a global institution, offers mentorship and scaling for entrepreneurs.

Icealex³⁰¹: innovation, collaboration and entrepreneurship community in Alexandria offering coworking space, facilities and training.

AlMaqarr Coworking Space³⁰²: different locations, workspace and services for early idea entrepreneurs.

Seedspace Cairo³⁰³: Tech entrepreneurs hub, part of the Geneva based Seedstars³⁰⁴ with operations in other countries like Morocco.

Business Forward³⁰⁵: knowledge portal of the AUC school of business, provides local and regional business research and insights.

MENADData³⁰⁶: run by AUC's Access to Knowledge for Development (A2K4D), a platform to publish data and research related to data governance and economy.

Startups Galaxy³⁰⁷: submit a startup or view and search over 200 startups in various categories.

FinTech Cairo³⁰⁸: part of the StartupBootCamp, an accelerator program that supports innovative early stage financial technology startups³⁰⁹.

Businessita WE³¹⁰: women empowerment in business.

The Fashion Incubator ME³¹¹: supports entrepreneurs in the garment industry.

Funding and Investing:

Innoventures³¹²: invests in early stage innovative startups and provides office space and mentorship.

Cairo Angels³¹³: angels network, invests in innovative early stage startups across MENA.

²⁹⁷ <http://302labs.com/>

²⁹⁸ <https://nomou-mena.com/>

²⁹⁹ <http://www.hmaa-egypt.com/>

³⁰⁰ <http://endeavoreg.org>

³⁰¹ <https://icealex.com/>

³⁰² <https://www.almaqarr.com/en>

³⁰³ <https://www.seedspace.co/en/cities/egyptcairo/>

³⁰⁴ <https://www.seedspace.co/en/cities/egyptcairo/>

³⁰⁵ <http://businessforwardauc.com/>

³⁰⁶ <http://menadata.net/public/>

³⁰⁷ <https://startupspacegalaxy.com>

³⁰⁸ <https://www.startupbootcamp.org/accelerator/fintech-cairo/>

³⁰⁹ <https://magnitt.com/news/first-demo-day-sbc-pride-fintech-cairo-10-prominent-startups-showcase-their-excellence>

³¹⁰ <https://www.businessita-we.com/>

³¹¹ <https://www.facebook.com/TheFashionIncubatorME/>

³¹² <http://www.innoventures.me/>

³¹³ <http://cairoangels.com/>

AUC Venture Lab³¹⁴ (AUC V-Lab): university-based accelerator for innovative startups (facility, research and human capital + networking).

EdVentures³¹⁵: corporate venture capital specialized in education, culture and innovative learning, offers incubation/acceleration and investment (with Nahdet Misr).

Endure capital³¹⁶: early stage venture capital firm with presence in Egypt, UAE and USA

Algebra Ventures³¹⁷: venture capital fund with early stage tech startups investment

Averroes Ventures³¹⁸: seed and early stage venture capital fund (MENA or outside)

Pride Capital³¹⁹: venture capital focused on fintech (financial inclusion in the Middle East and Africa), in collaboration with Startupbootcamp.

Egypt Ventures³²⁰: investment firm seeded by Ministry of Investment and International Cooperation with focus on youth.

A15³²¹: headquartered in the Netherland with branches in most MENA countries, is an entrepreneurial company that invests in digital products and technology brands.

EFG-EV³²²: startup accelerator and VC fund, invests in and supports fintech ecosystem.

Levari³²³: with offices in Cairo and Dubai, commercial law firm managing investments and cross border transactions in partnership with Pitmans.

CVentures³²⁴: corporate venture capital firm focused in financial technology, a subsidiary of Commercial International Bank.

HIMangel³²⁵: works with early stage startups to grow and scale

Sawari Ventures³²⁶: venture capital firm with focus on MENA

Ayady³²⁷: economic private investment company with focus on agriculture, services and tourism.

Ezdehar³²⁸: private equity fund manager investing in high growth businesses in Egypt.

Science and Technology Development Fund³²⁹: grants based research and innovation funding agency.

Nile Angels³³⁰: a group of angel investors in upper Egypt with focus on local startups.

Accelero Capital³³¹: investment and management group focused on telecommunication, digital

³¹⁴ <http://schools.aucegypt.edu/Business/aucvlab/Pages/default.aspx>

³¹⁵ <https://www.nmedventures.com/>

³¹⁶ <https://www.endurecap.com/>

³¹⁷ <https://algebraventures.com/>

³¹⁸ <https://averroes.vc/>

³¹⁹ <https://www.pride-capital.com/>

³²⁰ <http://www.egyptventures.com/>

³²¹ <http://a15.com>

³²² <https://www.efgev.com/>

³²³ <https://www.levarilaw.com>

³²⁴ ³²⁴ <http://cventureseg.com/>

³²⁵ <https://www.himangel.com/>

³²⁶ <http://www.sawariventures.com/>

³²⁷ <https://www.ayadyegypt.com/>

³²⁸ <http://ezdehar.com>

³²⁹ <http://stdf.eg:8080/>

³³⁰ <http://nileangels.com>

³³¹ <http://www.accelerocapital.com>

media and technology.

Alex Angels³³²: Alexandria Angel Network, invests in promising, early stage companies with strong business case, in and outside of Alexandria.

Startups and companies:

Advertising and Marketing

Dsquares³³³: loyalty solutions provider (loyalty programs, couponing solutions and interactive directory services).

Kngine³³⁴: now part of Samsung (acquired³³⁵), automates customer service, power voice interfaces and drive enterprise search using AI.

Cognitev³³⁶: marketing and advertising automation platform using AI and offering traffic as a service.

Webville³³⁷: digital content discovery and auto-generation (using deep learning), especially food through FoodVille³³⁸.

Brimore³³⁹: direct-selling distribution platform that connects manufacturers with consumers (mostly women) who work as promoters and distributors in their localities.

Gameball³⁴⁰: customer engagement, conversion and loyalty through gamification.

Agritech

Tomatiki³⁴¹: IoT provider for smart agriculture.

AI and Analytics/VR/AR

Furnwish³⁴²: furniture industry showrooms visualizer using augmented reality and artificial intelligence to enhance customers experience and customization.

AvidBeam³⁴³: a video big data analytics company serving smart cities, automotive and retail, headquartered in USA with operations in North Africa, UAE and nearby countries.

Affectiva³⁴⁴: offers cutting-edge AI technology to help computers recognize human emotions based on physiological responses and facial cues, has offices in Egypt and USA.

Mintrics³⁴⁵: video analytics platform that helps brands, agencies and content publishers understand how people are interacting with their social videos. Mintrics's core market is in the US and in May 2019, it won a spot in the Blue Startups Accelerator program³⁴⁶.

³³² <http://www.alexandriaangels.com>

³³³ <http://www.dsquares.com/>

³³⁴ <http://www.kngine.com/>

³³⁵ <https://www.menabytes.com/samsung-kngine/>

³³⁶ <https://cognitev.com/>

³³⁷ <https://www.webville.io/>

³³⁸ <https://www.foodville.me/>

³³⁹ <https://brimore.com/>

³⁴⁰ <https://www.gameball.co/>

³⁴¹ <https://tomatiki.com>

³⁴² <http://furnwish.net/>

³⁴³ <http://avidbeam.com>

³⁴⁴ <https://www.affectiva.com/>

³⁴⁵ <https://mintrics.com/>

³⁴⁶ <https://magnitt.com/news/video-analytics-platform-mintrics-becomes-first-startup-founding-team-mena-region-take-part-blue>

Synapse Analytics³⁴⁷: builds and customizes machine learning and AI algorithms (data management, logistics optimization, customer experience, visualization and more).
 Bot Commander³⁴⁸: provides chatbots powered by AI to enhance business performance.
 Botme³⁴⁹: business chatbot builder platform using software as a service (SaaS) model.
 VRteek³⁵⁰: VR/AR branded games and experiences service provider.
 5d VR³⁵¹: virtual reality content and production studio producing immersive experiences.
 Widebot³⁵²: Arabic chatbot builder platform without coding or technical experience (was not production ready when checked in April, 2019).
 Badr³⁵³: provides big data solutions, mobile and web applications, and social media analytics to global clients (acquired by Incorta³⁵⁴).

Careers

Wuzzuf³⁵⁵: career platform, recruitment and services.
 Forasna³⁵⁶: Arabic for 'our opportunities', a recruitment and staffing platform
 Shaghalni³⁵⁷: Arabic for 'employ me', staffing and recruitment platform.
 Cyber Talents³⁵⁸: a platform that ranks cyber security talents according to their real hands on skills in different cyber security categories by running 'catch the flag' Competitions in order to get hired by recruiters, also has office in UAE.
 Tanqeeb³⁵⁹: aggregates MENA job postings from different sources and provides a platform for employers and job seekers, serves all MENA and other regions.
 Cantalop³⁶⁰: job search engine for the MENA region.

Edutech

ITWorkx Education³⁶¹: provides innovative barrier-breaking educational services to transform learning and instruction across sectors by building platforms and tools, has offices in Egypt, UAE, Kuwait, Saudi Arabia and outside MENA.
 Nafham³⁶²: free online K-12 crowdsourced educational platform linked to the mandated public curriculum covering curricula from Egypt, Saudi Arabia, Syria, Algeria, UAE and Kuwait with paid one-on-one video tutorial service.

Energy

Karm Solar³⁶³: solar technology and integration company that delivers innovative solar solutions

³⁴⁷ <https://www.synapse-analytics.io/>

³⁴⁸ <https://botcommander.io/>

³⁴⁹ <https://www.botme.com/>

³⁵⁰ <https://www.vrteek.com/>

³⁵¹ <http://www.5d-vr.com/>

³⁵² <https://widebot.net>

³⁵³ <https://badrit.com/>

³⁵⁴ <https://www.incorta.com/>

³⁵⁵ <https://wuzzuf.net/jobs/egypt>

³⁵⁶ <https://forasna.com>

³⁵⁷ <https://www.shaghalni.com/>

³⁵⁸ <https://cybertalents.com/>

³⁵⁹ <https://www.tanqeeb.com>

³⁶⁰ <https://www.cantalop.com>

³⁶¹ <http://itworx.education>

³⁶² <https://www.nafham.com>

³⁶³ <http://karmsolar.com/>

to the agricultural, industrial, tourism and business sectors.
Amgad³⁶⁴: smart metering provider using IoT for energy conservation.

Fashion (clothing, beauty and eyewear)

La Reina³⁶⁵: online platform for designer dresses and accessories.

Fintech

PayMob³⁶⁶: electronic payment enabler.

Payfort³⁶⁷: online payment acceptance platform (gateway), integrated with several shopping carts.

Edfa3ly³⁶⁸: personal shopping service from global online stores with delivery and local payment methods.

Fawry³⁶⁹: e-payment network servicing consumers and businesses.

Elements financial Technologies³⁷⁰: delivers end-to-end financial and payments technologies and solutions (payment gateway, digital payments and risk management) to banks, businesses and financial institutions.

Money Fellows³⁷¹: online collaborative group lending and savings platform using rotating savings and credit association model (in Arabic: Jam3iyyah) with operations in Egypt and the UK.

Masary³⁷²: e-payment gateway service for the unbanked through payment points (physical).

Pay Me Store³⁷³: online payment acceptance provider using different methods.

Vapulus³⁷⁴: payment gateway with unified sales growth and analytics platform (0% fees).

Garment.io³⁷⁵: uses IoT and analytics to optimize garment production and control.

XPay³⁷⁶: A platform enabling cashless transformation of communities like universities, schools, social and sport clubs, residential compounds, and activities.

7aweshly³⁷⁷: provides micro savings services without a bank account (via supermarkets and pharmacies).

Food/Groceries Online

Mumm³⁷⁸: online marketplace for home cooked food empowering and enabling home-based women to start their own businesses and spreading healthy food consumption.

GoodsMart³⁷⁹: online grocery shopping with unattended delivery option (box installed at entrance).

³⁶⁴ <http://www.amgadiot.com/>

³⁶⁵ <https://www.lareinagowns.com/>

³⁶⁶ <http://www.paymobsolutions.com/>

³⁶⁷ <https://www.payfort.com>

³⁶⁸ <https://www.edfa3ly.com/>

³⁶⁹ <https://fawry.com/>

³⁷⁰ <http://www.elements-ft.com>

³⁷¹ <https://moneyfellows.com/>

³⁷² <http://www.e-masary.com>

³⁷³ <https://www.paymestore.co/>

³⁷⁴ <https://www.vapulus.com/>

³⁷⁵ <https://garment.io/>

³⁷⁶ <https://xpay.app/>

³⁷⁷ <http://www.7aweshly.com/>

³⁷⁸ <https://www.getmumm.com>

³⁷⁹ <https://goodsmartegypt.com/>

Elmenus³⁸⁰: online food discovery and ordering platform.

AklaBaity³⁸¹: online catering service from local kitchens to customers, on-demand or by subscription.

Otlob³⁸²: food ordering and delivery platform connecting restaurants with customers, offers and coupons available.

Yumamia³⁸³: healthy food delivery platform within one hour, with plans to expand to Saudi Arabia.

Breadfast³⁸⁴: online marketplace for breakfast preparation and delivery.

Health and Fitness

Vezeeta³⁸⁵: headquartered in Egypt with operations in Saudi Arabia, Jordan and Lebanon, manages doctor appointment booking and medical services with options to search, filter by specialty and availability, and compare ratings.

Shezlong³⁸⁶: psychotherapy platform serving the MENA region, matches patients with doctors and manages appointments and payments for online therapy.

InstaDiet³⁸⁷: an online marketplace that connects users with verified nutritionists and dietitians, also active in Saudi Arabia, UAE and Kuwait.

Chefaa³⁸⁸: on-demand smart medical platform helping patients to order, schedule and have medicine delivered from the nearest pharmacy according to GPS location.

Mother and Child³⁸⁹: online content provider for pregnancy, parenting, childcare, health and nutrition.

Media and Content

Qabila³⁹⁰: media production startup connecting artists and turning information into entertainment.

Arab Face³⁹¹: online social platform for Arab people (not fully launched).

Retail/Ecommerce

Hatla2ee³⁹² (you will find): an online marketplace for new and used cars, covers several other countries.

Yaoota³⁹³: price comparison and online shopping platform.

Dentacarts³⁹⁴: online marketplace for dental supplies.

Odiggo³⁹⁵: online marketplace for car parts with logistics and additional services (plans to

³⁸⁰ <https://www.elmenus.com/>

³⁸¹ <https://www.aklabait.com/>

³⁸² <https://www.otlob.com>

³⁸³ <https://egypt.yumamia.com>

³⁸⁴ <https://www.breadfast.com/>

³⁸⁵ <https://www.vezeeta.com>

³⁸⁶ <https://www.shezlong.com/>

³⁸⁷ <https://instadiet.me>

³⁸⁸ <https://chefaa.com/>

³⁸⁹ <https://mother-and-child.net/>

³⁹⁰ <http://www.qabilatv.com>

³⁹¹ <https://arabface.online/>

³⁹² <https://eg.hatla2ee.com/>

³⁹³ <https://yaoota.com/>

³⁹⁴ <https://dentacarts.com/>

³⁹⁵ <https://www.odiggo.com/>

expand to Saudi Arabia).

Services and Management

Harmonica³⁹⁶: matchmaker platform that introducing people looking for marriage using a number of questions to match future couples.

Shieldfy³⁹⁷: cloud based cyber security platform to protect websites against malware and cyber-attacks.

AqarMap³⁹⁸: real estate listing portal serving homebuyers, brokers and developers, empowered by data.

Bekia³⁹⁹: online platform where people can exchange their home-separated waste (such as plastics, books, cooking oil, e-waste, etc.) with goods.

Rise Up Company⁴⁰⁰: a platform that connects start-ups to seven relevant resources: know-how, talent, funding, marketplace, media, toolbox and inspiration. It also organizes the RiseUpSummit.

Nawah Scientific⁴⁰¹: an online platform of high-tech research equipment that provides services to the region, a world-class caliber of scientists and a strong logistic network (sample pickup and results delivery).

Smart Medical Services⁴⁰²: solution provider of occupational health programs, managed care programs, third party administration and cards for the uninsured.

Nozol⁴⁰³: CRM for real estate professionals (property and sales management) with mapping and data analytics.

Taskty⁴⁰⁴: online marketplace for home services connecting customers with workers.

Lynks⁴⁰⁵: provides browsing solutions for various online stores for clients in Egypt (shopping and logistics).

Kemitt⁴⁰⁶: online platform for product designers (home, office and hospitality), handles manufacturing, sales and logistics.

AnaMehani⁴⁰⁷: online services marketplace that connects local customers with local expert service providers.

Think Big⁴⁰⁸: cloud computing, big data and blockchain solution providers and trainers.

Direxiona⁴⁰⁹: online platform for female driving instructors matching on location and time for girls learning to drive.

HarassMap⁴¹⁰: an initiative to map uninvited sexual harassment based on community reports.

Tadamun⁴¹¹: urban solidarity initiative using data for advocacy.

³⁹⁶ <https://www.harmonica.life/>

³⁹⁷ <https://shieldfy.io/>

³⁹⁸ <https://egypt.aqarmap.com/>

³⁹⁹ <https://www.bekia-egypt.com/>

⁴⁰⁰ <https://riseup.co/>

⁴⁰¹ <https://nawah-scientific.com>

⁴⁰² <https://www.smart-medicalservices.com>

⁴⁰³ <http://nozol.com/>

⁴⁰⁴ <https://taskty.com/>

⁴⁰⁵ <https://www.lynks.com/>

⁴⁰⁶ <https://kemitt.com/>

⁴⁰⁷ <https://www.anamehani.com>

⁴⁰⁸ <https://think-big.solutions/>

⁴⁰⁹ <http://direxiona.com/>

⁴¹⁰ <https://harassmap.org/>

⁴¹¹ <http://www.tadamun.co/>

Orcas⁴¹²: online platform connecting parents and students with trusted babysitters and tutors in their area.

Sports and Entertainment

GBarena⁴¹³: an online gaming and e-sports community platform, manages and organizes tournaments.

Arqam⁴¹⁴: provides data analytics for football clubs (acquired in May 2019 by UK's StatsBomb⁴¹⁵).

Eksab⁴¹⁶: daily fantasy sports platform featuring competitions and prizes.

Telecom and Mobile Services

TA Telecom⁴¹⁷: builds mobile content platforms and analytic tools, uses big data to measure consumer behavior and profit predictions, developer of TrafficBytes data driven solution.

Instabug⁴¹⁸: in-app feedback and bug reporting for mobile applications.

Wasla Browser⁴¹⁹: mobile app that provides free internet access supported by advertising.

Cequens⁴²⁰: a cloud communication platform provider (messaging, voice and video).

DCBEgypt⁴²¹: a licensed direct carrier billing service provider (mobile payment).

Transportation and Logistics

Feerera⁴²²: carpooling (ride sharing) service to work, school or events.

Trella⁴²³: a platform that connects shippers and carriers, offers shipment tracking and insights on transportation trends and performance.

Swvl⁴²⁴: bus booking application for transportation between fixed destinations in Cairo and Alexandria.

Dryve⁴²⁵: peer to peer car sharing platform (find cars that can be rented directly from owners).

Halan⁴²⁶: ride-sharing technology company, offering transport and logistics solutions, uses motorcycles and tuktuks, operates in Egypt and Sudan.

Bosta⁴²⁷: delivery service that uses package pooling and route optimization.

Red Cab⁴²⁸: decentralized peer-to-peer transportation solution (car sharing) for individuals.

Buseet⁴²⁹: smart bus ridesharing, routing and booking platform.

⁴¹² <https://www.orcas.io/>

⁴¹³ <https://www.gbarena.com/>

⁴¹⁴ <https://www.arqamfc.com/>

⁴¹⁵ <https://www.prnewswire.com/news-releases/statsbomb-the-most-advanced-analytics-provider-in-football-announces-the-full-acquisition-of-arqam-to-provide-more-than-double-the-data-of-any-other-provider-300843691.html>

⁴¹⁶ <https://www.yallaeksab.com/>

⁴¹⁷ <http://www.tatelecom.com/>

⁴¹⁸ <https://instabug.com/>

⁴¹⁹ <http://www.waslabrowser.com/>

⁴²⁰ <https://www.cequens.com>

⁴²¹ <http://dcbegypt.com/>

⁴²² <https://www.f6s.com/foorera>

⁴²³ <https://www.trella.app/>

⁴²⁴ <https://swvl.com/>

⁴²⁵ <https://www.getdryve.com/>

⁴²⁶ <https://www.halan.com>

⁴²⁷ <https://bosta.co/>

⁴²⁸ <https://redcab.co/>

⁴²⁹ <https://buseet.com/>

Raye7⁴³⁰: carpooling platform for corporates using insightful data in operations.

Travel and Tourism

Elves⁴³¹: chat-based travel concierge service, handles flight changes, delays, booking of events etc.

Go Ejaza⁴³²: travel planning and booking platform, also has offices in Saudi Arabia and Bahrain.

Tripdizer⁴³³: platform for personalized trip planning and budgeting, also group travel.

Events:

RiseUpSummit: the 2018 edition took place December 7 – 9 and was themed “ground experiences”.

She Can 2019⁴³⁴: organized by Entrepren Elle on March 8, 2019 for female entrepreneurs under the theme successful failures.

IndabaX Egypt⁴³⁵: locally organized version of Indaba deep learning event, May 3 -4, 2019.

IDC CIO Summit⁴³⁶: digital transformation and economy, June 18, 2019.

SeedStars⁴³⁷: global startup competition tour around the world, July 3, 2019.

CET Egypt⁴³⁸: customer engagement technology conference, world series 25th edition, October 23, 2019.

Intelligent Cities Exhibition and Conference⁴³⁹: discuss and showcase latest technologies, sustainable solutions and products as well as best practices on managing and building the cities of tomorrow, October 23 – 24, 2019.

MAIN⁴⁴⁰: Middle East conference on business angel investors, October 31, 2019 (also held on November 1 – 2, 2018).

Arab Girls Can innovate Competition⁴⁴¹: organized by Arab Women Organization from April 25th to November 22nd, 2019.

⁴³⁰ <https://www.raye7.com/>

⁴³¹ <http://www.elvesapp.com/>

⁴³² <https://goejaza.com/>

⁴³³ <https://tripdizer.com/>

⁴³⁴ <https://www.entreprenelle.com/she-can>

⁴³⁵ <https://sites.google.com/view/indabaxegypt>

⁴³⁶ <https://idcciosummit.com/cairo/>

⁴³⁷ <https://www.seedstarsworld.com/event/seedstars-cairo-2019>

⁴³⁸ <http://cetworldseries.com/egypt/>

⁴³⁹ <http://platforms-root-technologies.com/icec-2019/>

⁴⁴⁰ <http://www.mainmena.com/conferences/>

⁴⁴¹ <http://arabgirlscaninnovate.org/>

Jordan

Due to its location and human capital, Jordan is a focal point of entrepreneurship in the Middle East and North Africa. A country with limited natural resources, Jordan considers entrepreneurship an essential tool to diversify economy and alleviate unemployment. Jordan has suffered from the neighboring countries' unrest and there are is one of the top destinations for refugees fleeing from regional conflicts adding more pressure on the socio-economic system to cater for the growing needs of its residents and refugees. The country enjoys a good entrepreneurship ecosystem with government support. In addition to economic reforms, Jordan joined the Open Government Partnership (OGP) and has a freedom of information act, several electronic services and around 38% of startups are led by women. In the May (2019) cabinet reshuffle, the minister of ICT became minister of digital economy and entrepreneurship. Jordan is also benefitting from the One Million Jordanian Coders Initiative⁴⁴² supported by UAE's Dubai Future Foundation.

The government is actively involved in the startup ecosystem and launched the London Initiative in March of 2019 to attract investment for Jordanian startups. Jordan also provides citizenship to those who invest in the country or establish a business.

In April 2019, Jordan hosted the WEF conference where the top 100 Arab startups were announced. Without a bankruptcy law, relatively high taxes⁴⁴³, high electricity cost, 50% unbanked adults⁴⁴⁴, customs fees and bureaucracy in the midst of a near record unemployment of 18.6% and high debt, and tough regulations (for example, taxi hailing apps were stopped for some time), startups are lured to relocate outside⁴⁴⁵. Apart from economic hardship and fears from political instability, the Jordanian startup ecosystem is friendly with entrepreneur support facilities and capital (ex. the Innovative Startups and SMEs Fund).

Jordan is home to a number of successful startups with fintech, e-commerce, logistics and healthcare in the lead. There are true data powered solutions among Jordanian startups some of which attracted generous investments like Arabian Weather, Madfoo3atCom and Mawdoo3. Fintech is likely to stay among the top interests of Jordanian startups with digital health, logistics and AI applications. Jordan is usually targeted early by regional startups and has reasonable access to all MENA markets with preference to expand in the gulf.

Programs and Enablers:

Propeller⁴⁴⁶: startup accelerator focused on technology, products and design. Offers investment, mentorship and networking.

⁴⁴² <https://jordaniancoders.com/>

⁴⁴³ In August 2019, new customs rules were introduced adding taxes on some e-commerce activities and plans to tax major international companies like Facebook and Google were discussed

⁴⁴⁴ <https://www.heritage.org/index/country/jordan>

⁴⁴⁵ <https://www.thenational.ae/business/economy/world-economic-forum-mena-2019-jordan-becomes-a-start-up-hub-to-boost-economy-1.844949>

⁴⁴⁶ <http://propellerinc.me/>

Estrata Solutions⁴⁴⁷: an outsourcing company that provides incubation and training, has other offices in Saudi Arabia, Poland and Romania.

Zain Innovation Campus (ZINC)⁴⁴⁸: innovation platform offering training, mentorship, networking, connection to investors and events.

Oasis500⁴⁴⁹: incubator offering onboarding, acceleration and early stage investment

King Hussein Business Park⁴⁵⁰: a business hub hosting local and international companies as well as startups and incubators for the three telecom companies – ZIAN's Zinc, Umniah's Tank and Orange's BIG.

Jordan Open Source Association⁴⁵¹: promotes the use of open source software and open government data

Int@j⁴⁵²: the Jordanian ICT association, provides support and advocacy to the ICT startups.

StartupsJo⁴⁵³: a platform showcasing Jordanian startups and offering networking and other enabling services.

The Tank⁴⁵⁴: business incubation services by Umniah (telecom company)

TTI⁴⁵⁵: advocates entrepreneurship and innovation culture among young people (training, mentoring and incubation).

USAID Lens⁴⁵⁶: local enterprise support project by USAID, focuses on small businesses.

Queen Rania Center for Entrepreneurship⁴⁵⁷: non-profit organization to help develop technology entrepreneurship in Jordan, part of Princess Sumaya University.

Endeavor Jordan⁴⁵⁸: part of the global movement to catalyze long-term economic growth by selecting, mentoring, and accelerating entrepreneurs.

Hassad⁴⁵⁹: agritech accelerator for agribusiness startups offering workspace, support services and coaching.

Funding and Investing:

Silicon Badia⁴⁶⁰: venture capital firm providing networks and support to leading technology entrepreneurs.

Dash Ventures⁴⁶¹: Amman based, covers MENA. Investment in IT, renewable energy and creative industries.

⁴⁴⁷ <http://www.estartasolutions.com>

⁴⁴⁸ <https://twitter.com/ZINCJordan>

⁴⁴⁹ <http://oasis500.com/>

⁴⁵⁰ <http://www.businesspark-jo.com>

⁴⁵¹ <https://jordanopensource.org/>

⁴⁵² <http://intaj.net/>

⁴⁵³ <https://www.startupsjo.com/>

⁴⁵⁴ <https://www.umniah.com/en/the-tank>

⁴⁵⁵ <https://tti-jo.org>

⁴⁵⁶ <https://jordanlens.org/>

⁴⁵⁷ <http://www.qrce.org/>

⁴⁵⁸ <http://www.endeavorjordan.org>

⁴⁵⁹ <http://www.hassad.io/>

⁴⁶⁰ <https://www.siliconbadia.com/>

⁴⁶¹ <http://dashventures.com/>

AdamTech⁴⁶²: venture capital and business accelerator in the ICT sector providing seed capital to entrepreneurs.

Jordan Investment Commission⁴⁶³: official agency that oversees development and free zones, and facilitates development and investment.

Innovation Startups and Small Medium Enterprises Fund⁴⁶⁴: a private sector managed fund making investments in innovative startups and early stage SMEs funded by World Bank and Central Bank of Jordan to support fintech innovation.

Relatively Fund⁴⁶⁵: tech accelerator with limited investments.

Shamal Start⁴⁶⁶: business accelerator and seed investor in north Jordan, supported by EU and Luminus Education in partnership with Ipark, has a fabrication lab.

Startups and companies:

Advertising and Marketing

Open Sooq⁴⁶⁷: online classifieds marketplace for peer to peer deals.

Counterize⁴⁶⁸: provides digital activation, virtual and augmented reality and IoT services to increase social engagement.

The Online Project⁴⁶⁹: digital marketing agency that connects clients and customers via social media campaigns, management and advertising, also active in UAE and Saudi Arabia.

Agritech

GhoorCom⁴⁷⁰: online platform that aims to deliver fruit basket at moderate price and empower farmers with technology.

AI and Analytics/VR/AR

Nestrom⁴⁷¹: data capture from IoT devices and analytics serving field engineers, technicians and inspectors, apparently moved to Dubai.

Arabot⁴⁷²: intelligent chatbot as a service with Arabic support, allows intent parsing and dialog management, integrates with various channels.

Viavii⁴⁷³: previously known as Friendture, AI powered platform for finding local experiences and itineraries (travel recommendation engine based on user profile).

Whyise⁴⁷⁴: impact analytics solution provider that allows organizations to aggregate their data from multiple sources and analyze it for strategic planning, efficient reporting and evidence

⁴⁶² <http://adamtechventures.com/>

⁴⁶³ <https://www.jic.gov.jo>

⁴⁶⁴ <https://issfjo.com>

⁴⁶⁵ <https://relativelyfund.com/>

⁴⁶⁶ <http://www.shamalstart.com/>

⁴⁶⁷ <https://www.opensooq.com/>

⁴⁶⁸ <http://www.counterize.com/>

⁴⁶⁹ <https://theonlineproject.me>

⁴⁷⁰ <http://ghoorcom.com/>

⁴⁷¹ <http://www.nestrom.com/>

⁴⁷² <https://arabot.io/>

⁴⁷³ <https://viavii.com/>

⁴⁷⁴ <https://www.whyise.com/>

based decision making.

Arabian Weather⁴⁷⁵: uses AI for weather forecasting and other related products (ex. data for renewable energy companies) that cover the whole MENA region.

Track Link⁴⁷⁶: fleet management, telematics, analytics and tracking using GPS enabled IoT devices.

360Vuz⁴⁷⁷: teleporting platform, provides access in live 360 degrees to top events, sports, and master classes with immersive screen 360 technology using a mobile app.

Careers

ZenHR⁴⁷⁸: cloud-based products that aim to simplify and streamline your HR process from acquire to retire by integrating and streaming data from different applications.

Akhtaboot⁴⁷⁹: online career network, serving the MENA region as a platform that connects employers and job seekers, covers Jordan, GCC, Palestine, Lebanon and Egypt.

Elevatus⁴⁸⁰: a recruitment platform that allows candidates to upload a video cv and matches employers using AI.

Edutech

3Du⁴⁸¹: educational content provider using 3D and AR/VR.

Hello World Kids⁴⁸²: teaches native coding to kids from age six to twelve (online) to become programmers or entrepreneurs, connects schools, teachers and parents.

Luminus Education⁴⁸³: offers accredited post-secondary training programs (TVET), as well as customized courses for industry and commercial partners using blended learning, focus is on under-served youth (ex. refugees).

Fashion (clothing, beauty and eyewear)

Jobedu⁴⁸⁴: pop-culture youth lifestyle brand specializing in designing, merchandising and retailing creative based intellectual properties (sells fashion with creative art and designs) with operations in Jordan, Palestine, Iraq and Kuwait.

Fintech

Solfeh⁴⁸⁵: a fintech platform that operates in the secured personal lending space, offering same-day emergency cash advances to salaried workforce according to Islamic banking rules.

Jordan Payments and Clearing Company⁴⁸⁶ (JoPacc): owns and manages national micro and retail digital payments (mobile payments, electronic bills and cheque clearing).

MadfoatCom⁴⁸⁷: specialized in electronic bill presentment and seamless payment (online

⁴⁷⁵ <https://www.arabiaweather.com>

⁴⁷⁶ <https://www.trak-link.net/en/>

⁴⁷⁷ <http://360vuz.com/>

⁴⁷⁸ <https://www.zenhrsolutions.com>

⁴⁷⁹ <https://www.akhtaboot.com>

⁴⁸⁰ <https://www.elevatus.jobs/en>

⁴⁸¹ <https://www.3dujo.org/>

⁴⁸² <http://helloworldkids.org/>

⁴⁸³ <http://www.luminuseducation.com>

⁴⁸⁴ <https://www.jobedu.com>

⁴⁸⁵ <https://www.solfeh.com/>

⁴⁸⁶ <http://www.jopacc.com/>

⁴⁸⁷ <http://madfoat.com/>

or mobile), owner of eFAWATEERcom⁴⁸⁸ (your bills) platform that is managed by the Central Bank in Jordan.

Liwwa⁴⁸⁹: lending platform that makes it easy for peers (lenders) to invest in high-yield, small business and startup (borrowers) and uses Islamic banking principles.

Hyper Pay⁴⁹⁰: online payment processing service provider headquartered in Amman with offices in Saudi Arabia and UAE.

AmwalCom⁴⁹¹: comparison platform for banking products and services.

Milarite⁴⁹²: blockchain solution consulting firm.

Health and Fitness

AlTibbi⁴⁹³: Tele health portal in Arabic (regional) offering content and online consultation where doctors and patients communicate online via text, audio or video. AlTibbi also has office in UAE.

Sanady⁴⁹⁴: an interactive platform for patients and their families to share experiences.

ConnectToFit⁴⁹⁵: online fitness guide connecting customers to trainers, gyms and food supplements.

Media and Content

BeeCell⁴⁹⁶: digital media services provider and manager with operations also in Saudi Arabia, Morocco, UAE and Palestine.

User Testing Arabic⁴⁹⁷: user experience service to understand needs, usability and interactions with websites.

Mawdoo3⁴⁹⁸: Arabic digital content platform and encyclopedia with additional applications in AI and Arabic NLP⁴⁹⁹ (ex. search, speech recognition, NLU services and Salma humanoid).

360Moms⁵⁰⁰: Arabic parenting platform providing original localized content by experts.

Sowt⁵⁰¹: Arabic podcast platform for the production and distribution of audio programs.

Takalam⁵⁰²: provides solutions for hearing and speaking disorders using IoT devices and AI.

Abjjad⁵⁰³: online social platform for readers, writers, and publishers to rate, review, and publish ebooks. Abjjad is supported by Abdul Hameed Shoman Foundation.

Little Thinking Minds⁵⁰⁴: produces educational digital Arabic content for primary age children to advance the quality of Arabic fluency, literacy, and understanding of Arabic culture using fun

⁴⁸⁸ <https://www.efawateercom.jo>

⁴⁸⁹ <https://www.liwwa.com/>

⁴⁹⁰ <http://www.hyperpay.com>

⁴⁹¹ <https://amwalcom.com/>

⁴⁹² <https://www.milarite.com/>

⁴⁹³ <https://www.altibbi.com/>

⁴⁹⁴ <https://www.sanadyme.com>

⁴⁹⁵ <https://www.connecttofit.com>

⁴⁹⁶ <http://www.beecell.com/>

⁴⁹⁷ <https://www.usertestingarabic.com/>

⁴⁹⁸ <https://mawdoo3.com/>

⁴⁹⁹ <https://ai.mawdoo3.com/>

⁵⁰⁰ <https://www.360moms.net/>

⁵⁰¹ <http://www.sowt.com/>

⁵⁰² <http://www.takalamtech.com/>

⁵⁰³ <https://www.abjjad.com/>

⁵⁰⁴ <https://www.littlethinkingminds.com>

and engaging tools.

Retail/Ecommerce

Jamalon⁵⁰⁵: online bookstore (English and Arabic titles) serving the MENA region and other destinations (book browsing, recommendations, orders, payment and shipping).

Cash Basha⁵⁰⁶: online ecommerce service that allows shopping from Amazon, Ebay and AliBaba with cash payment, includes deliver, operates also in UAE, Qatar, Saudi Arabia, Kuwait and Oman.

Top Steering⁵⁰⁷: online marketplace for spare parts, tools and car accessories, also operates in GCC.

Akaryana⁵⁰⁸: online marketplace for real estate developers, buyers and investors, operates in Jordan, GCC and Turkey.

Faylasof⁵⁰⁹: online bookstore for Arabic and English books direct from publishers with custom payment and delivery.

Sharqi⁵¹⁰: online marketplace for homemade accessories and gifts from local designers.

Mecal⁵¹¹: online store for men's accessories with focus on unique designs, has offices in Jordan, Bahrain and USA.

Services and Management

ShopGo⁵¹²: ecommerce platform provider enabling MENA merchants and small businesses to sell online with localized payments and shipping solutions, operates also in Saudi Arabia, Kuwait and UAE.

Decapolis⁵¹³: provides a platform to certify food quality for producers using blockchain.

POSRocket⁵¹⁴: cloud-based point-of-sale system for sales, staffing, inventory, accepting payments and accessing sales reports and customer information, also expanding to Egypt and the Gulf.

Repzo⁵¹⁵: mobile CRM with real-time geo data from the field.

Aumet⁵¹⁶: links medical distributors with manufacturers, address listed in USA.

Darpedia⁵¹⁷: social platform connecting home owners with home professionals.

Users Proof⁵¹⁸: usability and experience testing platform for websites and mobile apps.

Mind Rockets Inc.⁵¹⁹: assistive technology provider, develops avatars that translate text/speech to sign language for the deaf.

Data Science Research Arab Team⁵²⁰: a team of data scientists from Jordan, Palestine, Egypt,

⁵⁰⁵ <https://jamalon.com>

⁵⁰⁶ <https://cashbasha.com>

⁵⁰⁷ <https://www.topsteering.com/>

⁵⁰⁸ <https://www.akaryana.com/>

⁵⁰⁹ <https://faylasof.com/>

⁵¹⁰ <https://sharqi.shop/>

⁵¹¹ <https://mecalmen.com/>

⁵¹² <https://www.shopgo.me/>

⁵¹³ <https://decapolis.io/>

⁵¹⁴ <https://www.posrocket.com/>

⁵¹⁵ <https://repzoapp.com/en>

⁵¹⁶ <https://aumet.me/>

⁵¹⁷ <https://darpedia.com>

⁵¹⁸ <https://usersproof.com>

⁵¹⁹ <https://mindrocketsinc.com>

⁵²⁰ <https://www.dsrat.com/>

Saudi Arabia and Kuwait that works on research, training and project consultation.
Mindset⁵²¹: data enabled social and market research services. Covers Jordan, KSA, UAE, Palestine and Nigeria.
Rafiqi⁵²²: with main activities in Jordan, Rafiqi is a UK-based startup using AI to match refugees to opportunities.

Sports and Entertainment

Tamatem⁵²³: mobile games publisher, localizer, monetizer and analytics provider.
Jawaker⁵²⁴: social card gaming network hosting Middle Eastern popular card games, runs competitions.
DigitaSport⁵²⁵: a platform for sporting entities seeking to digitize their brand value and increase fans engagement.

Telecom and Mobile Services

Globitel⁵²⁶: telecom and contact center provider (mobility, roaming and customer care), also operates in Saudi Arabia and UAE.
Audiogram⁵²⁷: platform to customize audio content for telecom providers.

Travel and Tourism

Sawwa7⁵²⁸: online marketplace and booking platform that connect travelers with local touristic service providers and handles logistics.

Events:

Jordan Growth and Opportunity⁵²⁹: co-hosted with UK in London, February 28, 2019 where several startups were showcased to support growth, investment and jobs for Jordan.
Jordan Pavilion in MCW19⁵³⁰: several Jordanian startups participated in the Barcelona Mobile World Congress (February 26 – 28, 2019) where data innovation was a major theme.
Deal Makers Event⁵³¹: startup investment organized by Endeavor Jordan, March 11- 12, 2019.
Workshop on Open Government and Open Government Data⁵³²: organized by ESCWA, Ministry of Information Technology and Ministry of Planning, March 25, 2019. This event was not covered by Jordanian partners.
Seedstars⁵³³: global startup competition, June 6, 2019.

⁵²¹ <https://www.mindset-res.com>

⁵²² <https://www.rafiqi.net/>

⁵²³ <https://tamatem.co/>

⁵²⁴ <https://www.jawaker.com>

⁵²⁵ <https://digitasport.com/>

⁵²⁶ <https://www.globitel.com>

⁵²⁷ <https://www.audiogram.me/>

⁵²⁸ <https://sawwa7travel.com/>

⁵²⁹ <https://www.londonjordan.co.uk/londonjordan/>

⁵³⁰ <https://www.mwcbarcelona.com/>

⁵³¹ <https://www.sajilni.com/event/dealmakers-2019>

⁵³² <https://twitter.com/UNESCWA/status/1110162338869583872>

⁵³³ <https://www.seedstarsworld.com/event/seedstars-amman-2019>

Blue Ocean Council Summit⁵³⁴: mentorship in Jordan – experience and best practices, June 24, 2019.

Fintech Summit⁵³⁵: brings together regulators, technologists, entrepreneurs and economists. June 26, 2019.

Artificial Intelligence Summit⁵³⁶: A gathering of innovators and entrepreneurs, policymakers, business leaders, scientists and futurists, November 20, 2019⁵³⁷.

International Conference on Intelligent Computing Systems and Data Analytics⁵³⁸: Jadara University, November 27 – 28, 2019.

Orange Social Venture Prize 2019⁵³⁹: MENA contest for innovative projects serving the society or environment.

Digital Arabic Content Initiative⁵⁴⁰: organized by Ministry of Education and Ministry of ICT for school grades 10 and 11 to promote Arabic content.

⁵³⁴ <http://intaj.net/boc-summit/>

⁵³⁵ <http://fintechsummitme.com/>

⁵³⁶ <http://meaisummit.com/>

⁵³⁷ An event took place under the title “Arab AI Summit Jordan” on October 29 – 30, 2019, organized by Phi Science Institute (<https://phiscience.co/#Summit>)

⁵³⁸ <https://icsdaa.com/>

⁵³⁹ <https://entrepreneurclub.orange.com/en/news/2019-orange-social-venture-prize-ready-steady-go.html>

⁵⁴⁰ <http://www.content-pioneers.com/>

Kuwait

Kuwait is a small oil producing country and part of the GCC. Employment relies mostly on the public sector and although the country enjoys a good degree of political stability and neutrality, its market is not fully supportive for entrepreneurship, neither is the local culture and people without citizenship rights cannot start a business. Individual income is not taxed and corporate tax applies to foreign firms⁵⁴¹ (Kuwait allows 100% foreign ownership). The country is taking some steps to improve the ecosystem and there are various facilities and programs to support startups.

Kuwaiti startups are mostly consumer based with e-commerce in the top. This is likely to continue with a good potential for fintech (Kuwait has strong financial market). Most Kuwait startups have access to (and target for) GCC markets.

Programs and Enablers:

Sirdab Lab⁵⁴²: co-working space, community and networking platform for tech entrepreneurs.

Erada⁵⁴³: a business incubator and accelerator for startups and entrepreneurs.

Savour Ventures⁵⁴⁴: an accelerator with food vertical focus, provides workspace, mentorship and seed investment.

Brilliant Lab⁵⁴⁵: startup accelerator program, provides training, funding and networking.

Cubical Services⁵⁴⁶: business incubator offering office space, mentorship and guidance especially for expatriates.

NIU Collaborative Community⁵⁴⁷: business hub offering space and community support.

Funding and Investing:

KDIPA⁵⁴⁸: Kuwait Direct Investment Promotion Authority, attracts foreign investment.

Faith Capital⁵⁴⁹: venture capital firm with focus on entrepreneurs in GCC.

Impulse⁵⁵⁰: venture capital company that invests in technology startups.

Sharq Ventures⁵⁵¹: invests in early stage, tech focused, companies with serious entrepreneurs.

Kisp Ventures⁵⁵²: Shariah compliant venture capital firm, invests in early stage technology companies.

TechInvest⁵⁵³: offers private investment opportunities in the technology sector.

⁵⁴¹ <https://www.heritage.org/index/country/kuwait>

⁵⁴² <http://sirdab-lab.com/>

⁵⁴³ <https://www.erada.io/>

⁵⁴⁴ <https://www.savour.ventures/>

⁵⁴⁵ <https://www.brilliant-lab.com/>

⁵⁴⁶ <https://cubicalservices.com/>

⁵⁴⁷ <https://niu.nu/>

⁵⁴⁸ <https://www.kdipa.gov.kw/>

⁵⁴⁹ <https://faithcapital.com/>

⁵⁵⁰ <http://www.impulse.com.kw>

⁵⁵¹ <http://sharqvc.com/>

⁵⁵² <http://www.kispventures.com/>

⁵⁵³ <http://www.techinvest.com>

Arab Investment Company⁵⁵⁴: provides corporate wealth management, governance and finance services.

Kuwait Life Sciences⁵⁵⁵: innovative investments advancing health care.

Kuwait Investment Authority⁵⁵⁶: autonomous governmental body responsible for the management of the assets of the country, invested in Careem.

Startups and companies:

AI and Analytics/VR/Ar

Global Markets⁵⁵⁷: business intelligence consultancy firm that researches the GCC market using analytics and AI.

Information Age IT Consultations⁵⁵⁸: works in the fields on natural language processing (NLP), big data, text analytics, web and social media analytics.

Kait.ai⁵⁵⁹: early stage startup developing chatbots.

Fashion (clothing, beauty and eyewear)

Bookr⁵⁶⁰: online platform that connects customers with salons, barbers and spas, enables scheduling and booking, active in Kuwait, Bahrain and Saudi Arabia.

Nalbes⁵⁶¹: online fashion and lifestyle (men, women and kids) marketplace covering GCC.

Boutiquaat⁵⁶²: online marketplace for beauty care products curated by celebrities and influencers.

Fintech

Tap Payments⁵⁶³: online payment platform, bill management and API for payment processing (like Stripe), with operations in GCC, Jordan, Lebanon and Egypt.

FinFirst⁵⁶⁴: platform to lend money to small businesses via a marketplace exchange model catering to SMEs and banks.

YallaBit⁵⁶⁵: platform for cryptocurrencies trading.

My Fatoorah⁵⁶⁶: invoice issuance and payment platform service in GCC using local payment methods.

Food/Groceries Online

Carriage⁵⁶⁷: fast food and other products (groceries, flowers, health supplies, ...) delivery platform operating in Kuwait, Saudi Arabia, Bahrain, Qatar, UAE and Egypt with plans to cover other countries and products. Carriage is now owned by the German company

⁵⁵⁴ <https://www.arabinv.com>

⁵⁵⁵ <https://www.klsc.com.kw/>

⁵⁵⁶ <http://www.kia.gov.kw/>

⁵⁵⁷ <http://globalmarkets.com.kw/>

⁵⁵⁸ <http://information-age-consulting.com>

⁵⁵⁹ <https://www.kait.ai/>

⁵⁶⁰ <http://letsbookr.com>

⁵⁶¹ <https://nalbes.com/>

⁵⁶² <https://www.boutiquaat.com>

⁵⁶³ <https://www.tap.company/>

⁵⁶⁴ <https://www.finfirst.com/>

⁵⁶⁵ <https://www.yallabit.com>

⁵⁶⁶ <https://www.myfatoorah.com/>

⁵⁶⁷ <https://www.trycarriage.com/>

Delivery Hero.

Talabat⁵⁶⁸: online food ordering service connecting customers and restaurants, operates in GCC and Jordan. Talabat was acquired by the German Rocket Internet and is managed by its subsidiary Delivery Hero.

InstaSalla⁵⁶⁹: online grocery delivery service (home or office).

Health and Fitness

P5M⁵⁷⁰: a fitness platform connecting people and gyms near them using one membership.

GymNadz⁵⁷¹: fitness application for women featuring workouts, recipes and networking.

Tabeeby⁵⁷²: online social medical platform connecting patients with doctors (find, ask, book appointment).

Media and Content

Nabd⁵⁷³: news app that aggregates news from many sources, allows news feed personalization.

Retail/Ecommerce

Floward⁵⁷⁴: online flowers and gifts platform including payment and delivery, previously known as Q8Flowers.

Cofe⁵⁷⁵: online coffee marketplace giving coffee lovers access to coffee chain houses and specialty coffee roasters.

Services and Management

MyU⁵⁷⁶: school communications platform eliminating paperwork.

Pass⁵⁷⁷: car parking platform (enter, park and pay through mobile application), uses plate recognition technology.

UBuy⁵⁷⁸: facilitates cross border eCommerce internationally via its payments and shipping infrastructure, operates in GCC, Jordan, Lebanon, Egypt and Morocco.

Easy Khair⁵⁷⁹: online platform for charity support linking donors with projects.

Scrap⁵⁸⁰: car parts (new and used) and insurance platform.

Ajar Online⁵⁸¹: online rent payment and property management in Kuwait and UAE.

JustClean⁵⁸²: online laundry services platform, handles logistics and covers GCC.

⁵⁶⁸ <https://www.talabat.com>

⁵⁶⁹ <http://www.instasalla.com>

⁵⁷⁰ <https://p5m.me>

⁵⁷¹ <https://gymnadz.com>

⁵⁷² <https://tabeeby.com/>

⁵⁷³ <https://www.nabdapp.com>

⁵⁷⁴ <https://floward.com/en/>

⁵⁷⁵ <https://cofeapp.com/>

⁵⁷⁶ <https://myu.co/>

⁵⁷⁷ <https://www.getpass.me>

⁵⁷⁸ <https://www.a.ubuy.com.kw>

⁵⁷⁹ <https://www.easykhair.com/>

⁵⁸⁰ <https://scrap.com/>

⁵⁸¹ <https://ajar.com.kw/>

⁵⁸² <https://justclean.com>

Sports and Entertainment

FishFishMe⁵⁸³: online platform for booking fishing trips, connects fishermen and boat captains (site lists headquarter in USA with an office in UAE).

Ghinwa⁵⁸⁴: mobile application for amateur singers.

Transportation and Logistics

Agility⁵⁸⁵: global logistics company with operations worldwide, provides supply chain and analytics services.

Events:

East Chain Open Hub⁵⁸⁶: annual two-day conference on the emerging digital assets space, January 30 – 31, 2019.

Falcon Nest Competition⁵⁸⁷: by 500 Startups, pitching ideas in front of investors, April 8 – 21, 2019.

Seedstars⁵⁸⁸: global startup competition tour, August 1, 2019.

Customer Engagement Technology Conference⁵⁸⁹: 25th edition of world series event, September 25, 2019.

Kuwait Financial Technology Conference & Exhibition⁵⁹⁰: financial services and innovation, October 22 – 24, 2019.

⁵⁸³ <https://www.fishfishme.com>

⁵⁸⁴ <https://ghinwa.com/>

⁵⁸⁵ <https://www.agility.com/>

⁵⁸⁶ <https://ecohconference.com/>

⁵⁸⁷ <https://falconsnest.500.co/falconsnest/>

⁵⁸⁸ <https://www.seedstarsworld.com/event/seedstars-kuwait-city-2019>

⁵⁸⁹ <http://cetworldseries.com/kuwait/>

⁵⁹⁰ <http://12.events/fintech/home/>

Lebanon

Lebanon suffers from economic and geopolitical problems with limited natural resources. Many Lebanese people have chosen to migrate and the country has a sizeable population of Palestinian and Syrian refugees. The political, cultural and religious structure are also unique leading to weak administrative structures and high corruption score. The country is looking for the tech scene as one of the pillars for economic prosperity and most stakeholders work toward this goal. For example, the central bank committed \$700m for the tech startup ecosystem⁵⁹¹ and the infrastructure is getting more attention (electricity and internet connectivity are two major issues). There are well educated and talented entrepreneurs, incubators, accelerators and investing agencies. Several regional and international events are being hosted in Lebanon. The country remains a small market with limited purchase power and with conflicting external interventions in the context of power plays and political stability. Lebanon used to be a financial hub but now only 50% of adults have bank accounts⁵⁹².

Despite the limitations, there are several enablers (especially in Beirut) and the Lebanese people have great business skills. Several successful startups have emerged and found markets in the region, especially Saudi Arabia and UAE, overcoming the local market confinement. The trending data economy area in Lebanon is data analytics with fintech, logistics, e-commerce, IoT, health and digital entertainment coming next.

Programs and Enablers:

Endeavor Lebanon⁵⁹³: part of the global Endeavor effort, helps in the launch, scaleup and invest in high impact entrepreneurship.

UK Lebanon Tech Hub⁵⁹⁴: provides accelerator and venture funds for Lebanese startups to grow internationally.

Startup331⁵⁹⁵: TV show discussing startups and innovation.

Beirut Digital District (BDD)⁵⁹⁶: project aiming to create a hub and a community for the digital and creative industries in Lebanon, connects service providers, startups, organizations, corporations and entrepreneurs. It also hosts relevant events.

StartechEUS⁵⁹⁷: company builders in the fintech industry, consists of a finhub, tech academy, innovation fund and governance management. The FinHub will be hosted by Beirut Digital District⁵⁹⁸.

Antwork⁵⁹⁹: coworking spaces with smart tools, services and community, hosts events.

⁵⁹¹ <https://www.linkedin.com/pulse/can-beirut-become-major-tech-hub-menaregion-hendrik-jandel/>

⁵⁹² <https://www.heritage.org/index/country/lebanon>

⁵⁹³ <https://endeavorlebanon.org/>

⁵⁹⁴ <https://www.uklehub.com/>

⁵⁹⁵ <https://twitter.com/Startup331>

⁵⁹⁶ <http://beirutdigitaldistrict.com/>

⁵⁹⁷ <http://startecheus.com/>

⁵⁹⁸ <https://magnitt.com/news/startecheus-levants-pioneering-fintech-hub>

⁵⁹⁹ <https://www.antwork.com/>

Pitchworthy⁶⁰⁰: helps startups and organizations grow through hubs, training and events, operates Startup Scouts⁶⁰¹ accelerator.

Berytech⁶⁰²: provides a dynamic environment for the creation and development of startups fostering innovation, technology and entrepreneurship, has 3 locations and an innovation factory program, initiated by St Joseph University.

Touch Innovation Program⁶⁰³: belongs to the telecom provider Touch, offers working space and labs for entrepreneurs.

MIT Enterprise Forum⁶⁰⁴: the pan Arab branch of the global MIT forum, supports and rewards the entrepreneurship ecosystem in the Arab world.

Darwazah Center for Innovation Management and Entrepreneurship⁶⁰⁵: startup accelerator at AUB, promotes innovation and women participation in tech.

Smart ESA⁶⁰⁶: accelerator and incubator, provides space and linkage between academics for ESA school of business and entrepreneurs.

Speed Accelerator⁶⁰⁷: tech accelerator based out of the Beirut Digital District that empowers startups through a 3-month mentorship-driven program, \$30,000 in funding, and network of mentors and partners.

Agrytech⁶⁰⁸: an accelerator to advance innovative ideas in the agri-food sector into successful businesses, operated by Berytech.

Flat6Labs Beirut⁶⁰⁹: a startup seed program and early stage fund designed to empower entrepreneurs to develop and scale, part of the regional family Flat6Labs.

Sqwirl Lab⁶¹⁰: startup studio that generates ideas, test them and turn successful ones into businesses.

Funding and Investing:

Berytech Fund⁶¹¹: targets start-ups in the acceleration phase with the ability to scale up.

IM Capital⁶¹²: Insure and Match Capital, helps investors and entrepreneurs, one of the active in MENA.

Seeders⁶¹³: angel investor entrepreneurship for early startup investments managed by IM Capital.

iSME Program⁶¹⁴: a US\$ 30 million initiative funded by the government of Lebanon through a

⁶⁰⁰ <https://www.pitchworthy.co/>

⁶⁰¹ <http://www.startupscouts.org/>

⁶⁰² <http://berytch.org/>

⁶⁰³ <http://tip.touch.com.lb/>

⁶⁰⁴ <https://mitefarab.org/>

⁶⁰⁵ <http://www.aub.edu.lb/osb/research/Darwazah/Pages/default.aspx>

⁶⁰⁶ <http://www.smart-esa.com/>

⁶⁰⁷ <https://speedaccelerator.com/>

⁶⁰⁸ <http://agrytech.org/>

⁶⁰⁹ <http://flat6labsbeirut.com/>

⁶¹⁰ <https://sqwirllab.com/>

⁶¹¹ <http://www.berytchfund.org/>

⁶¹² <http://www.im-capital.com/>

⁶¹³ <http://www.seeders.co/>

⁶¹⁴ <http://www.kafalatisme.com.lb>

loan from the World Bank to encourage the equity investment market to increase early stage investment.

Globivest⁶¹⁵: private investment firm with focus on innovative early stage startups.

Lebanese Women Angels Fund⁶¹⁶: launched by IM Capital, empowers women to become seed investors.

B&Y Venture Partners⁶¹⁷: invests in seed and growth stages.

Cedar Mundi Ventures⁶¹⁸: venture capital firm with interest in equity and offers networking and advice to tech entrepreneurs.

Leap Ventures⁶¹⁹: tech focused venture capital firm with operations in MENA and Europe.

Investment Development Authority⁶²⁰: national investment promotion agency that supports entrepreneurship in different sectors.

Saned Partners⁶²¹: venture capital fund, aiming to nurture early-stage companies in the MENA region.

Phoenician Funds⁶²²: focuses on seed and early stage companies operating in Fintech and other attractive sectors in MENA.

Angels Lebanon⁶²³: an initiative to build a network of angel investors and raise awareness about angel investment in Lebanese start-ups through a series of events and functions.

Startups and companies:

Advertising and Marketing

Vbout⁶²⁴: multi-channel marketing automation platform, has offices in USA, Lebanon and Australia.

Agritech

Quadra⁶²⁵: fruit sorting machine using AI and machine learning to control quality.

AI and Analytics/VR/AR

Neotic⁶²⁶: offers traders a customizable Artificial Intelligence engine for back testing, daily forecasting and automated trading.

NAR⁶²⁷: analyzes inspection data using drone software and technology for commercial and industrial applications with focus on oil leaks (headquarter listed in US).

⁶¹⁵ <https://www.globivest.com/>

⁶¹⁶ <https://www.lwaf.co/>

⁶¹⁷ <https://byvp.com/>

⁶¹⁸ <http://cedarmundi.com/>

⁶¹⁹ <https://leap.vc/>

⁶²⁰ <https://investinlebanon.gov.lb/>

⁶²¹ <http://sanedpartners.com/>

⁶²² <http://phoenicianfunds.com/>

⁶²³ <https://www.facebook.com/Angelslbnetwork/>

⁶²⁴ <https://www.vbout.com/>

⁶²⁵ <https://www.quadramachinery.com/>

⁶²⁶ <https://neotic.ai>

⁶²⁷ <http://www.nar.ai/>

Moodfit⁶²⁸: online interior design platform for home of office, uses AR for visualization. And connects owners with designers.

Shelvz⁶²⁹: cloud-based data collection and data driven, solution to optimize retail through analytics and visualization.

Generics⁶³⁰: uses image processing and 3D printing to optimize eartips for earphones.

Dox⁶³¹: helps electric vehicle fleet operators reduce inventory costs, battery waste, and sudden failures by providing a battery predictive analytics platform built using a machine learning algorithm, offices in USA and Lebanon.

Switch2vu⁶³²: virtual tour platform for real estate brokers offering analytics, visualization and communications.

Beam Bot⁶³³: AI powered sensor that control lighting based on activity in warehouses.

Yakshof⁶³⁴: media intelligence company offering media and social media monitoring and data / big data analysis.

Fig Bot Makers⁶³⁵: chatbot development platform that allows businesses to have a fully functioning AI powered chatbot within minutes without coding or conversational design knowledge.

Harold⁶³⁶: car classified ads transaction assistant (timing and pricing) powered by AI.

EduTech

Synkers⁶³⁷: academic tutoring and homework help platform that connects students with tutors, handles booking and payment (hosting is up to the two parties).

Kam Kalima⁶³⁸: online platform for teaching Arabic in schools.

Natakallam⁶³⁹: online language tutoring, cultural exchange and translation services delivered by displaced persons and refugees in Arabic, Persian, Spanish and French.

Cherpa⁶⁴⁰: online platform that teaches robotics, smart cities and future skills.

BlocRecs⁶⁴¹: uses blockchain for instant validation of educational records and reduces fraud.

Energy

Energy 24 (E24 Worldwide)⁶⁴²: provides 24/7 electricity without generators by effectively stocking and managing electrical power, has offices in USA and Europe.

Crowd Powered⁶⁴³: a platform to design and implement solar power at optimal conditions.

⁶²⁸ <https://www.moodfit.com>

⁶²⁹ <https://www.shelvz.com/>

⁶³⁰ <https://www.thisisgenerics.com/>

⁶³¹ <https://dox.tech/>

⁶³² <https://www.switch2vu.com>

⁶³³ <https://www.beambot.co/>

⁶³⁴ <https://www.yakshof.com/>

⁶³⁵ <https://www.figbots.ai/>

⁶³⁶ <https://www.helloharold.io/>

⁶³⁷ <https://www.synkers.com/>

⁶³⁸ <https://kamkalima.com/>

⁶³⁹ <https://natakallam.com/>

⁶⁴⁰ <https://learn.cherpa.io/>

⁶⁴¹ <https://www.blocrecs.com/>

⁶⁴² <https://www.e24solutions.com/>

⁶⁴³ <https://www.c-powered.com>

Fintech

Foo⁶⁴⁴: business-to-business fintech provider, enabling banks and startups to process their end customers' peer-to-peer payments, overseas remittance payments, bill payments, and loan applications.

Anachron Technologies⁶⁴⁵: digital wealth management provider, works with banks, financial institutions and insurance providers to utilize untapped markets through advisory service.

NymCard⁶⁴⁶: mobile payment platform, also active in UAE and UK.

PinPay⁶⁴⁷: mobile payment app enabling subscribers to easily settle their bills, purchase services and digital products.

Areeba⁶⁴⁸: fintech company that provides payment solutions for banks, governments and merchants in the Middle East (including mobile after partnering with WalletFactory⁶⁴⁹).

Card Switch⁶⁵⁰: a platform to manage credit cards transactions and limit fraud (mobile app and back end, no explicit mention of intelligence).

Rumman⁶⁵¹: micro investing platform (under development).

Food/Groceries Online

Onlivery⁶⁵²: food delivery platform from nearby restaurants (browse, order and pay).

Health and Fitness

Proximie⁶⁵³: telehealth platform for medical professionals, hospitals, universities, and surgical associations to share information through publications and live streams of surgeries (software as a service, uses augmented reality).

eTobb⁶⁵⁴: ask a health question, find a doctor, or book an appointment for free.

Spike⁶⁵⁵: mobile assistant platform for diabetics, monitors the patient's daily behavior and adds reminders and tips when needed about insulin, food, activity, etc.

CardioDiagnostics⁶⁵⁶: provides cloud based wireless monitoring solution for heart patients, established in USA with R&D in Lebanon.

Sohati⁶⁵⁷: online health care platform in Arabic linked to an online marketplace⁶⁵⁸.

CSP Healthcare⁶⁵⁹: medical records management and data analytics provider, has other branch in USA.

Drapp⁶⁶⁰: messaging platform that connects patients to their chosen doctors for formal and secured consultations on-the-go, integrates a virtual assistant (Drapp Bot).

⁶⁴⁴⁶⁴⁴ <https://foo.mobi/>

⁶⁴⁵ <https://www.anachrontech.com>

⁶⁴⁶ <https://www.nymcard.com/>

⁶⁴⁷ <http://www.pin-pay.com/>

⁶⁴⁸ <https://www.areeba.com/>

⁶⁴⁹ <https://www.walletfactory.com/>

⁶⁵⁰ <http://www.card-switch.com/>

⁶⁵¹ <http://www.rumman.co/>

⁶⁵² <http://www.onlivery.com>

⁶⁵³ <https://www.proximie.com/>

⁶⁵⁴ <http://www.etobb.com/>

⁶⁵⁵ <https://www.thespikeapp.com/>

⁶⁵⁶ <http://www.cardiodiagnostics.net/>

⁶⁵⁷ <https://www.sohati.com/>

⁶⁵⁸ <https://sohaticare.com/>

⁶⁵⁹ <http://csphealthcare.com>

⁶⁶⁰ <https://drapp.me/>

Sensio Air⁶⁶¹: healthcare analytics services that predicts asthma and allergy from air monitoring (under development).

Media and Content

Anghami⁶⁶²: music streaming and digital distribution platform.

Keakr⁶⁶³: social media platform around music, allows personal recording and sharing.

Loolia⁶⁶⁴: media (TV and magazine) and marketing platform for Arab women.

Mobsting⁶⁶⁵: platform to create, edit and share videos.

Sejaal⁶⁶⁶: Arabic content and publishing platform.

Fallound⁶⁶⁷: audio content recommender platform for commuters (based on time and duration).

Dal⁶⁶⁸: Digital Arabic language resources including spellchecker and smart learning.

Retail/Ecommerce

Seez⁶⁶⁹: peer to peer cars and automotive marketplace (discover, buy or sell) serving UAE, Kuwait and Saudi Arabia (Seez headquarter is now in UAE).

Maker Brane⁶⁷⁰: digital and physical platform (online makerspace) to design, print and sell items.

Lexyom⁶⁷¹: online marketplace for legal services.

Brate⁶⁷²: online marketplace that helps users find products, services and businesses locally.

Wanowi⁶⁷³: online auction platform to buy and sell clothing, shoes and accessories, in Lebanon, UAE and UK.

Markit⁶⁷⁴: online supermarket allowing customers to browse an app, shop and pick a delivery time.

Services and Management

NudgeLebanon⁶⁷⁵: a non-profit initiative applying behavioral insight to policy challenges, also runs consumer citizen lab.

Scriptr⁶⁷⁶: an internet of things (IoT) application platform that allows developers and integrators to build elegant IoT applications and solves the interoperability issues between Enterprise applications and IoT-based service providers. [website lists NY as contact address, had investment from MEVP].

Jaleesa⁶⁷⁷: babysitter booking platform connecting families and sitters.

Feedeed⁶⁷⁸: on demand expert creative services marketplace connecting businesses and

⁶⁶¹ <https://www.wlab.io/>

⁶⁶² <https://www.anghami.com>

⁶⁶³ <https://www.keakr.com/>

⁶⁶⁴ <https://loolia.com>

⁶⁶⁵ <http://www.mobsting.com/>

⁶⁶⁶ <http://sejaal.com/>

⁶⁶⁷ <https://fallound.com/>

⁶⁶⁸ <https://dalr.ai/>

⁶⁶⁹ <https://seez.co/>

⁶⁷⁰ <http://beta.makerbrane.com/>

⁶⁷¹ <https://lexyom.com/>

⁶⁷² <https://brate.com/>

⁶⁷³ <https://wanowi.com/>

⁶⁷⁴ <https://www.markitworld.com/>

⁶⁷⁵ <https://nudgelebanon.org>

⁶⁷⁶ <https://www.scriptr.io/>

⁶⁷⁷ <https://www.jaleesa.co/>

⁶⁷⁸ <https://feedeed.com/>

professionals.

SETS⁶⁷⁹: urban, transport and environmental planning and management service provider, offices in Lebanon, Jordan, Saudi Arabia, Egypt and outside MENA.

Arab Development Portal⁶⁸⁰: a not for profit platform by UNDP and partners offering data and knowledge on development issues in the region.

BSynchro⁶⁸¹: developers of data enabled automated solutions like insurance and digital marketing.

Ecomz⁶⁸²: ecommerce cloud website builder with logistics.

Dermandar⁶⁸³: digital image technology (360°, stitching, transform).

Mom Advice⁶⁸⁴: online platform that provides mothers with counselors to find solutions for the problems they are facing with their children.

Cloud Sale⁶⁸⁵: procurement platform for the hospitality sector (wholesale of non-food items from suppliers, including delivery).

My Say⁶⁸⁶: share opinions and polls with others and earn money or prizes.

Sports and Entertainment

Falafel Games⁶⁸⁷: developer and publisher of strategy games and social interactions, offices in Lebanon and China.

Telecom and Mobile Services

Nymgo⁶⁸⁸: provides cheap international calls via a mobile app using VOIP.

InMobiles⁶⁸⁹: provides data-enabled mobile solutions to telecom providers.

Transportation and Logistics

Eddress⁶⁹⁰: enables users to, create, share, and find digital addresses, as well as connect with businesses to share *eddresses* (6-character code per user) or current location.

Carpolo⁶⁹¹: smart carpooling platform with a gamified points reward system and analytics tools to promote carpooling for communities.

Events:

Digital Arabia Network road show⁶⁹²: Beirut, Cairo, Tunis, Morocco, Amman – Feb – April, 2019.

Women in data Science 2019⁶⁹³: held at American University of Beirut in partnership with Stanford University, March 1, 2019.

⁶⁷⁹ <https://setsintl.net/>

⁶⁸⁰ <http://arabdevelopmentportal.com/>

⁶⁸¹ <https://www.bsynchro.com/>

⁶⁸² <https://www.ecomz.com/>

⁶⁸³ <http://www.dermandar.com>

⁶⁸⁴ <http://www.momadviceapp.com/>

⁶⁸⁵ <https://www.cloudsale.io>

⁶⁸⁶ <https://www.mysayapp.com/>

⁶⁸⁷ <https://www.falafel-games.com/>

⁶⁸⁸ <https://www.nymgo.com/>

⁶⁸⁹ <https://www.inmobiles.net/>

⁶⁹⁰ <https://eddress.co/>

⁶⁹¹ <https://www.carpolo.co/>

⁶⁹² <https://digitalarabia.network/>

⁶⁹³ <https://www.aub.edu.lb/osb/wids19/Pages/default.aspx>

Artificial Intelligence on Security and Defense⁶⁹⁴: organized by Lebanese army, March 26 – 29, 2019.

Arab Startup Competition⁶⁹⁵: celebrating innovation and technology, by MIT Enterprise Forum⁶⁹⁶, March 29, 2019.

Telecom Review Summit 12th Edition⁶⁹⁷: themed smart networking, March 29, 2019. Included a panel on fintech and digital payments solutions.

BX Arabia 2019⁶⁹⁸: The Arab Summit on Behavioral Economics and Nudging, included topics on financial inclusion, 4th industrial revolution and ethics, April 12 – 13, 2019.

Women Leaders and Health⁶⁹⁹: organized by the Arab International Women's Forum (AIWF), the American University of Beirut (AUB) and the University of Massachusetts Medical School (UMMS). Discusses key challenges and opportunities for women's leadership in medical education, healthcare delivery, STEM, research and innovation. April 16, 2019

ArabNet Beirut⁷⁰⁰: celebrating 10 years of tech and innovation, June 12 – 13, 2019.

Seedstars⁷⁰¹: global startup competition tour, June 19, 2019.

Lebanon First AI Bootcamp⁷⁰²: classes and projects in computer vision, NLP, recommendation systems and time series analysis. August 5 – 10, 2019.

⁶⁹⁴ <https://aisd.webs.com/>

⁶⁹⁵ <https://www.mitarabcompetition.com/>

⁶⁹⁶ <https://mitefarab.org/>

⁶⁹⁷ <https://www.telecomreview.com/summit/register-telecom-review-summit-2019-12th-edition/>

⁶⁹⁸ <https://nudgelebanon.org/bxarabia2019/>

⁶⁹⁹ <https://www.eventbrite.co.uk/e/women-leaders-health-registration-53970512255>

⁷⁰⁰ <https://www.arabnet.me/english/conference/beirut>

⁷⁰¹ <https://www.seedstarsworld.com/event/seedstars-beirut-2019>

⁷⁰² <https://bootcamp.beirutai.org/register>

Morocco

Rightly named Maghreb, Morocco is the last MENA country to the west and the closest to Europe. Arabic and Amazigh are official languages but most people in the business community speak French. The country has a diversified economy including agriculture, mining, tourism, logistics and ICT. Morocco also has the largest solar energy project and offers a friendly business environment. It is one of the very few Arab members of the Open Government Initiative. The startup ecosystem is strong although individual and corporate taxes are relatively high⁷⁰³ (up to 38% and 30% respectively). As part of government economic reforms and entrepreneur support, it is now easy to start and close a business and there are various programs and enablers for startups including workspace, incubation and funding. Morocco has some political issues related to earlier wave of Arab Spring and the dispute over Western Sahara but that does not seem to affect its business climate with access to African, European and Gulf markets.

Startups in Morocco focus on e-commerce, logistics, digital health, education and energy (with IoT). This trend is likely to continue with a potential growth in fintech and agritech.

Programs and Enablers:

Endeavor Morocco⁷⁰⁴: provides entrepreneurs a range of services including mentoring, access to key networks and introductions to sources of smart capital.

Enactus⁷⁰⁵: impact accelerator for students seeking to become social entrepreneurs.

Dare Inc⁷⁰⁶: an accelerator program offering coaching, co-creation and funding.

Impact Lab⁷⁰⁷: part of the Numa⁷⁰⁸ program, provides acceleration and funding services for tech startups.

Le Maroc Digital⁷⁰⁹: a network of entrepreneurs that raises awareness of the economic and social potential of digital tech.

Menara Cluster⁷¹⁰: an association supporting startups in agri-foods and cosmetics industry.

CE3M⁷¹¹: a non-profit association promoting innovation in electronics.

CFCIM⁷¹²: startup support program offering space, mentorship and funding.

Tiny Tetouan⁷¹³: co-working space and facilities provider (paid) in the city of Tetouan.

AFEM⁷¹⁴: Association of Women Entrepreneurs of Morocco, supports women in the creation and development of their business.

⁷⁰³ <https://www.heritage.org/index/country/morocco>

⁷⁰⁴ <https://endeavor.org/location/morocco/>

⁷⁰⁵ <https://www.enactus-morocco.org/>

⁷⁰⁶ <http://dareinc.mcise.org/>

⁷⁰⁷ <http://www.impactlab.africa/en>

⁷⁰⁸ <https://www.numa.co/>

⁷⁰⁹ <http://www.lemarocdigital.com/>

⁷¹⁰ <http://www.clustermenara.com>

⁷¹¹ <https://ce3m.ma>

⁷¹² <http://www.cfcim.org/kluster>

⁷¹³ <http://www.coworking-tetouan.com/>

⁷¹⁴ <http://www.afem.ma/>

H Seven⁷¹⁵: startup hub for entrepreneurs, investors and partners with focus on Africa.
 Morocco Incubation and Spin-Off Network (RMIE)⁷¹⁶: promotes the creation of innovative companies through incubation and / or spin-offs through awareness and training.
 IOS⁷¹⁷: Interface Office Space, provides a collaborative working space in Casablanca.
 Sun Desk⁷¹⁸: co-working space and community in the village of Taghazout for students and entrepreneurs.
 The Spot⁷¹⁹: community center serving startups and entrepreneurs in Marrakech.
 7ay⁷²⁰: collaborative workspace for entrepreneurs in Rabat.
 Creative Lab⁷²¹: provides coworking space, training and advice.
 Moroccan Center for Innovation and Social Entrepreneurship (MCISE)⁷²²: a platform for social change and innovation in Morocco, provides coworking space and incubation.
 Emerging Business Factory⁷²³: industrial style coworking space for entrepreneurs to work and network.
 Startup Morocco⁷²⁴: non-profit organization that promotes entrepreneurship culture.
 Sahara Lab⁷²⁵: educational and media NGO, offers hackerspace for art, design and film activities.
 New Work Lab⁷²⁶: empowering environment for startups and programs for entrepreneurs in Casablanca.
 Bidaya⁷²⁷: supporting startups innovation through incubation and funding.
 Orange Corners⁷²⁸: Dutch initiative in Africa and Middle East to encourage innovation and entrepreneurship (workspace, mentorship, training and networking).
 Kowork⁷²⁹: coworking space in Casablanca with additional services, partnered with Seedstars⁷³⁰ in May, 2019 to host a startup hub.

Funding and Investing:

Outlierz Ventures⁷³¹: seed investment firm providing smart capital to tech startups in Africa.
 CEED Morocco⁷³²: supports building an entrepreneurship ecosystem and runs SEAF investment group.

⁷¹⁵ <https://www.hseven.co/>

⁷¹⁶ <http://www.rmie.ma/>

⁷¹⁷ <https://www.iosmaroc.ma>

⁷¹⁸ <https://www.sun-desk.com/>

⁷¹⁹ <http://thespot.ma/>

⁷²⁰ <http://7ay.ma/>

⁷²¹ <http://creativelab.ma/>

⁷²² <http://www.mcise.org>

⁷²³ <http://www.emergingbusinessfactory.com/>

⁷²⁴ <https://startupmaroc.org/>

⁷²⁵ <https://www.saharalab.org>

⁷²⁶ <http://www.newworklab.com/>

⁷²⁷ <https://www.bidaya.io/>

⁷²⁸ <https://www.orangecorners.co.ma/>

⁷²⁹ <http://www.kowork.ma/>

⁷³⁰ <https://www.seedstars.com/magazine/casablanca-seedstars-announces-its-first-hub-morocco-partnership-kowork/>

⁷³¹ <http://www.outlierz.co/>

⁷³² <http://ceed-morocco.org/>

Maroc Numeric Fund⁷³³: invests in startups in new technology sector.

Blue Mango Capital⁷³⁴: invests in telecom, healthcare, Internet infrastructure and green tech.

Souk At-Tanmia⁷³⁵: an economic development initiative that provides financial services and support to Moroccan entrepreneurs.

Startups and companies:

Advertising and Marketing

Hmizate⁷³⁶: online platform for deals and discounts, requires minimum participants to validate a deal.

Soukaffaires⁷³⁷: classified ads platform covering different categories.

OhMyLead⁷³⁸: generates, tracks and converts business leads into customers.

AI and Analytics/VR/AR

InDataCore⁷³⁹: big data, business intelligence and data science consulting services, offers SkyAnalytics suite.

Edutech

Education Media⁷⁴⁰: online educational and advisory content provider facilitating high school to college transition including lessons, questions and exams.

Education Media Company (EMC)⁷⁴¹: online digital content creator and distributor (curricula and guidance) like 9rayti⁷⁴².

Energy

Elum Energy⁷⁴³: provides energy management solutions, uses forecast and optimization algorithms, primary contact in France.

Meolink⁷⁴⁴: specialized in energy performance and intelligence in buildings using machine and device communications.

Fintech

Peaqock Financials⁷⁴⁵: data management, integration, visualization and analytics.

⁷³³ <https://mnf.ma/>

⁷³⁴ <http://www.bluemango-capital.com>

⁷³⁵ <https://thearabweekly.com/african-development-bank-introduces-souk-al-tanmia-morocco>

⁷³⁶ <http://www.hmizate.ma/>

⁷³⁷ <http://www.soukaffaires.ma/>

⁷³⁸ <http://wp.ohmylead.com/>

⁷³⁹ <http://www.indatacore.com/>

⁷⁴⁰ <http://www.educationmedia.ma/>

⁷⁴¹ <http://www.educationmedia.ma/>

⁷⁴² <https://www.9rayti.com/>

⁷⁴³ <https://elum-energy.com>

⁷⁴⁴ <http://www.meolink.com/>

⁷⁴⁵ <http://www.peaqock.com/>

Food/Groceries Online

Market+⁷⁴⁶: online grocery store, offers promotions and same day delivery.

Health and Fitness

DabaDoc⁷⁴⁷: online doctor appointments platform.

Media and Content

eBuuz⁷⁴⁸: search engine for news, employment and other content.

Retail/Ecommerce

WaystoCap⁷⁴⁹: business to business marketplace for Africa.

Jumia⁷⁵⁰: e-commerce platform that offers a wide selection of fashion, beauty, household appliances, and high-tech products. Operates in Morocco, Egypt⁷⁵¹ (original home), Tunisia⁷⁵² and other African countries (headquartered in Nigeria).

Livremoi⁷⁵³: online bookstore with French, English and Moroccan books, offers local payment and delivery options.

Hmizate Mall⁷⁵⁴: online shopping and sales platform, handles payments and delivery, part of Hmizate.

Services and Management

Clean City⁷⁵⁵: a social mobile platform that allows participants to report issues like polluted areas for officials to intervene and keep cities clean.

Mubawwab⁷⁵⁶: real estate portal (acquired by Dubai-based Emerging Markets Property Group).

Mubawwab acquired Jumia House property portal (Morocco, Algeria and Tunisia) in June, 2019.

Manageo⁷⁵⁷: cloud-based business management platform for startups and small businesses.

Econseilbook⁷⁵⁸: online experts and services platform in healthcare, law and translation.

Vendo⁷⁵⁹: ecommerce search engine for deals and discounts from various providers.

Nextronic⁷⁶⁰: provides IoT systems design and manufacturing of prototypes and electronic products in small to medium series.

Ajiel⁷⁶¹: online cloud-based payroll service, administration and analytics.

Aliphia⁷⁶²: online cloud-based invoicing and accounting service for small businesses and startups in the MENA region.

⁷⁴⁶ <https://www.marketplus.ma/>

⁷⁴⁷ <https://www.dabadoc.com>

⁷⁴⁸ <https://www.ebuuz.com/>

⁷⁴⁹ <https://www.waystocap.com>

⁷⁵⁰ <https://www.jumia.ma>

⁷⁵¹ <https://www.jumia.com.eg/>

⁷⁵² <https://www.jumia.com.tn/>

⁷⁵³ <https://livremoi.ma/>

⁷⁵⁴ <http://mall.hmizate.ma/>

⁷⁵⁵ <https://cleancity.social/>

⁷⁵⁶ <https://www.mubawab.ma/>

⁷⁵⁷ <https://manageo.io/>

⁷⁵⁸ <https://www.econseilbook.com>

⁷⁵⁹ <https://vendo.ma/>

⁷⁶⁰ <http://nextronic.io/>

⁷⁶¹ <https://www.ajiel.com/>

⁷⁶² <https://aliphia.com>

Infomenio⁷⁶³: research and business insights provider with offices across MENA and outside, has relevant reports and infographs.

Sports and Entertainment

Elbotola⁷⁶⁴: esports portal covering local, regional and international teams' news and events.

Transportation and Logistics

Ma Navette⁷⁶⁵: cab ordering service (car and driver).

Lagare.ma⁷⁶⁶: smart road transportation platform in Morocco and to several international destinations.

Events:

Agritech Hackathon⁷⁶⁷: creation of ideas for agritech innovative startups with prizes. April 16 – 18, 2019.

IndabaX Morocco⁷⁶⁸: locally organized version of Indaba deep learning event, April 29 – 30, 2019.

IDC CIO Summit⁷⁶⁹: AI, robotics, cybersecurity and digital leadership, Casablanca, June 20, 2019.

Seedstars⁷⁷⁰: global startup competition tour, Casablanca, July 17, 2019.

IEEE International Smart Cities Conference⁷⁷¹: a gathering of scholars, citizens, policymakers, administrators, infrastructure operators, industry representatives, economists, sociologists, and academicians, Casablanca, 14 – 17 October, 2019.

⁷⁶³ <https://infomineo.com>

⁷⁶⁴ <https://www.elbotola.com/>

⁷⁶⁵ <http://www.ma-navette.com/en>

⁷⁶⁶ <https://www.lagare.ma>

⁷⁶⁷ <https://www.eventbrite.com/e/billets-agritech-hackathon-by-credit-agricole-du-maroc-59155162684>

⁷⁶⁸ <https://indabaxmorocco.github.io/index.html>

⁷⁶⁹ <https://idcciosummit.com/casablanca/>

⁷⁷⁰ <https://www.seedstarsworld.com/event/seedstars-casablanca-2019>

⁷⁷¹ https://conferences.ieee.org/conferences_events/conferences/conferencedetails/46665

Oman

Like the rest of GCC countries, Oman's economy is largely driven by oil and gas with a pressure to diversify and there are already government efforts in this direction including Oman2040⁷⁷² vision of "inclusive education, lifelong learning, and scientific research that lead to a knowledge society and competitive national talents" and the enacting of foreign investment and bankruptcy legislation. There are no individual income taxes in Oman and corporate tax is at 12%⁷⁷³. Although Oman's startup scene is relatively new, there are several programs, initiatives and enablers for entrepreneurs. Oman also embraced Open Data and provides various datasets. The Omani data startups have direct access to the GCC markets. Data analytics, IoT and e-commerce are the most popular with the possibility of fintech picking up.

Programs and Enablers:

Spark Labs⁷⁷⁴: an energy tech accelerator focusing on the future of energy startups and funding.

Madayn⁷⁷⁵: public establishment of industrial estates, manages industrial cities and runs entrepreneurship initiatives like National Business Center⁷⁷⁶ (NBC) and Shumookh investing.

e.Oman⁷⁷⁷: an incubator and accelerator (Sas or foundation) for ICT startups, first cohort in June, 2019⁷⁷⁸.

Bizhub⁷⁷⁹: business accelerator, community, events and networking for entrepreneurs.

Al Rudha⁷⁸⁰: coworking space, workshops and events, programs and services.

Funding and Investing:

IDO Investments⁷⁸¹: venture capital firm, invests in both innovative startups and established companies.

Phaze Ventures⁷⁸²: a venture capital firm and innovation platform.

Oman Technology Fund⁷⁸³: provides incubation (Techween Incubator⁷⁸⁴), acceleration (Wadi

⁷⁷² <https://www.2040.om/en/>

⁷⁷³ <https://www.heritage.org/index/country/oman>

⁷⁷⁴ <https://www.sparklabs.energy/>

⁷⁷⁵ <http://madayn.om>

⁷⁷⁶ <http://madayn.om/sites/NBC/EN/Pages/Home.aspx>

⁷⁷⁷ <https://www.ita.gov.om/ITAPortal/ITA/default.aspx>

⁷⁷⁸ <https://magnitt.com/news/information-technology-authority-ita-announces-first-sas-based-accelerator-program-mena-region>

⁷⁷⁹ <http://www.bizhub-me.com/>

⁷⁸⁰ <https://www.alrudha.com/>

⁷⁸¹ <http://www.ido.om>

⁷⁸² <https://www.phazeventures.com/>

⁷⁸³ <https://www.otf.om/>

⁷⁸⁴ <https://www.otf.om/techween/>

Accelerator⁷⁸⁵) and venture capital (Jasoor Ventures⁷⁸⁶) program. Techween invested in 10 startups⁷⁸⁷ from Oman and abroad.

Startups and companies:

AI and Analytics/VR/AR

Innovateq⁷⁸⁸: digital transformation company in the field of petroleum, uses smart algorithms to transform data into actionable insights.

Datalytics24⁷⁸⁹: online monitoring and analytics of web content and social media, listed in the Netherland on website.

HAITCH.D⁷⁹⁰: industrial and commercial drone mapping using AI and analytics.

Careers

TBD⁷⁹¹: provides work opportunities or students by connecting them to short term employment.

Edutech

EMushrif⁷⁹²: brings IoT technology to school buses to enable automatic attendance marking, visual child check system and detection system to ensure no child is left on the school bus, parents can track children through mobile app.

Food/Groceries Online

Akeed⁷⁹³: food ordering and delivery platform.

Retail/Ecommerce

MarkeetEx⁷⁹⁴: online market for households in Muscat, home delivery and payment options including COD.

Usalak⁷⁹⁵: online shopping local platform (not operational yet), including domestic delivery.

Hadaya⁷⁹⁶: online marketplace for gifts, flowers and cakes delivered to customer.

Services and Management

Rihal⁷⁹⁷: big data and information management including data scraping, verification, cleansing and transformation.

Tayyar⁷⁹⁸: IoT safety systems (Sa'aq) to take down unauthorized drones.

⁷⁸⁵ https://twitter.com/OTF_WADI

⁷⁸⁶ https://twitter.com/OTF_JASOOR

⁷⁸⁷ <http://www.omanobserver.om/techween-hosts-investors-day-today-for-10-tech-start-ups/>

⁷⁸⁸ <https://www.innovateq.digital/>

⁷⁸⁹ <https://www.datalytics24.com>

⁷⁹⁰ <https://www.haitech-d.com/>

⁷⁹¹ <http://mytbd.me/>

⁷⁹² <https://emushrif.om/>

⁷⁹³ <https://akeedapp.com/>

⁷⁹⁴ <https://markeetex.com/>

⁷⁹⁵ <http://www.usalak.com/>

⁷⁹⁶ <https://hadaya.om>

⁷⁹⁷ <https://www.rihal.om/>

⁷⁹⁸ <https://tayyars.om/>

Innotech⁷⁹⁹: specialized in prototyping for entrepreneurs, educational courses on 3D printing, programming and VR applications.

Telecom and Mobile Services

TelyPay⁸⁰⁰: mobile payment platform (not fully operational).

Transportation and Logistics

OTaxi⁸⁰¹: on demand taxi hailing platform and app, handles locations and payments.

Mandoob⁸⁰²: delivery mediator platform operated by delivery captains on behalf of businesses.

Events:

Smart Cities and Industry 4.0 Summit⁸⁰³: themed AI and IoT for advancing the national economy, March 18 – 19, 2019.

Comex 2019⁸⁰⁴: technology show focused on data and applications, March 17 – 19, 2019.

Oman Open Data Competition⁸⁰⁵: open competition to solve problems with open data, organized by e.Oman, April 21 – 22, 2019.

MENA Innovation⁸⁰⁶: attended by government, education, tech and industrial leaders, Muscat, 16 – 18 September, 2019.

⁷⁹⁹ <http://innotech.om/>

⁸⁰⁰ <https://telypay.com>

⁸⁰¹ <http://otaxi.om>

⁸⁰² <https://mandoob.om>

⁸⁰³ <http://smartcityoman.com/en/>

⁸⁰⁴ <https://comex.om/2019/en/>

⁸⁰⁵ <https://t.co/g7U6JEk8hv>

⁸⁰⁶ <https://mena-innovation.com/2019/>

Palestine

A country still forming, and practically under occupation, Palestine has one of the most difficult startup ecosystems. The market is even physically fragmented, captive and limited in size and purchasing power. In the absence of natural resources, control over trade and movement, the human capital is the only remaining resource and with recent levels of unemployment exceeding 30%, entrepreneurship is becoming popular among young people. Small and medium enterprises form around 95% of the economy and several startups are actually just small businesses. There are a few initiatives, programs, activities and ecosystem enablers by government (including a minister of 'entrepreneurship and empowerment' in the most recent cabinet – April, 2019), the private sector and NGOs (or donors). Palestine Polytechnic University⁸⁰⁷ is also known for its entrepreneurship strategic directions. Most startups looking for scaling seek outside markets especially the gulf region. There is a few years old draft law on the freedom of information that is not approved yet and the recently approved law on electronic crimes was criticized as limiting freedom of thought. The government provides some incentives to the ICT sector including tax deductions and there are some efforts to work on opening government data⁸⁰⁸. Above all, the legislative process has been halted for several years due to differences between political powers in Gaza and the West Bank.

In Palestine, especially in Gaza Strip, startups die quickly and more frequently due to lack of funds, the siege, small isolated market and low income. Several Palestinian startups, even those that got generous investments failed to scale or penetrate external markets.

According to a recent ArabNet report⁸⁰⁹, 38% of funded startups failed (highest in the region, compared to regional average of 14% over 6 years period).

Outsourcing work and small online shops are also popular among entrepreneurs in Palestine and some incubators run as freelance hubs. Business infrastructure is still weak in Palestine and payments (local and cross border) is one of the major problems although there are attempts to overcome this issue by local banks (no central bank in Palestine and a monetary authority is the regulator) and mobile carriers. Another major issue is assistance with different agendas and entrepreneurs hopping from one program to another where the need for a success story is a basic program indicator.

Data startups in Palestine work in all areas: as back office for other startups (including Israeli ones), in fintech, digital health, e-commerce, digital entertainment and logistics. Possible growth areas include content creation, fintech, education, data services (acquisition, annotation, analysis and visualization), data journalism and agritech. Data powered or enabled businesses are most suited in the Palestinian case for the time being.

Research Findings Validation in Palestine:

During the months of October and November (2019), a series of interviews were conducted

⁸⁰⁷ <https://ppu.edu/>

⁸⁰⁸ In collaboration with Leaders Organization (private communication and involvement in technical work)

⁸⁰⁹ <https://www.arabnet.me/english/business-intelligence/digital-investment-2019>

to validate the research findings in Palestine. Most interviews were conducted face to face (the author attended four and listened to audio recordings or read answers of the rest) and a few were done electronically. A list of interviewees and questions can be found in annexes 4 and 5. Four different sets of questions were prepared for interviewees in four stakeholders' groups: data experts & influencers, incubators & accelerators, entrepreneurs & startups, and investors & funders. The interviews were followed up with a local workshop on December 9, 2019.

Respondents varied in their overall knowledge, awareness and understanding of the data economy (ecosystem and potential). There were different (even conflicting) views in some details (ex. is there a data economy in Palestine, ethical concerns). Overall, respondents agree to a great extent on the following **main points**:

- Palestine has a captive economy and limited market making it difficult for startups to validate ideas and gain customers
- data economy in Palestine is still at its infancy with significant gaps and limited efforts from all stakeholders
- The educational system (school and college) is inferior and irrelevant to entrepreneurship and data economy (except those who studies abroad)
- There is a considerable interest in startups and entrepreneurship with limited experience and support (incubation intake rate is around 10% with similar success rate)
- The legal and regulatory framework does not support or cover the data economy causing founders to explore external options for registration and operation
- There is a major lack of awareness in the data economy field (potential, tools, capacity, ..)
- Data literacy is key and should be taught to all disciplines and stages (major gap)
- The data infrastructure is very weak (no datasets available despite data existence and related logistics are not mature)
- Lack of original ideas and attempts to copy or duplicate other existing ideas is noticeable
- The public sector (in addition to private sector and NGOs) are not supportive to the data economy effort in terms of leadership, policies and incentives
- There are conflicting (or competing) individual efforts and agendas, most interventions are project based with no sustainability and absence of collaboration and coordination.
- Investment in the data economy is limited (investors favor traditional industries and lack knowledge in the data economy field), gaps between funding rounds kills startups
- Startups in this field lack soft (including sales and marketing) and hard (technical) skills and talents in a high competitive regional market
- Palestine can catch up and play a significant role if gaps are bridged. Data services (collection and analytics) are likely to be the strong point.
- Women participation in the data economy is limited both for startup founders and those who work in startups (with exceptions, and women seem to be a little more enthusiastic).
- A considerable part of funding is spent on activities and studies with limited impact
- There is a data and information gap on startups and performance (for investors) and a funding gap for startups between fund raising stages.

- Research and development in data science is mostly absent and research is done mainly for academic promotion purposes.
- Very few success stories and large number of failures and bad experiences (mainly driven by inferior ecosystem and lack of national agendas driven initiatives)
- Agritech startups and incubators are growing but suffer from the same inferior ecosystem and culture (small projects seem to work out)
- There is some efforts in the social entrepreneurship activities but they suffer equally from the ecosystem
- Due to inferior ecosystem (ex. opening and closing, logistics and infrastructure), startups may even register outside
- There is a considerable perception that entrepreneurship work in Palestine is more of a fanfare (short interventions and media shows without follow up, some incubators use this 'business model')
- Self learning culture is weak and should be promoted further
- CRM is one action area for data services in Palestine (consumer trends)
- New generation enablers like techno parks (first under development with Birzeit University), business hubs and specialized incubators may offer an advanced ecosystem for research, collaboration and commercialization of data and IT products and services.
- Startup teams play a major role in the success and failure, considered key for investors and incubators
- Exposure to outside activities and ideas is essential but limited due to restriction on movement
- In addition to the small size of the local market, it is divided into several segments (further fragmentation)
- Palestinian startups in Jerusalem suffer from higher business costs and differences in the market characteristics, high competition and jurisdictions, support from Palestinian side is limited
- Data on the informal sector is both missing and hard to find or collect
- Entrepreneurs are generally advised to be patient and modest, care about their team and focus on product validation, soft skills, checks and balances

Some highlights:

- * Palestine Information Technology Association chair, Saeed Zeidan, suggested the formation of a data economy consortium as a quick remedy. The consortium will draft strategic, legal and regulatory frameworks to kickstart serious data work.
- * Bethlehem Business Incubator Manager, Fayrouz Khoury suggested the creation of a repository to host data, studies and other resources on entrepreneurship and startups.
- * Alpha International CEO, Faisal Awartani, thinks that science majors – especially math and statistics – can be trained in data science.
- * Transcend CEO, Thaer Ayase, predicts the decline of traditional higher education systems in favor of personalized online instruction driven by AI.
- * Ibtikar Fund's Managing Director, Habib Hazan, suggests the formation of 'innovation

liaison commission' to coordinate efforts, and to break the academic and industrial silos.

* PCBS's deputy assistant for administrative, financial and IT affairs, Sufian Abu Harb highlighted the data science initiative⁸¹⁰ and the high demand for data science training (around 2000 registered for training).

* Cerati founder, Yafa AbdulRahim proposed the formation of a central entity to regulate incubators and accelerators and look after entrepreneurs and startups.

Local Workshop: On December 9, 2019, a workshop was organized to present the findings of the report and engage the stakeholders with a structured discussion on action items. Around 30 participants attended the workshop representing academia, public and private sectors as well as NGOs and media, some of whom were among the interviewees. After presenting the report findings, the audience asked questions and provided comments on the nature of data economy and the need for data, legal and regulatory frameworks. In the second part of the workshop, participants were split in three groups related to the pillars of the ecosystem (infrastructure, human resources and policies). Each group brainstormed about priorities of their pillar and presented their findings in brief. Participants showed interest in future plans and activities, and a series of planned public awareness activities were announced.

Programs and Enablers:

ICTI⁸¹¹: Palestine's Information and Communications Technology Incubator, a non-profit ICT incubator.

Bethlehem Business Incubator⁸¹²: provides training services, workshops, mentorship and networking for entrepreneurs.

BTI Incubator⁸¹³: Business and Technology Incubator at the Islamic University of Gaza.

uMake⁸¹⁴: a coworking space for early startups and entrepreneurs, holds events in partnership with startup enablers especially Founder Institute⁸¹⁵.

Work Factory⁸¹⁶: co-working space in Ramallah offering workspace, services and community events.

Sidekick⁸¹⁷: co-working space (shared and private) in Ramallah with services and events.

UCAS Technology Incubator⁸¹⁸: Gaza based, offers incubation. Acceleration, mentorship and networking.

JEST⁸¹⁹: Jerusalem based, offers coworking space and accelerator services to entrepreneurs.

⁸¹⁰ <http://www.datascience.ps/>

⁸¹¹ <https://picti.ps/>

⁸¹² <https://www.bbi.ps/>

⁸¹³ https://twitter.com/iug_bti

⁸¹⁴ <http://umake.ps/>

⁸¹⁵ <https://fi.co/>

⁸¹⁶ <https://www.facebook.com/workfactory/>

⁸¹⁷ <http://sidekick.ps/>

⁸¹⁸ <http://ucasti.ps/>

⁸¹⁹ <http://www.jesthub.org/>

Leaders Fast Forward Accelerator⁸²⁰: startup accelerator program for early ideas moving to startup phase. Leaders runs other programs, including seed funds, for startups on project basis.

Flow⁸²¹: provides acceleration and networking services to entrepreneurs.

Agribusiness Accelerator⁸²²: provides training, incubation and seed funding for agritech and agricultural projects.

Global Shapers Palestine hubs⁸²³: there are hubs in Jerusalem, Ramallah, Nablus and Gaza working as community networks.

Gaza Sky Geeks⁸²⁴: a technology hub by Mercy Corps, offers training, workspace and facilitates freelance and outsourcing work.

Nextep⁸²⁵: non-profit organization matching global mentors with Palestinian startups in Gaza.

Build Palestine⁸²⁶: connects supporters around the world with opportunities to make an impact in the Palestinian society.

Ibdaa⁸²⁷: helps university students in developing their innovative entrepreneurial projects in the ICT field, joint effort at 4 universities: An-Najah, Alquds, PPU and AAUP.

Higher Council for Innovation and Excellence⁸²⁸: provides incubation, acceleration, networking and investment, also runs contests with rewards and organizes events.

Techno Park Palestine⁸²⁹: established on Birzeit University campus, provides workspace, training and networking for startups and small businesses.

Injaz Palestine⁸³⁰: focuses on involving the youth in the economy, has entrepreneurship program for students.

Palestinian Businesswomen's Association (Asala)⁸³¹: provides advocacy, capacity building and networking for women entrepreneurs and business owners.

Business Women Forum⁸³²: supports women in business including young women entrepreneurs through the Ubader initiative.

Techwomen Palestine⁸³³: an affiliate of the parent organization⁸³⁴ that organizes events to promote the role of women in technology.

Palestinian Incubator for Energy⁸³⁵: founded by Jerusalem Electricity Company and HCIE to

⁸²⁰ <https://www.leaders.ps/the-fastforward-accelerator-program/>

⁸²¹ <https://flow.ps/>

⁸²² <http://agbusinesshub.ps/en>

⁸²³ <https://www.globalshapers.org/hubs/>

⁸²⁴ <https://gazaskygeeks.com>

⁸²⁵ <https://www.nextepro.org>

⁸²⁶ <https://www.buildpalestine.com>

⁸²⁷ <http://www.ibdaa.ps>

⁸²⁸ <http://hcie.ps/>

⁸²⁹ <http://technopark.ps/>

⁸³⁰ <http://www.injaz-pal.org/>

⁸³¹ <http://www.asala-pal.org/>

⁸³² <http://bwf.ps>

⁸³³ <https://twitter.com/TechwomenPS>

⁸³⁴ <https://www.techwomen.org/>

⁸³⁵ <http://pie.ps>

support entrepreneurship life cycle in renewable energy and related technologies, currently installing solar panels on school rooftop⁸³⁶.

Connect⁸³⁷: coworking and innovation space, part of Rawabi tech hub.

Bader⁸³⁸: ICT incubator.

PITA⁸³⁹: association of IT companies, provides advocacy and member services.

PPU Incubator⁸⁴⁰: part of the center of excellence at Palestine Polytechnic University, works with small and medium enterprises and entrepreneurs.

Hasoub⁸⁴¹: Haifa based grassroots NGO supporting Arab tech entrepreneurs and university students by providing training and networking.

Arab Tech Port⁸⁴²: nonprofit initiative running acceleration programs to help Arab youth improve business related skills and connect with industry mentors, investors and influencers.

MenaCatalyst⁸⁴³: provides training, mentorship and networking with people in diaspora.

Fikra⁸⁴⁴: Paltel Group's innovation hub, offering coworking space and venture capital.

Palestine for Development⁸⁴⁵: non-profit organization founded by PIF to support SMEs and entrepreneurship.

Code.X Palestine⁸⁴⁶: helps school children with coding, sponsored by PalTel Group Foundation.

Visit Palestine⁸⁴⁷: an initiative to visit Palestine to teach or mentor.

Wusol Digital Academy⁸⁴⁸: provides capacity building in digital tech like marketing, commerce and web development.

Funding and Investing:

Siraj⁸⁴⁹: private equity fund manager, founded by the holding company Massar International⁸⁵⁰ and invests in different industries.

PIPA⁸⁵¹: Palestinian Investment Promotion Agency, works to attract investments.

Ibtikar Fund⁸⁵²: invests in innovative Palestinian companies from seed to growth.

⁸³⁶ <https://www.eib.org/en/infocentre/press/releases/all/2019/2019-078-school-rooftops-will-generate-solar-energy-for-16000-houses-in-the-west-bank.htm>

⁸³⁷ <http://co.city.rawabi.ps/>

⁸³⁸ <http://www.bader.ps/>

⁸³⁹ <http://pita.ps>

⁸⁴⁰ https://it.ppu.edu/Business_Incubator_Unit

⁸⁴¹ <https://www.hasoub.org/>

⁸⁴² <https://arabtechport.com>

⁸⁴³ <http://www.menacatalyst.ps/>

⁸⁴⁴ <https://www.linkedin.com/company/fikra-paltel-group-innovation-hub/>

⁸⁴⁵ <http://www.psdf.ps/>

⁸⁴⁶ <https://www.codedotx.org/code-for-palestine>

⁸⁴⁷ <https://visitpalestine.tech/>

⁸⁴⁸ <https://www.wusol.net/>

⁸⁴⁹ <https://www.siraj.ps>

⁸⁵⁰ <https://www.massar.com/>

⁸⁵¹ <http://www.pipa.ps/>

⁸⁵² <http://ibtikarfund.com/>

Sadara Ventures⁸⁵³: one of the early venture capital entities working in Palestine, invested in several startups but no longer active.

Startups and companies:

Advertising and Marketing

Vidmass⁸⁵⁴: template-based video production platform for commercial videos with minimum technical involvement. Contact is listed as Saudi Arabia but development is in Gaza.

Retail Zoom⁸⁵⁵: based in Cyprus with branch in Palestine (also Lebanon, Egypt, UAE, Saudi Arabia and Morocco), provides marketing insights to retailers.

AI and Analytics/VR/AR

Proginer Technologies⁸⁵⁶: an outsourcing company that provides data analytics to clients like Thomson Reuters.

Red Crow⁸⁵⁷: provides risk mitigation solutions (security intelligence briefs and updates) to organizations and individuals operating in volatile environments in the MENA region (Palestine, Jordan, Egypt, Lebanon and Syria).

Imagry⁸⁵⁸: mapless autonomous driving platform using computer vision and AI, not fully Palestinian.

Mashvisor⁸⁵⁹: provides real estate investment data analysis (property and neighborhood insights) with focus on the US market.

NameO⁸⁶⁰: picture to word interpreter for kids, located in Gaza, uses computer vision and AI.

AICom⁸⁶¹: conversational commerce platform (chatbot) using NLP, integrates with Facebook Messenger.

Careers

SocialDice⁸⁶²: talent acquisition pipeline platform (online recruitment). Social Dice had no recent activity.

Jobs⁸⁶³: online careers platform connecting employers and employees, also has listing of consultancies and training programs.

Cerati⁸⁶⁴: online platform for temporary and part-time employment, a linkage between users (mostly students) and employers.

Harri⁸⁶⁵: workforce platform for the hospitality industries, an American company with

⁸⁵³ <https://www.sadaravc.com/>

⁸⁵⁴ <https://vidmass.com>

⁸⁵⁵ <http://retailzoom.net>

⁸⁵⁶ <http://proginer.net>

⁸⁵⁷ <https://www.redcrow.co/>

⁸⁵⁸ <https://imagry.co/>

⁸⁵⁹ <https://www.mashvisor.com>

⁸⁶⁰ <https://nameoapp.com>

⁸⁶¹ <https://www.aicom.ai/>

⁸⁶² <https://www.socialdice.net/>

⁸⁶³ <https://www.jobs.ps>

⁸⁶⁴ <http://cerati.ps/>

⁸⁶⁵ <https://harri.com/>

development in Palestine.

EduTech

BambiNotes⁸⁶⁶: kindergarten communication, monitoring and tracking platform.

Fashion (clothing, beauty and eyewear)

Kenz⁸⁶⁷: online women's apparel and fashion store.

Fintech

PalPay⁸⁶⁸: provides electronic payments for different services through points of sale.

Dozdan⁸⁶⁹: fintech app providing e-wallet and payment gateway to third world communities.

Health and Fitness

Wikaya⁸⁷⁰: digital health platform for the prevention of chronic diseases through using AI.

Wikaya's website lists address as US.

Webteb⁸⁷¹: digital health content provider in Arabic from verified sources.

TebFact⁸⁷²: Gaza based, provides verified medical content in Arabic.

Dawsat⁸⁷³: wellness platform integrating Arabic culture, methodology and advanced technology to support people on their journey to healthier living and wellness.

Inggez⁸⁷⁴: on demand (no membership) access to multiple fitness venues, expanding to Egypt, registered in the US.

Media and Content

Kitab Sawti⁸⁷⁵: browse and listen to audio books, founded in Sweden, has offices in UAE, Egypt and Palestine. Kitab Sawti got \$6m series A investment in early May, 2019.

Visualizing Palestine⁸⁷⁶: creates data-driven tools to advance a factual, rights-based narrative of the Palestinian-Israeli issue, with offices or team members in Lebanon, UAE, USA, Canada and Palestine (some projects were supported by IDRC).

Retail/Ecommerce

Munasabat⁸⁷⁷: Gaza based online gift store for different occasions.

Lazmak⁸⁷⁸: online marketplace for sellers and buyers in several categories.

La2ta⁸⁷⁹: online marketplace by Sbitany (home appliances company) for buyers and sellers.

⁸⁶⁶ <https://www.bambinotes.me/>

⁸⁶⁷ <https://kenzwoman.com>

⁸⁶⁸ <http://www.palpay.ps>

⁸⁶⁹ <http://dozdan.com/>

⁸⁷⁰ <https://www.wikayamed.com/>

⁸⁷¹ <https://www.webteb.com/>

⁸⁷² <https://www.tebfact.com/>

⁸⁷³ <https://dawsat.com/>

⁸⁷⁴ <http://www.inggez.com/>

⁸⁷⁵ <https://kitabsawti.com>

⁸⁷⁶ <https://www.visualizingpalestine.org/>

⁸⁷⁷ <http://munasabat.co>

⁸⁷⁸ <https://www.lazmak.com/>

⁸⁷⁹ <https://www.la2ta.com/>

Mart⁸⁸⁰: online store offering several categories with delivery and several payment options.

Services and Management

Economies⁸⁸¹: economic analysis of experts and breaking financial news about forex, commodities and international stock markets.

Ocha⁸⁸²: UN Office for the Coordination of Humanitarian Affairs, not for profit, mobilizes and coordinates assistance to people in need and provides data including maps.

Alpha International⁸⁸³: market research, data collection and analysis.

Events⁸⁸⁴: a platform for events registry and management.

Iris⁸⁸⁵: interactive and touch sensory technology provider.

EzPilot⁸⁸⁶: survey design, data collection and analytics platform, no recent activity.

Cystack⁸⁸⁷: information security consulting firm that offers data leakage and security among its services.

Beep⁸⁸⁸: car sale platform (sell or buy).

GIS Plus⁸⁸⁹: specializes in spatial information systems, GIS data, mapping and analysis.

Good Shepherds Engineering⁸⁹⁰: GIS solutions provider.

Snipe⁸⁹¹: IoT solutions (ratings and smart devices) and ERP software provider.

7amleh⁸⁹²: Arab Center for the Advancement of Social Media, a rights organization using social media data for advocacy.

UBCard⁸⁹³: a platform allows users to turn their business cards into digital cards managed and controlled by their mobile number.

Mena Alliances⁸⁹⁴: network of technology contractors with offices in UK, US, Egypt and Palestine.

Intertech⁸⁹⁵: initially a web development company, now offers augmented reality services as well.

New Life Arabia⁸⁹⁶: online meditation and mindful training (not ready as of May 2019).

Social Studio⁸⁹⁷: social media consulting, statistics, analysis and reports with focus on Palestine.

⁸⁸⁰ <https://mart.ps/>

⁸⁸¹ <https://www.economies.com/>

⁸⁸² <https://www.ochaopt.org/>

⁸⁸³ <https://alpha.ps>

⁸⁸⁴ <https://www.events.ps>

⁸⁸⁵ <http://iris.ps/>

⁸⁸⁶ <http://www.ezpilot.me/>

⁸⁸⁷ <https://www.cystack.ps/>

⁸⁸⁸ <http://www.beep.ps>

⁸⁸⁹ <http://www.gis-plus.com>

⁸⁹⁰ <http://www.gsecc.com>

⁸⁹¹ <http://snipe.ps>

⁸⁹² <https://7amleh.org>

⁸⁹³ <http://ubcard.net>

⁸⁹⁴ <https://menaalliances.com>

⁸⁹⁵ <http://www.intertech.ps/>

⁸⁹⁶ <https://www.newlifearabia.com/>

⁸⁹⁷ <https://socialstudio.me/>

Sports and Entertainment

Play3arabi⁸⁹⁸: Arabic games publisher and marketer.

Gamiphy⁸⁹⁹: gaming loyalty platform (user engagement through Gamibot), contact listed as USA.

SnapGoal⁹⁰⁰: social platform for football fans to share experiences and passion.

AhlaGoal⁹⁰¹: sports portal for fans with news and competitions.

Telecom and Mobile Services

Souktel⁹⁰²: provides mobile content delivery, data collection, and data analytics solutions for emerging markets.

Receet⁹⁰³: mobile platform that provides electronic receipts from points of sale to consumer smart phone using NFC (near-field communication) technology.

Transportation and Logistics

Rocab⁹⁰⁴: a regular taxi hailing app that takes care of locating, booking and payment.

Freightos⁹⁰⁵: data driven online freight marketplace with international freight routing and pricing technology. Headquartered in USA, development office in Palestine.

WeDeliver⁹⁰⁶: crowdsourced logistics startup delivering items by optimizing routes.

Logistics services and online stores on social media: several individuals or small teams (and also some major stores) sell products online through Facebook, Instagram or specialized mobile apps. They get paid through logistics service providers (mostly small companies) who handle delivery and collect bills in cash. Examples include Mart, 3arabuy and La2ta (stores) and Wassel, Naqel and Bosta Express (logistics).

Travel and Tourism

Yamsafer⁹⁰⁷: travel and accommodation booking service with traditional payment options, serving the MENA region primarily.

Safra⁹⁰⁸: travel planning and booking platform.

Events:

Due to the geopolitical situation and restrictions on access, major events are not possible in Palestine. There are several local and national events organized by the public, academic, private and civil society sectors that get covered in the local media. The monthly magazine, This Week In Palestine⁹⁰⁹, publishes schedule events. Other sites that report events include

⁸⁹⁸ <https://www.play3arabi.com>

⁸⁹⁹ <https://gamiphy.co/>

⁹⁰⁰ <http://snapgoal.com/>

⁹⁰¹ <https://www.ahlagoal.com/>

⁹⁰² <http://www.souktel.com/>

⁹⁰³ <https://getreceet.com/>

⁹⁰⁴ <http://www.rocab.ps/>

⁹⁰⁵ <https://www.freightos.com/>

⁹⁰⁶ <http://www.wedeliverit.co>

⁹⁰⁷ <https://www.yamsafer.com/>

⁹⁰⁸ <https://www.safra.me/>

⁹⁰⁹ <http://thisweekinpalestine.com/event/>

Eventbrite⁹¹⁰ (if registration is required), Events⁹¹¹ (a local startup), VisitPalestine⁹¹² and Sajilni⁹¹³ (Jordanian startup). Most events are cultural or political⁹¹⁴.

BuildX Bethlehem⁹¹⁵: organized by Build Palestine about social entrepreneurship, April 9, 2019.

First international Conference of Technology and Entrepreneurship for Business

Sustainability⁹¹⁶: organized by Palestine Ahliya University, April 23, 2019.

Paltel Bootcamp⁹¹⁷: code and design bootcamp by industry professionals from major companies, running from June 16 to July 12, 2019. The Ramallah program is data science.

Seedstars: global startup competition, August 29, 2019.

⁹¹⁰ <https://www.eventbrite.com/>

⁹¹¹ <https://www.events.ps/>

⁹¹² <http://visitpalestine.ps/events/>

⁹¹³ <https://sajilni.com/>

⁹¹⁴ In September 2019, the Higher Council for Innovation and Excellence organized the 4th national forum on 4th industrial revolution (Sep. 9 - 10), and Ministry of Entrepreneurship organized the international conference on entrepreneurship in partnership with Global Shapers (Sep. 17). Also, a 'data matters festival' was announced in mid-October 2019 to take place on the 20th, organized by the Central Bureau of Statistics and Arab American University (<http://www.datascience.ps/>). And, in November (16 – 24), 2019, a global entrepreneurship week was launched (<http://www.psgew.co/>).

⁹¹⁵ <https://www.events.ps/ar/Events/1104/BUILDx-Bethlehem>

⁹¹⁶ <http://thisweekinpalestine.com/event/>

⁹¹⁷ <http://www.pgfapps.ps/bootcamp/>

Qatar

One of the small yet rich GCC countries, Qatar relied on gas reserves and media industry for its economy. Qatar is hosting the World Cup in 2022 and several activities and government efforts focus on this event leading to improved infrastructure and an upgraded ecosystem. The recent political differences with Saudi Arabia (backed by UAE, Bahrain and Egypt) affected both traditional and startup businesses with almost total boycott. There is no income tax and corporate tax (at 10%) only applies to foreign firms⁹¹⁸. The relatively new startup ecosystem is supported by several programs and enablers, including good research and funding. For example, Arabic NLP research at Qatar Computing Research Institute (speech-to-text) is powering the transcription at Al Jazeera channel.

Qatar's few data startups focus on fintech, education, digital health, AI and IoT. It is likely that the increased interest in sports over the past few years, and the next few ones leading to the 2022 world champion, will increase usage and interest in data analytics. Another potential area is media tech with AR/VR/MR and data journalism.

Programs and Enablers:

Qatar Sports Tech⁹¹⁹: operated in collaboration with StartupBootCamp, focuses on sports analytics and management.

Digital Incubation Center (DIC)⁹²⁰: part of the Ministry of Transportation and Communication, supports young entrepreneurs in early stages of tech startups (workspace and funding).

Qatar Business Incubation Center (QBIC)⁹²¹: offers incubation, acceleration, fab lab and investment.

Wise Accelerator⁹²²: support the development of innovative education initiatives with high potential for scalability and positive impact.

Challenge22⁹²³: innovation competition in the fields of health & safety, IoT, sustainability and tourism, offers prizes and business support.

Qatar Science and technology Park⁹²⁴: incubator and accelerator (innovation hub) for tech entrepreneurs with focus on health, environment, energy, cybersecurity and ICT.

Bedaya⁹²⁵: offers empowerment and support for the youth to start their businesses.

Funding and Investing:

Doha Tech Angels⁹²⁶: private network of investors, provides seed funding for early tech startups.

Tasmu⁹²⁷: supports smart transformation and focuses on transport, logistics, health,

⁹¹⁸ <https://www.heritage.org/index/country/qatar>

⁹¹⁹ <https://qatarsportstech.com/>

⁹²⁰ <https://dic.motc.gov.qa/>

⁹²¹ <http://www.qbic.qa/>

⁹²² <https://www.wise-qatar.org/wise-accelerator>

⁹²³ <https://www.sc.qa/en/opportunities/challenge-22>

⁹²⁴ <https://qstp.org.qa/>

⁹²⁵ <http://www.bedaya.qa/en/>

⁹²⁶ <http://www.dta.qa/>

⁹²⁷ <https://tasmu.gov.qa/>

environment and sports.

Startups and companies:

AI and Analytics/VR/AR

ARVEX⁹²⁸: AR and VR service provider.

Dxwand⁹²⁹: sales chatbot that integrates with different channels, incubated in Qatar, now listed as USA company.

ADGS⁹³⁰: develops keystroke dynamics security access system, resilient data communication and civil defense emergency, also has active research in AI and NLP.

Careers

9to5⁹³¹: online recruitment automation platform matching job seekers and businesses (not fully functional).

Edutech

ibTECHar⁹³²: integrates technology with education to create a better learning experience.

Modaris⁹³³: tutoring platform for different levels and topics.

Fintech

Fatora⁹³⁴: online invoicing and payment platform for businesses, developed by MaktApp⁹³⁵.

Health and Fitness

Meddy⁹³⁶: find doctors and book appointments online in Qatar and UAE.

Droobi Health⁹³⁷: bilingual (Arabic and English) digital therapeutics portal for prevention and management of chronic diseases prevalent in MENA region.

Services and Management

Emdad⁹³⁸: supply chain as a service solution provider.

Snappy Clicks⁹³⁹: online photography marketplace (search, compare and book photographers for any occasion).

Servesni⁹⁴⁰: online car service providers discovery and appointment booking.

QChain⁹⁴¹: blockchain solutions provider, developer of Qlog (log storage over blockchain).

⁹²⁸ <https://arvex.co/>

⁹²⁹ <https://dxwand.com/>

⁹³⁰ <http://www.adgs.com/>

⁹³¹ <https://9to5.ai/>

⁹³² <http://ibtechar.com/>

⁹³³ <https://www.modaris.me/>

⁹³⁴ <https://fatora.io/>

⁹³⁵ <https://maktapp.com/>

⁹³⁶ <https://www.meddy.com/>

⁹³⁷ <https://www.droobihealth.com>

⁹³⁸ <https://justemdad.com>

⁹³⁹ <https://www.snappyclicks.com/>

⁹⁴⁰ <http://servesni.com/>

⁹⁴¹ <https://qcha.in/>

Fine Posture⁹⁴²: IoT device that helps reduce back pain for office workers (early stage).

Telecom and Mobile Services

Urban Points⁹⁴³: combines the cellular and discounts industries in the form mobile app that connects telecom operators, local businesses and consumers.

Events:

AI for Social Good⁹⁴⁴: organized by UNDP and the Qatar Center for Artificial Intelligence, February 17, 2019.

Machine Learning and Data Analytics Symposium⁹⁴⁵: advances in AI and applications, April 1 – 2, 2019.

Cloud and Datacenter⁹⁴⁶: digital transformation, infrastructure and managed datacenters, June 24, 2019.

Seedstars⁹⁴⁷: global startup competition, July 31, 2019.

IDC IT Forum⁹⁴⁸: digital innovation ecosystem, November 6, 2019.

International Conference on Social Informatics⁹⁴⁹: interdisciplinary venue for researchers, November 18 – 21, 2019.

⁹⁴² <http://www.fineposture.me/>

⁹⁴³ <http://urbanpoint.com/>

⁹⁴⁴ <https://qcai.qcri.org/index.php/events/ai-for-social-good/>

⁹⁴⁵ <https://qcai.qcri.org/index.php/events/mlDas-2019/>

⁹⁴⁶ <https://www.idc.com/mea/events/66274-cloud-and-datacenter-2019>

⁹⁴⁷ <https://www.seedstarsworld.com/event/seedstars-doha-2019>

⁹⁴⁸ <https://www.idc.com/mea/events/66404-idc-it-forum-2019>

⁹⁴⁹ <https://socinfo2019.qcri.org/>

Saudi Arabia

One of the largest markets in the MENA region with 70% of population under 30, Saudi Arabia is making significant progress with the digital transformation and Vision 2030⁹⁵⁰ leveraging innovation and technology to diversify economy away from oil dependence and public employment.

The country is encouraging entrepreneurship with programs, initiatives and policies including the Saudization of private sector and some other measures that may backfire like restriction on talent acquisition by limiting number of visas leading some startups to relocate to UAE and enforcing that Uber drivers should be Saudi ⁹⁵¹ raised the cost of the service. Funding is not a problem as the Kingdom initiated Venture, an initiative to attract international VCs⁹⁵² neither is infrastructure as King Abdulaziz City for Science and Technology has two supercomputers⁹⁵³ and talent is being developed with over 200,000 students studying abroad in 2014⁹⁵⁴. Most business-related services are streamlined with single-window and online services. Overall, there is a robust ecosystem⁹⁵⁵ and active group of entrepreneurs with promising potential. Saudi Arabia is also encouraging skilled and wealthy foreigners with residency permits without a sponsor⁹⁵⁶ and the new Qiwa⁹⁵⁷ platform is streamlining talent acquisition. However, over the past few years, Saudi Arabia introduced reforms in various sectors⁹⁵⁸ and started major projects, but it also broke ties with Qatar, got involved in the proxy war in Yemen, increasing tensions with Iran, and was criticized strongly over its human rights record.

Saudi data startup activity focuses on e-commerce, transport and logistics, education, health, data analytics, entertainment and fintech. The ecosystem is still growing and other possible growth areas include IoT, data analytics and tourism (including Islamic Hajj and Umrah). Major enterprises (ex. Aramco) and government agencies are also data users. The country is a target for startups and corporations⁹⁵⁹ leaving organic startups competing for market, talent and investing opportunities.

Programs and Enablers:

⁹⁵⁰ <https://vision2030.gov.sa/en>

⁹⁵¹ <https://www.wamda.com/2019/03/saudi-undergoes-entrepreneurship-drive-challenges-remain>

⁹⁵² <https://halalfocus.net/saudi-arabia-launches-initiative-to-attract-international-vcs/>

⁹⁵³ <https://www.weforum.org/agenda/2019/03/menas-universities-can-drive-the-regions-transformation-heres-how/>

⁹⁵⁴

https://www.researchgate.net/publication/319628409_Big_Data_Analytics_for_Higher_Education_in_Saudi_Arabia

⁹⁵⁵ <https://www.linkedin.com/feed/update/urn:li:activity:6514860508661846018>

⁹⁵⁶ <https://www.arabianbusiness.com/politics-economics/419868-saudi-arabia-approves-plan-for-green-card-style-system>

⁹⁵⁷ <https://qiwa.sa/>

⁹⁵⁸ In late August, 2019 a royal decree established the National Center for AI and a National Data Management commission

⁹⁵⁹ <https://www.wamda.com/2018/11/saudi-arabia-nascent-ecosystem-huge-potential>

Misk Innovation⁹⁶⁰: MENA based early stage technology startup accelerator (in collaboration with Startup 500).

Community Jameel⁹⁶¹: social enterprise organization that supports economic development, has offices in Saudi Arabia and UAE.

King Abdullah University of Science and Technology⁹⁶²: research and technology park, startup funding and entrepreneurship.

KACST⁹⁶³: King Abdulaziz City for Science and Technology, works in R&D, innovation and commercialization, offers incubation and acceleration, and supports research.

The Space (Al-Makan)⁹⁶⁴: a place to work and innovate.

Badir Program for Technology Incubators⁹⁶⁵: runs innovation and entrepreneurial hubs and helps in the incubation, acceleration and investment in technology entrepreneurship.

Monshaat⁹⁶⁶: provides development and support services to small and medium enterprises.

Fintech Saudi⁹⁶⁷: an initiative that supports a financial services technology ecosystem, works with companies, banks and other partners to drive fintech innovation.

Sharqiyah Data Geeks⁹⁶⁸: local chapter of the meetup group Data Geeks in the eastern province, holds activities.

Flat6 Labs Jeddah⁹⁶⁹: accelerator program, part of the regional Flat6 Labs.

Saudi Data Community⁹⁷⁰: community network and meetups for data enthusiasts.

Falak⁹⁷¹: incubator and accelerator for entrepreneurs and startups.

Misk⁹⁷² Innovation⁹⁷³: acceleration program for pre seed and seed startups in partnership with 500 Startups.

9/10ths (nine tenths)⁹⁷⁴: an initiative by Hada⁹⁷⁵ for early stage entrepreneurs with enabling services including incubation, ecommerce, financing, networking, data and reporting.

Taqadam⁹⁷⁶: startup accelerator at KAUST in partnership with SAAB, offers coworking space, small funding and access to KAUST's technical network.

MIT Enterprise Forum⁹⁷⁷: annual startup competition, last run in late 2018.

Jovia⁹⁷⁸: incubator and co-working space provider in Khobar.

⁹⁶⁰ <https://www.miskinnovation.org.sa/>

⁹⁶¹ <https://www.cjameel.org/en>

⁹⁶² <https://kaust.edu.sa/en/innovate>

⁹⁶³ <https://www.kacst.edu.sa/eng/>

⁹⁶⁴ <http://www.the-space.me/>

⁹⁶⁵ <https://www.badir.com.sa>

⁹⁶⁶ <https://www.monshaat.gov.sa/en>

⁹⁶⁷ <http://www.fintechsaudi.com/>

⁹⁶⁸ <https://www.meetup.com/Sharqiyah-Data-Geeks/>

⁹⁶⁹ <http://www.flat6labsjeddah.com/>

⁹⁷⁰ <https://www.datacommunitysa.com>

⁹⁷¹ <https://falak.sa/>

⁹⁷² <https://misk.org.sa/>

⁹⁷³ <https://misk.500.co/misk/>

⁹⁷⁴ <https://910ths.sa/>

⁹⁷⁵ <https://www.hrdf.org.sa/>

⁹⁷⁶ <https://innovation.kaust.edu.sa/taqadam/>

⁹⁷⁷ <https://www.mitefsaudi.org>

⁹⁷⁸ <https://www.jovia.sa/>

Blossom⁹⁷⁹: female focused accelerator for seed stage startups.
 Endeavor Saudi Arabia⁹⁸⁰: part of the global effort to catalyze, mentor and accelerate high impact entrepreneurships.
 BIAC⁹⁸¹: subsidiary of Tqania, incubator and accelerator management company, focuses on establishing & operating innovation, entrepreneurship & startups support programs.
 Startup House⁹⁸²: incubator and accelerator that supports SMEs.
 E3qlha⁹⁸³: provides support and development guidance to SMEs especially those led by women.
 Nama Almunawara⁹⁸⁴: enables sustainable socio-economic development by generating projects and employment opportunities.
 Maroof⁹⁸⁵: a service from the Ministry of Commerce and Investment to verify ecommerce sites.
 IKEA Forward Accelerator⁹⁸⁶: by IKEA in Saudi Arabia and Bahrain, incubates startups through a 4-month program with chances for additional help and funding.
 STC Data Center⁹⁸⁷: internationally accredited data center. There are also cloud providers like V2⁹⁸⁸.

Funding and Investing:

Anova Investments⁹⁸⁹: private equity firm incorporated in Egypt but listed as Saudi, invested in Tarjama to apply AI to Arabic translation.
 Saudi Arabia General Investment Authority (SAGIA)⁹⁹⁰: provides support and advisory services to foreign investors.
 Vision Ventures⁹⁹¹: invests in innovative startups in the seed or early stages.
 Saudi Technology Ventures (STV)⁹⁹²: venture capital fund that backs and scales the region's most exciting and disruptive technology companies, has offices in Riyadh and Dubai.
 Raed Ventures⁹⁹³: corporate venture capital firm established, provides funding for the seed and early stage startups in Saudi Arabia and MENA region.
 STC Ventures⁹⁹⁴: venture capital fund by Saudi Telecom with offices in Saudi Arabia and UAE.
 Kingdom Holding Company⁹⁹⁵: publicly listed company with tech and startup investment (ex. Twitter, Careem, Lyft).

⁹⁷⁹ <https://www.blossommen.com/>

⁹⁸⁰ <https://endeavor.org/location/saudi-arabia/>

⁹⁸¹ <https://www.biac.com.sa/>

⁹⁸² <http://startupshouse.com>

⁹⁸³ <https://e3qlha.com/>

⁹⁸⁴ <http://www.nm.sa/>

⁹⁸⁵ <https://maroof.sa/>

⁹⁸⁶ <http://forward.ikea.com.sa/>

⁹⁸⁷ <https://www.linkedin.com/feed/update/urn:li:activity:6510815227066490880/>

⁹⁸⁸ <http://www.v2.com.sa/>

⁹⁸⁹ <http://anovacapital.com>

⁹⁹⁰ <https://sagia.gov.sa/en/>

⁹⁹¹ <https://visionvc.co/>

⁹⁹² <https://stv.vc/>

⁹⁹³ <http://raed.vc/>

⁹⁹⁴ <http://stcventures.com/>

⁹⁹⁵ <http://www.kingdom.com.sa>

Sirb⁹⁹⁶: Saudi angel investors network, enables individual investors and entrepreneurs to collaborate in early stage funding.

Saudi Arabia Angel Investors⁹⁹⁷: a compilation of Saudi investors from the AngelList site (startups, investors and jobs).

Public Investment Fund (PIF)⁹⁹⁸: one of the largest in the region, has diversified portfolio through investments in attractive, long-term opportunities domestic and international.

Altayyar Group⁹⁹⁹: travel and tourism group, publicly traded with investment arm, has offices in Saudi Arabia, UAE, Bahrain, Kuwait, Egypt and Oman.

Waed Ventures¹⁰⁰⁰: Aramco's entrepreneurship arm, offers funding, incubation and training.

Riyad Taqnia Fund¹⁰⁰¹: venture capital fund investing in technology startups.

Wadi Makkah¹⁰⁰²: an investment company owned and managed Um Al Qura University interested in supporting knowledge economy, offers consulting, funding, workspace, fabrication lab and events.

Taqnia¹⁰⁰³: owned by public investments fund, invests in technology startups and economic diversification.

Mad'a Investment Company¹⁰⁰⁴: private equity firm, interested in multi-sector portfolio of startups.

Hala Ventures¹⁰⁰⁵: seed and early growth venture capital, different sectors.

Riyad Taqnia Fund¹⁰⁰⁶: invests in ventures (seed through series B) across multiple technology sectors and geographies.

Amnest Group¹⁰⁰⁷: family group of companies, invests in different sectors.

Derayah¹⁰⁰⁸: traded company that invests in growth and early stage innovative startups.

Inspire Ventures¹⁰⁰⁹: venture capital firm, interested in early stage ideas with high growth potential.

Nama Fund¹⁰¹⁰: technology focused seed stage venture capital fund.

SEDCO Capital¹⁰¹¹: asset management firm that offers investment opportunities including Shariah compliant deals.

Arab Petroleum Investments Corporation¹⁰¹²: multilateral development bank, invests in energy sector and petroleum industries.

⁹⁹⁶ <http://sirb.sa/en/>

⁹⁹⁷ <https://angel.co/saudi-arabia/investors>

⁹⁹⁸ <https://www.pif.gov.sa>

⁹⁹⁹ <https://www.altayyargroup.com>

¹⁰⁰⁰ <https://waed.net/en/home.html>

¹⁰⁰¹ <http://www.riyadtaqnia.com/>

¹⁰⁰² <http://wadimakkah.sa/>

¹⁰⁰³ <https://www.taqnia.com>

¹⁰⁰⁴ <http://minvest.sa/>

¹⁰⁰⁵ <https://www.halavc.com/>

¹⁰⁰⁶ <http://www.riyadtaqnia.com/>

¹⁰⁰⁷ <http://www.amnestgroup.com>

¹⁰⁰⁸ <http://web.derayah.com>

¹⁰⁰⁹ <https://www.inspire.sa/>

¹⁰¹⁰ <https://www.nama.vc/>

¹⁰¹¹ <https://sedcocapital.com/>

¹⁰¹² <http://www.apicorp.org/>

Eat Venture¹⁰¹³: venture capital firm focused on the food services, and food and beverage industries.

Daal¹⁰¹⁴: venture capital fund with focus on the IT sector.

Riyadh Valley Co.¹⁰¹⁵: the investment arm of King Saud University, knowledge economy and University projects, focuses on ICT, renewable energy and health.

Horizon Light Investments¹⁰¹⁶: invests in startups, SMEs and real estate.

Batic Investments and Logistics Company¹⁰¹⁷: invests in logistics and related technologies.

OQAL¹⁰¹⁸: angel investors NGO that connects startups and entrepreneurs with investors.

N2V¹⁰¹⁹: National Net Ventures, interested in largest Internet companies, with focus on ecommerce, online advertising, and online payments.

iNet Investments¹⁰²⁰: focuses on strategic investments in the forms of equity, convertible debt and technology financing in fintech, ICT, edu-tech and consumer technology.

Majalis¹⁰²¹: a business and finance community that invests in existing startups and projects.

Social Development Bank¹⁰²²: allocated 1 billion SR fund for emerging technologies and startups in collaboration with Ministry of ICT¹⁰²³.

Startups and companies:

Advertising and Marketing

Near Motion¹⁰²⁴: customer engagement platform offering services like indoor navigation, proximity marketing and auto check in.

Flicron¹⁰²⁵: online marketplace for micro-influencers (those with up to 100,000 followers) marketing.

Agritech

Red Sea Farms¹⁰²⁶: agritech startup using data and gene sequencing to select best plant species for salty soil.

AI and Analytics/VR/AR

Lucidya¹⁰²⁷: Arabic focused, AI powered social media analytics for businesses using big data and machine learning.

Visual Experience¹⁰²⁸: virtual reality service and solution provider.

¹⁰¹³ <https://eatventure.com/>

¹⁰¹⁴ <https://www.daal.io>

¹⁰¹⁵ <http://rvc.com.sa>

¹⁰¹⁶ <https://www.horizonlightinvestments.com/>

¹⁰¹⁷ <https://www.batic.com.sa/>

¹⁰¹⁸ <http://oqal.org/>

¹⁰¹⁹ <http://n2v.com/en/>

¹⁰²⁰ <http://www.inet.net.sa/investments/>

¹⁰²¹ <https://www.majalisapp.com/>

¹⁰²² <https://sdb.gov.sa>

¹⁰²³ <https://www.sdb.gov.sa/ar-sa/our-products/projects/productive-loans/products/technology-projects>

¹⁰²⁴ <http://nearmotion.com/>

¹⁰²⁵ <https://flicron.com/>

¹⁰²⁶ <https://www.redseafarms.com/>

¹⁰²⁷ <https://lucidya.com/>

¹⁰²⁸ <https://visual-ex.com/>

Hazen.ai¹⁰²⁹: traffic and crowd analytics service provider, uses computer vision and detects violations, crowd density, traffic counters and parking space occupancy.
 Tansees¹⁰³⁰: extracts data and information from audio and visual content of events (in progress).
 Vedur¹⁰³¹: simplifies computer vision and NLP in the form of graphical blocks. Not fully developed, founders also have Fihm¹⁰³² that has AI articles in Arabic and promising lessons and training.
 Voxel¹⁰³³: AR/VR, 3D scans and drones mapping solution provider.
 MyData¹⁰³⁴: provides data analytics and visualization using R and Power BI (could not verify current activity).
 Datum¹⁰³⁵: data analysis, consulting and training (could not verify current activity).
 Quant¹⁰³⁶: data collection, management, analytics, visualization and training service provider.
 Quest 360¹⁰³⁷: multi-platform virtual reality provider.
 Quantum¹⁰³⁸: online sampling (targeting shoppers and providing analytics) solution provider.
 Smart Data¹⁰³⁹: image and video analytics using AI.

Careers

Taakkad¹⁰⁴⁰: similar to Glassdoor, collects information from company employees anonymously for candidates to explore and compare work environments.
 Dalil Shamel¹⁰⁴¹: employment and news portal.

Edutech

Maharah¹⁰⁴²: online educational platform for training programs (free and paid, browse existing and add yours).
 Lamsa¹⁰⁴³: digital platform that delivers knowledge and literacy and allows child development in an interactive, perceptive, and exciting manner to Arab-speaking, subscription based.
 Noon Academy¹⁰⁴⁴: online tutoring and self-study platform with social learning, learning from peers and on-demand online tutoring (virtual classroom). Covers Saudi Arabia, Egypt and Palestine. Noon raised \$8.6 million in series A funding in June, 2019.
 Acadox¹⁰⁴⁵: online educational, training and networking platform with data analytics.
 Wade7¹⁰⁴⁶: online lessons and help in math and physics.
 Geeks Valley¹⁰⁴⁷: online electronics learning space and marketplace, supports makers

¹⁰²⁹ <http://hazen.ai/>

¹⁰³⁰ <http://tansees.com/>

¹⁰³¹ <http://vedur.net/>

¹⁰³² <http://www.fihm.ai/>

¹⁰³³ <https://www.3dvoxel.xyz/>

¹⁰³⁴ <https://mydatada.com/>

¹⁰³⁵ <https://datum.sa/>

¹⁰³⁶ <https://www.quant.sa/>

¹⁰³⁷ <http://www.quest360.io/>

¹⁰³⁸ <http://www.quantumsampling.com/>

¹⁰³⁹ <http://smartdata-sa.com/>

¹⁰⁴⁰ <http://taakkad.com/>

¹⁰⁴¹ <https://ar8ar.net/>

¹⁰⁴² <https://www.maharah.net/>

¹⁰⁴³ <http://www.lamsaworld.com/>

¹⁰⁴⁴ <https://www.noonacademy.com>

¹⁰⁴⁵ <https://www.acadox.com/>

¹⁰⁴⁶ <https://wade7.com>

¹⁰⁴⁷ <http://geeksvally.com/>

community.

Fashion (clothing, beauty and eyewear)

Nice In¹⁰⁴⁸: online beauty marketplace for men and women with free delivery.

Fintech

PayTabs¹⁰⁴⁹: online payment gateway for small and medium enterprises (integrated with merchant website uses different payment methods), also has offices in UAE, and operates in Saudi Arabia, UAE, Kuwait, Oman, Lebanon, Jordan, Egypt, Tunisia, Algeria and Morocco and outside MENA.

Halalah¹⁰⁵⁰: named after the 1/100 fraction of Riyal, a fintech digital wallet platform for payment and money transfers using QR code.

Circlys¹⁰⁵¹: online platform for rotating credits and saving associations management (early stage).

Manafa¹⁰⁵²: an investment marketplace for innovative businesses regulated by the Saudi Capital Market Authority, allows crowd investing as shares in startups.

Bayan Pay¹⁰⁵³: digital wallet and payment gateway.

Geidea¹⁰⁵⁴: digital payment service provider (Mada payment, digital banking and devices).

Food/Groceries Online

Hunger Station¹⁰⁵⁵: online food delivery platform working with top restaurants in Saudi Arabia and Bahrain with cash on delivery option, part of Delivery Hero since 2016 (who replaced top admin in April 2019¹⁰⁵⁶).

Danube¹⁰⁵⁷: online grocery and supplies marketplace (home delivery or store pickup).

Haseel¹⁰⁵⁸: allows users to order fresh fruits and vegetables through a mobile app and handles delivery and payment.

Wadi¹⁰⁵⁹: grocery delivery service in partnership with Carrefour, also operates in UAE, Kuwait, Bahrain and Oman (acquired by Dubai-based Majid AlFuttaim in 2019).

Mathaqi¹⁰⁶⁰: food ordering platform from chefs to consumers.

Nana Direct¹⁰⁶¹: online grocery shopping and delivery platform.

Qareeb¹⁰⁶²: online platform for grocery shopping and delivery from nearby stores on customer behalf.

Qoot¹⁰⁶³: online food ordering platform from home chefs.

¹⁰⁴⁸ <https://niceinsa.com/>

¹⁰⁴⁹ <https://www.paytabs.com>

¹⁰⁵⁰ <https://halalah.sa>

¹⁰⁵¹ <https://circlys.com/>

¹⁰⁵² <https://manafa.co/>

¹⁰⁵³ <https://www.bayanpay.sa/>

¹⁰⁵⁴ <https://geidea.net/>

¹⁰⁵⁵ <https://hungerstation.com>

¹⁰⁵⁶ <https://www.menabytes.com/delivery-hero-fires-hungerstation-leadership/>

¹⁰⁵⁷ <https://danube.sa/>

¹⁰⁵⁸ <https://haseelapp.com/>

¹⁰⁵⁹ <https://www.wadi.com/>

¹⁰⁶⁰ <https://www.mathaqi.com>

¹⁰⁶¹ <https://www.nana.sa/>

¹⁰⁶² <https://www.qareeb.com/>

¹⁰⁶³ <https://qoot.online/>

Yummy¹⁰⁶⁴: online food ordering platform that links customers with home food providers.
Sary¹⁰⁶⁵: wholesale and discount grocery marketplace that shops on customer's behalf and delivers items.
Daily Mealz¹⁰⁶⁶: food subscription and delivery platform.

Health and Fitness

Cura¹⁰⁶⁷: healthcare platform providing telemedicine services, has offices in Saudi Arabi and Jordan.
SihaTech¹⁰⁶⁸: digital health platform enabling patients to connect and book appointments with doctors, clinics, hospitals or laboratories.
GetMuv¹⁰⁶⁹: sports and fitness platform connecting users with facilities providers and related activities.

Media and Content

Kharabeesh¹⁰⁷⁰: media and entertainment digital network catering for youth-oriented Arabic e-content in different genres in Arabic with data analytics to enhance growth and distribution.
Uturn¹⁰⁷¹: leading Arabic entertainment network on YouTube, produces premium content with the aim to promote Arabic content globally.
Sarahah¹⁰⁷²: a social platform that provides anonymous opinions from friends and colleagues.

Retail/Ecommerce

Golden Scents¹⁰⁷³: online marketplace for genuine fragrances and beauty products based in Saudi Arabia with operations in Kuwait and UAE.
Selvium¹⁰⁷⁴: an online marketplace for fragrances and beauty care products.
Dokkan Afkar¹⁰⁷⁵: online shopping platform for exotic items and gadgets with focus on locally designed items.
Speero¹⁰⁷⁶: platform for new and used car spare parts (locate, buy and deliver). Started in Bahrain.
Syarah¹⁰⁷⁷: online marketplace for new and used cars, search, buy and sell.
EjarTech¹⁰⁷⁸: online car rental platform with an option to deliver a car to customer.
YouPositive¹⁰⁷⁹: online platform for life coaching, personal development and psychologist counselors consulting (browse professionals' profiles and book sessions).

¹⁰⁶⁴ <https://www.yummyapp.net/>

¹⁰⁶⁵ <https://www.sary.to/>

¹⁰⁶⁶ <https://www.dailymealz.app/>

¹⁰⁶⁷ <http://cura.healthcare/en/>

¹⁰⁶⁸ <http://sihatech.com>

¹⁰⁶⁹ <https://getmuv.com>

¹⁰⁷⁰ <http://kharabeesh.com/>

¹⁰⁷¹ <http://uturn.me/>

¹⁰⁷² <https://www.sarahah.com/>

¹⁰⁷³ <https://www.goldenscent.com>

¹⁰⁷⁴ <https://www.selvium.com/>

¹⁰⁷⁵ <https://www.dokkanafkar.com/>

¹⁰⁷⁶ <https://speero.net/>

¹⁰⁷⁷ <https://syarah.com/>

¹⁰⁷⁸ <https://www.ejartech.com>

¹⁰⁷⁹ <https://youpositive.co/>

Estickery¹⁰⁸⁰: online, custom made, stickers printing ad delivery service.

WarshaPlus¹⁰⁸¹: online car parts marketplace that allows customers to search and shop for parts to be delivered.

Resal¹⁰⁸²: online gifting platform with logistics taken care of.

Services and Management

DRC¹⁰⁸³: market research and data management service provider.

Falcon Viz¹⁰⁸⁴: 3D surveying and mapping by Unmanned Aerial Systems (UAS) with autonomous integration of planes, drones, copters and 3D software solutions.

Maharah¹⁰⁸⁵: home maintenance and professional services platform.

SafeRoad¹⁰⁸⁶: telematics solution provider, fleet management and vehicle tracking.

Gathern¹⁰⁸⁷: online platform for booking chalets, camps and venues.

B8ak¹⁰⁸⁸: pronounced 'baitak', home and office maintenance platform, operates in Saudi Arabia and Bahrain.

Sadeem¹⁰⁸⁹: risk monitoring (traffic, flood, environment) and urban management platform for smart cities combining a sensor network, mobile applications and a visualization platform.

Ajeer¹⁰⁹⁰: on-demand platform that connects homeowners and maintenance service providers, it also manages temporary work logistics.

Arabian Robotics Company¹⁰⁹¹: provides nondestructive testing for oil, petrochemical and water desalination using robots and drones.

Sawerly¹⁰⁹²: online photography services platform connecting professional service providers with customers for various settings and events.

Smart Booking¹⁰⁹³: online platform allowing users to book appointments at various facilities and services.

UnitX¹⁰⁹⁴: cloud based high performance computing resources provider for big data analytics and AI.

Mntad¹⁰⁹⁵: online tourists platform connecting tour operators and guides with visitors.

Shakl¹⁰⁹⁶: online 3D printing and design platform (upload model and get it printed).

iBoat¹⁰⁹⁷: online platform for boating activities reservations.

Averos¹⁰⁹⁸: smart tracking and sensing solutions of people and objects using IoT devices.

¹⁰⁸⁰ <https://estickery.com/>

¹⁰⁸¹ <https://warshaplus.com/>

¹⁰⁸² <https://www.resal.me/>

¹⁰⁸³ <https://drc.today/>

¹⁰⁸⁴ <http://www.falconviz.com>

¹⁰⁸⁵ <http://maharah.co/>

¹⁰⁸⁶ <https://www.saferoad.com.sa>

¹⁰⁸⁷ <https://gathern.co/>

¹⁰⁸⁸ <http://www.b8ak.com/en/>

¹⁰⁸⁹ <https://sadeemwss.com/>

¹⁰⁹⁰ <https://www.ajeer.com.sa/>

¹⁰⁹¹ <http://arabianbots.com/>

¹⁰⁹² <https://sawerly.com/>

¹⁰⁹³ <https://smartbooking.net/>

¹⁰⁹⁴ <http://unitx.tech/>

¹⁰⁹⁵ <https://www.mntad.com>

¹⁰⁹⁶ <https://shakl3d.com/>

¹⁰⁹⁷ <https://iboatweb.com/>

¹⁰⁹⁸ <http://www.averos.com/>

Ammen¹⁰⁹⁹: a platform that compares third party vehicle, travel and health insurance costs.
Uxbert¹¹⁰⁰: user experience and usability (websites and mobile apps) service provider.

Sports and Entertainment

Telfaz11¹¹⁰¹: entertainment content creation platform.

Nafs¹¹⁰²: Arabic for compete (*naafis*), esports competitions, leagues, championships and news.

Grintafy¹¹⁰³: social platform for amateur footballers (socialize, organize games, book fields, pay, rate and view stats).

Telecom and Mobile Services

Unifonic¹¹⁰⁴: cloud communications platform offering voice, sms, intelligence and verification, similar to Twilio, active in Saudi Arabia, Egypt and Jordan.

Intigral¹¹⁰⁵: provider of IP video products streaming (Dawri Plus) and billing services (Jawwy TV) in Saudi Arabia and UAE.

Transportation and Logistics

Mrsool¹¹⁰⁶: on demand delivery platform that allows in-application chat and bargaining.

Morni¹¹⁰⁷: logistics and roadside assistance services (towing, tires, batteries, fuel, locksmith and after-accident) through a mobile platform.

Salasa¹¹⁰⁸: third party logistics company providing e-commerce fulfillment service in the Middle East offering pick-up and pack services with multiple shipping options.

Jeeny¹¹⁰⁹: previously Easy (Taxi), partially owned by Rocket Internet, a ride hailing and order delivery platform with operations also in Jordan (suspended by government regulation in March 2019¹¹¹⁰).

Travel and Tourism

Almosafer¹¹¹¹: travel brokering platform, bookings for flights, hotels, holiday packages. Operates in Saudi Arabia and Egypt.

Tajawal¹¹¹²: online travel marketplace for booking flights, hotels and holidays, covers Saudi Arabia, UAE, Kuwait, Bahrain and outside MENA.

Events:

Women in data science day 2018¹¹¹³: held at Prince Sultan University in partnership with

¹⁰⁹⁹ <http://www.ammenha.com/>

¹¹⁰⁰ <http://uxbert.com/>

¹¹⁰¹ <http://telfaz11.com/>

¹¹⁰² <https://nafs.me/>

¹¹⁰³ <http://grintafy.com/>

¹¹⁰⁴ <https://www.unifonic.com>

¹¹⁰⁵ <http://www.intigral.net/>

¹¹⁰⁶ <https://mrsool.co>

¹¹⁰⁷ <https://www.morniksa.com/?locale=en>

¹¹⁰⁸ <http://salasa.co/>

¹¹⁰⁹ <http://jeeny.me/>

¹¹¹⁰ <https://www.menabytes.com/jeeny-jordan-shut-down/>

¹¹¹¹ <https://www.almosafer.com/en>

¹¹¹² <https://www.tajawal.com/en>

¹¹¹³ <http://www.psu.edu.sa/en/Colleges/ccis/WiDS/Pages/default.aspx>

Stanford University to encourage professional women in data science and engineering, March 5, 2018.

STC Datathon¹¹¹⁴: competition for traffic data management, ended March 18, 2019.

Data Science Workshop¹¹¹⁵: at King Saud University, March 24 – 25, 2019, open for men and women.

Step Conference in Riyadh¹¹¹⁶: largest tech experiential festival in the Middle East, March 25, 2019 (also in Dubai earlier).

Sports AI Hackathon¹¹¹⁷: national data and analytics competition to predict local soccer team results, March 29, 2019.

Saudi Drones Summit and Expo¹¹¹⁸: Applications of drones, April 22-23, 2019.

Customer Engagement Technology Conference¹¹¹⁹: 22nd edition of world series, April 24, 2019.

Kingdom Robotic Process Automation and AI¹¹²⁰: innovation platform for students and startups, April 28 – 29, 2019.

Seedstars¹¹²¹: global startup competition, Jeddah, September 5, 2019.

Saudi-Jordanian ICT Forum¹¹²²: to support the development of the market driven regulations and policies. September 17 -18, 2019.

IDC CIO Summit: guidance on AI, robotics, blockchain, cloud and cybersecurity. Jedda, September 18 – 19, 2019.

World AI Show¹¹²³: connects top AI experts, enterprises, government representatives, data scientists, technology leaders, startups, investors, researchers, academicians, and global AI innovators (September 25 - 26, 2019).

Seedstars¹¹²⁴: global startup competition, Riyadh, October 3, 2019.

Future Investment Initiative¹¹²⁵: organized by the Public Investment Fund, gathers leaders of business, government and civil society, October 22 – 24, 2019 (also held in 2018).

IDC IT Forum¹¹²⁶: future innovation accelerators, Riyadh, November 18, 2019.

IDC IT Forum¹¹²⁷: future innovation accelerators, Jedda, November 21, 2019.

¹¹¹⁴ <https://stc.hadir.co/>

¹¹¹⁵ <https://www.linkedin.com/feed/update/urn:li:activity:6515633216664272896/>

¹¹¹⁶ <https://saudi.stepconference.com/>

¹¹¹⁷ <https://hackathon.sa/thakaa>

¹¹¹⁸ <https://saudidrone.net/>

¹¹¹⁹ <http://cetworldseries.com/saudiarabia/>

¹¹²⁰ <http://www.kingdomrpa summit.com/>

¹¹²¹ <https://www.seedstarsworld.com/event/seedstars-jeddah-2019>

¹¹²² <http://www.sjictf.com/>

¹¹²³ <https://riyadh.worldaishow.com/>

¹¹²⁴ <https://www.seedstarsworld.com/event/seedstars-riyadh-2019>

¹¹²⁵ <http://futureinvestmentinitiative.com/>

¹¹²⁶ <https://www.idc.com/mea/events/66406-idc-it-forum-2019>

¹¹²⁷ <https://www.idc.com/mea/events/66407-idc-it-forum-2019>

Tunisia

The birthplace of the Arab Spring, Tunisia is centrally located in North Africa with both Arabic and French as common languages and its direct neighbors (Libya and Algeria) are facing stability issues. The economy is diversified and the country joined the Open Government Partnership with open data and initiatives empowering economic and advocacy institutions. Personal income tax is up to 35% and 30% for corporate tax¹¹²⁸ which may discourage startups despite recent initiatives and economic reforms. A round 40% of adults have bank accounts.

Tunisia introduced the Startup Act¹¹²⁹ in 2019 to empower entrepreneurship, the law helps entrepreneurs launch, run and liquidate their businesses. Among the incentives are state-funded salary for up to three founders per company during the first year of operations, tax breaks and a one-year leave period for public and private sector employees to set up a new business with the right to return to their old jobs. There are several programs and initiatives (some of which are regional) to support the startup ecosystem and provide training and mentorship.

Tunisian startups are active in AI and data analytics, IoT and health. E-commerce, energy and fintech are potential growth areas.

Programs and Enablers:

Cogite¹¹³⁰: community workspace for entrepreneurs offering amenities and events

Smart Tunisia¹¹³¹: technology hub offering outsourcing, training and networking.

Flat6 Labs Tunisia¹¹³²: part of the Flat6 Labs MENA¹¹³³ the regional startup accelerator program.

Tunisian Startups¹¹³⁴: aims at improving the entrepreneurial ecosystem.

Startup Act¹¹³⁵: a government legal framework supporting the entrepreneurial and startup ecosystem.

Intilaq¹¹³⁶: capacity building program and investment in tech startups, operates Intilaq data science academy¹¹³⁷.

Factory 619¹¹³⁸: startup studio and tech innovation hub offering coworking place, facilities and events with focus on health, digital and gaming (factory619.com is flagged as not secure).

The 777¹¹³⁹: private startup incubator that funds and fosters tech early-stage startups (could not

¹¹²⁸ <https://www.heritage.org/index/country/tunisia>

¹¹²⁹ <https://www.weforum.org/agenda/2019/03/in-tunisia-budding-entrepreneurs-can-apply-for-startup-leave-from-their-jobs/>

¹¹³⁰ <https://cogite.tn/>

¹¹³¹ <http://www.smarttunisia.tn/>

¹¹³² <http://www.flat6labstunis.com/>

¹¹³³ <http://www.flat6labstunis.com/>

¹¹³⁴ <http://www.tunisianstartups.org/>

¹¹³⁵ <https://www.startupact.tn>

¹¹³⁶ <http://www.intilaq.tn/>

¹¹³⁷ <http://www.intilaqacademy.tn/>

¹¹³⁸ <https://twitter.com/619Factory>

¹¹³⁹ <https://777.work/>

verify current activity).

B@Labs¹¹⁴⁰: intensive 4-month program for early-stage startups providing hands-on mentorship, access to market, expertise and an inspiring work environment in various sectors.

Tunirobots¹¹⁴¹: national day of robotics conducts challenges and championships.

Funding and Investing:

AfricInvest¹¹⁴²: investment and financial services provider with focus on Africa, recently joined forces with Cathy Innovation¹¹⁴³.

UGFS¹¹⁴⁴: United Gulf Financial Services – North Africa, a venture capital firm supporting entrepreneurs in all stages, has Islamic private equity fund.

Capsa Capital partners¹¹⁴⁵: invests in private companies and provides asset management on behalf of third parties, offers investing and strategic support to startups with growth potential.

CDC Gestion¹¹⁴⁶: venture capital fund management company interested in high potential SMEs with focus on social and environmental sectors.

Enda Tamweel¹¹⁴⁷: provides microfinance services to micro enterprises, belongs to Edna NGO.

Souk At-Tanmia¹¹⁴⁸: an economic development initiative that provides financial services and support to Tunisian entrepreneurs.

Startups and companies:

Advertising and Marketing

Grabingo¹¹⁴⁹: loyalty card service provider, manages rewards and offers analytics to business owners.

Galactech¹¹⁵⁰: a gaming studio with offices in Tunisia, UAE and Germany, develops car AR/VR smart advertising.

Agritech

Iris Tech¹¹⁵¹: smart IoT card for beehives to monitor and track their health.

iFarming¹¹⁵²: provides precision and smart irrigation using IoT.

AI and Analytics/VR/AR

Barac¹¹⁵³: helps organization detect fraud and cyber-attacks through encrypted data in real time using a combination of real time data and artificial intelligence, has offices in US and Europe.

¹¹⁴⁰ <https://www.biatlabs.com>

¹¹⁴¹ <http://tunirobots.com/>

¹¹⁴² <http://www.africinvest.com/>

¹¹⁴³ <http://www.cathayinnovation.com/>

¹¹⁴⁴ <https://www.ugfsnorthafrica.com.tn/>

¹¹⁴⁵ <http://www.capsa-capital.com/>

¹¹⁴⁶ <http://www.cdcgestion.tn/>

¹¹⁴⁷ <http://www.endatamweel.tn/>

¹¹⁴⁸ <http://www.soukattanmia.org/>

¹¹⁴⁹ <https://grabingo.app/>

¹¹⁵⁰ <https://www.galactechstudio.com/>

¹¹⁵¹ <http://www.iris-tech.tn/>

¹¹⁵² <http://www.ifarming-tunisia.com/>

¹¹⁵³ <https://barac.io/>

Simple.Expert¹¹⁵⁴: uses AI to provide budget estimates to website and app developers, has network of digital experts to work on projects (apparently in France, could not verify recent activity).

InstaDeep¹¹⁵⁵: AI powered decision-making systems for the enterprise, has office in Tunisia, UK, France, Kenya and Nigeria.

Data Performers¹¹⁵⁶: AI solutions for businesses including Stellar AI (data analytics) and Specter Net (computer vision). Address is listed in Canada.

Careers

FabSkill¹¹⁵⁷: web platform offering an innovative recruitment process based on artificial intelligence, video interview and collaborative rating of candidates.

Edutech

GoMyCode¹¹⁵⁸: computer programming school and content provider preparing youth for tech jobs and startups.

Evocraft¹¹⁵⁹: develops and sells (online) educational robots, arms and kits.

Energy

WattNow¹¹⁶⁰: energy consumption optimization solution provider, offers device, insights and analytics.

Techability¹¹⁶¹: energy insights provider (not ready yet).

Fashion (clothing, beauty and eyewear)

Dabchy¹¹⁶²: localized fashion marketplace providing peer to peer buy and sell new or used.

Avera¹¹⁶³: online marketplace for beauty care with network marketing.

Fintech

Altimum¹¹⁶⁴: cashless payment (cash register) and collection management for SMEs.

Health and Fitness

Epilert¹¹⁶⁵: develops a wearable device, a bracelet, that detects (and predicts using AI) an epilepsy seizure and sends an alert to the care-givers.

HealUp¹¹⁶⁶: cloud-based, patient centered, integrated health management platform.

Med.tn¹¹⁶⁷: electronic healthcare platform and marketplace, provides health content in Arabic, English, French and Turkish, and allows direct consulting and appointment booking with health

¹¹⁵⁴ <https://simple.expert/en>

¹¹⁵⁵ <https://www.instadeep.com/>

¹¹⁵⁶ <https://www.dataperformers.com/>

¹¹⁵⁷ <https://fabskill.com/>

¹¹⁵⁸ <https://gomycode.tn>

¹¹⁵⁹ <http://www.evocraft.tk/>

¹¹⁶⁰ <https://www.wattnow.io/>

¹¹⁶¹ <http://techability.tn/>

¹¹⁶² <https://www.dabchy.com/>

¹¹⁶³ <http://www.arvea-nature.com/>

¹¹⁶⁴ <https://www.ultimum.com/>

¹¹⁶⁵ <http://epilert.io>

¹¹⁶⁶ <https://gethealup.com/>

¹¹⁶⁷ <https://www.med.tn/>

professionals.

Hippocrate¹¹⁶⁸: not for profit organization working on disruptive medical solutions (medical big data platform for disease discovery and treatment).

Services and Management

Expensya¹¹⁶⁹: expense reports management and automation solution with automatic scan and data extraction.

Enova Robotics¹¹⁷⁰: specialized in robot design and manufacturing with use cases in industry, education and security.

Vynd¹¹⁷¹: a digital urban guide of events with ratings, includes offers and reservations.

Logis¹¹⁷²: real estate platform to rent or buy apartment, houses and offices (search or list).

Tira Robotics¹¹⁷³: robotics arm manufacturer and industrial automation service provider (starting up).

Madar Consulting¹¹⁷⁴: big data consulting and training firm with offices in Tunisia, France and USA.

M2M Group¹¹⁷⁵: data processing and IoT device provider (for industry, agriculture and e-kiosks).

Compi Technology¹¹⁷⁶: IoT hardware and software manufacturer and service provider.

Swiver¹¹⁷⁷: simple online business invoicing, management and reporting system.

Cure¹¹⁷⁸: not a data centric startup, but works in the disruptive rehabilitation methods including 3D printing.

Steros¹¹⁷⁹: sterilization management through surgical instrument tracking.

Sports and Entertainment

Identity¹¹⁸⁰: life style platform to discover hotspots and track activities (address listed in Hungary).

Transportation and Logistics

Optima Logistics¹¹⁸¹: a marketplace for logistics services connecting truck drivers and transportation companies with customers.

Monresto¹¹⁸²: last mile logistics startup specialized in food delivery from restaurants.

Events:

¹¹⁶⁸ <https://www.hippocrate.org/>

¹¹⁶⁹ <https://www.expensya.com/en>

¹¹⁷⁰ <https://www.enovarobotics.eu/>

¹¹⁷¹ <https://www.vynd.com/>

¹¹⁷² <https://www.logis.tn/>

¹¹⁷³ <https://tirarobots.com/>

¹¹⁷⁴ <http://www.madarconsulting.com/>

¹¹⁷⁵ <https://www.m2m-groupe.com/>

¹¹⁷⁶ <http://compitechnology.com/>

¹¹⁷⁷ <https://swiver.io/en/>

¹¹⁷⁸ <https://dhaouafimed.wixsite.com/curetunisie>

¹¹⁷⁹ <https://www.steros.tn>

¹¹⁸⁰ <https://u4nited.com>

¹¹⁸¹ <https://www.optimalogistic.com/en/>

¹¹⁸² <https://www.monresto.net/>

IndabaX Tunisia¹¹⁸³: deep learning workshop organized in partnership with InstaDeep, April 13, 2019.

RightsCon¹¹⁸⁴: world's leading summit on human rights and the digital age, brings together business leaders, policy makers, general counsels, government representatives, technologists, and human rights defenders to connect, strategize, and shape the future. June 11 – 14, 2019.

International Conference on Recent Advances in Robotics and Automation¹¹⁸⁵: a platform for Research scientists, investors, industrial and government representatives to present the latest innovations, novel results and the-state-of-the-art ideas. June 29 – 30, 2019.

Seedstars¹¹⁸⁶: global startup competition, October 24, 2019.

¹¹⁸³ <https://www.indabaxtunisia.com/>

¹¹⁸⁴ <https://www.rightscon.org/>

¹¹⁸⁵ <http://icrara.org/>

¹¹⁸⁶ <https://www.seedstarsworld.com/event/seedstars-tunis-2019>

United Arab Emirates

A member of the GCC, UAE has emerged as the MENA tech and entrepreneurship hub. The country has a diversified liberal economy (9th freest worldwide¹¹⁸⁷). With no personal or federal taxes (UAE consists of 7 emirates, some have corporate taxes) and 90% banking rate among adults, UAE has attracted major international companies that established regional presence in addition to regional startups. At the global level, UAE is top hotspot for startups followed by New Zealand, Singapore, Norway, Germany, Japan and Sweden¹¹⁸⁸.

UAE's 2021 vision¹¹⁸⁹ focuses on creating a smart innovation-driven economy and UAE is the only country to establish a 'ministry of AI'. UAE has an advanced ecosystem and infrastructure with AI at use in education¹¹⁹⁰ and Smart Dubai turning into a true smart city with a special data law and different smart services including smart police stations¹¹⁹¹. As a commitment to startup assistance, in the upcoming Expo2020, Dubai is awarding 56% of contracts to SMEs¹¹⁹². Following a Saudi step granting residency status to foreign investors and skilled personnel, UAE announced its Golden Card¹¹⁹³ scheme in May 2019. In mid 2019, Microsoft Azure established its first datacenter in UAE as the first Middle East cloud region¹¹⁹⁴. The country is also home to the One Million Arab Coders Initiative¹¹⁹⁵ in collaboration with Udacity¹¹⁹⁶ and Microsoft¹¹⁹⁷.

UAE's Centennial vision 2071¹¹⁹⁸ aims at making UAE the best country in the world through education and a focus on advanced technology and engineering and there are various steps, programs and initiatives towards this goal. For example, UAE announced 5-year visa for the top 100 startups selected by WEF during the Dead Sea forum (April 7, 2019)¹¹⁹⁹ and launched a wide array of enablers including a female only accelerator¹²⁰⁰. ThinkAI was the most recent initiative. On the dark side, UAE is the most expensive among GCC countries and, in addition to the political row with Qatar, UAE is actively involved in the conflict in Yemen.

UAE data startups span all areas (as a tech hub, it covers MENA and beyond) and this is likely to continue in the near future with potential leadership in e-commerce, IoT, fintech and data analytics.

¹¹⁸⁷ <https://www.heritage.org/index/country/unitedarabemirates>

¹¹⁸⁸ <https://www.khaleejtimes.com/business/uae-worlds-top-hot-spot-for-hundreds-of-startups-aim-startup>

¹¹⁸⁹ <https://www.vision2021.ae/en/home>

¹¹⁹⁰ <http://wam.ae/en/details/1395302748340>

¹¹⁹¹ <https://www.arabianbusiness.com/dubai-build-six-smart-police-stations-616322.html>

¹¹⁹² <https://www.arabianbusiness.com/startup/416414-expo-2020-dubai-awards-56-of-contracts-to-smes>

¹¹⁹³ <https://magnitt.com/news/its-now-uaes-turn-following-ksas-approval-new-green-card-style-visa-system-uae-launches-permanent>

¹¹⁹⁴ <https://azure.microsoft.com/en-us/blog/first-microsoft-cloud-regions-in-middle-east-now-available/>

¹¹⁹⁵ <http://www.arabcoders.ae/>

¹¹⁹⁶ <https://www.udacity.com/mena/one-million-arab-coders/en>

¹¹⁹⁷ https://cloudsociety.microsoft.com/One_Million_Arab_Coders

¹¹⁹⁸ <https://area2071.ae/>

¹¹⁹⁹ <https://www.wamda.com/2019/04/what-learned-wef-mena-2019>

¹²⁰⁰ <https://www.difc.ae/newsroom/news/difc-fintech-hive-launches-career-mentorship-programme-accelerateher/>

Programs and Enablers:

Jadarah¹²⁰¹: a 5-month program for tech entrepreneurs in the region, offers training, mentorship and networking.

Arabian Business Startup Academy¹²⁰²: a hub for conversation about the latest business opportunities, start-up disruptions, funding deals, legal and regulatory steps to follow, organizes events annually.

Dubai Startup Hub¹²⁰³: an arm of Dubai Chamber, runs various programs like market access, education, advocacy, competitions

Startup Bootcamp¹²⁰⁴: global European firm that runs the Dubai Smart City and Fintech Dubai accelerators

Dubai Future Foundation¹²⁰⁵: a collection of programs, initiatives and events to innovate for the future.

Astrolabs: coworking community and learning academy for digital technology companies, operates in Dubai and Riyadh.

Dubai Silicon Oasis Authority¹²⁰⁶: free zone integrated technology park providing living and working community with state of the art infrastructure and in-house business services.

Dubai Science Park¹²⁰⁷: provides office space and business services

Dubai Business Women Council¹²⁰⁸: official representative organization for business women, both professionals and entrepreneurs, supports women participation in social and economic activities.

Dubai Technology and Entrepreneurship Campus¹²⁰⁹ (DTEC): a high capacity platform for startups, investors and corporates, runs Entrepreneurs Day¹²¹⁰.

IMena¹²¹¹: operates online and mobile businesses in the high-growth, under-served market of the MENA region, owns three regional hubs (UAE, Saudi Arabia and Jordan).

Fintech Hive¹²¹²: largest fintech accelerator in the Middle East, Africa and South Asia (MEASA), launched in 2017 by Dubai International Financial Centre (DIFC).

Techstars Dubai¹²¹³: an accelerator in partnership with the GINCO engineering and construction group which provides investment.

Dubai Knowledge Park¹²¹⁴: a human resources management, professional learning and educational free trade zone campus, hosts business programs and manages the UAEpreneur

¹²⁰¹ <https://www.jadarah.com>

¹²⁰² <http://www.arabianbusiness.com/startup-academy/>

¹²⁰³¹²⁰³ <http://www.dubaichamber.com/dubaistartuphub/>

¹²⁰⁴ <https://www.startupbootcamp.org>

¹²⁰⁵ <https://www.dubaifuture.gov.ae/>

¹²⁰⁶ <https://www.dsoa.ae/>

¹²⁰⁷ <http://www.dsp.ae/>

¹²⁰⁸ <http://www.dbwc.ae/>

¹²⁰⁹ <https://dtec.ae/>

¹²¹⁰ <https://entrepreneurd.day.dtec.ae/>

¹²¹¹ <http://imena.com>

¹²¹² <https://fintechhive.difc.ae/>

¹²¹³ <https://www.techstars.com/programs/dubai-program/>

¹²¹⁴ <http://www.dkp.ae/>

initiative (investing).

Dubai Future Accelerators¹²¹⁵: facilitates partnerships between entrepreneurs, private sector organizations and government entities to co-create solutions and does not take equity.

In5¹²¹⁶: an enabling space for entrepreneurs and startups offering space, mentorship, networking and access to investors with focus on tech, media and design.

Sheraa¹²¹⁷: Sharjah Entrepreneurship Center offering space and different services ranging from ideation to series A investment.

StartAD¹²¹⁸: Abu Dhabi based accelerator helping seed stage startups launch, develop and scale, operated by New York University in Abu Dhabi.

Hub71¹²¹⁹: a global ecosystem for tech companies, start-ups and investors, partners with Microsoft and local investors.

Masdar¹²²⁰: Abu Dhabi based future energy company provides education, research and development, and investing in renewable energy and clean tech startups. Owns Masdar city community and its tech park.

Catalyst¹²²¹: startup technology accelerator based in Abu Dhabi's Masdar City with focus on clean and sustainable development.

Global Education and Skills Forum¹²²²: brings together world leaders from the public, private and social sectors and seeks solutions to achieve education, equity and employment for all.

Gitex¹²²³: a well-known annual technology week, conference and show, October 6 – 10, 2019

Dubai Internet City¹²²⁴: an early technology hub for business community, entrepreneurs and innovators.

Plug and Play¹²²⁵: the global innovation platform based in Silicon Valley has a branch in UAE in partnership with Abu Dhabi Global Market with focus on Fintech. Some startups in the program are mentioned in Zawya¹²²⁶.

C3¹²²⁷: Consult and Coach for a Cause – a social enterprise helping entrepreneurs to maximize positive impact.

Flat6 Labs Abu Dhabi¹²²⁸: digital media startup accelerator, part of the regional Flat6 Labs organization.

Startup Boot Camp¹²²⁹: fintech accelerator program supporting financial services innovation and

¹²¹⁵ <https://dubaifutureaccelerators.com>

¹²¹⁶ <https://infive.ae/>

¹²¹⁷ <https://sheraa.ae/>

¹²¹⁸ <http://sites.nyuad.nyu.edu/nyuadstartad/>

¹²¹⁹ <https://www.hub71ad.com/>

¹²²⁰ <https://masdar.ae/>

¹²²¹ <https://catalyst.ae>

¹²²² <https://www.educationandskillsforum.org/>

¹²²³ <https://www.gitex.com/>

¹²²⁴ <http://www.dic.ae/>

¹²²⁵ <https://www.pluginandplaytechcenter.com/>

¹²²⁶

https://www.zawya.com/mena/en/companies/story/Plug_and_Play_ADGM_announces_nine_startups_participating_in_its_second_Fintech_Innovation_Platform-ZAWYA20190326083240/

¹²²⁷ <http://www.wegrowwithc3.com>

¹²²⁸ <http://flat6labsabudhabi.com/>

¹²²⁹ <https://www.startupbootcamp.org/accelerator/fintech-dubai/>

technology.

Step Conference¹²³⁰: most experiential tech festival in the MENA Region where founders, startups and entrepreneurs meet investors. During 2019, STEP is hosted in Saudi Arabia.

Krypto Labs¹²³¹: incubator and coworking space in Abu Dhabi for early stage startups.

UAE University Science and Innovation Park¹²³²: a hub of innovation, leadership and entrepreneurship.

FinTech Abu Dhabi¹²³³: annual event for entrepreneurs, startups, investors and industry in the fintech sector.

Womomentum¹²³⁴: women focused startup accelerator.

Mad Talks¹²³⁵: a storytelling and content platform for entrepreneurs and business leaders events, talks and videos).

The Cribb¹²³⁶: innovation and entrepreneurship hub providing networking and venture funds.

Hamdan Bin Mohammed Smart University¹²³⁷: focuses on research, innovation and leadership especially in business, education, healthcare and environment.

Goodforce Labs¹²³⁸: startup incubator and foundry providing design, technology and marketing labs with focus on financials, food, education and lifestyle sectors.

The Greenhouse¹²³⁹: by Shalhoub Group, technology incubator and accelerator for group employees.

Arab Youth Center¹²⁴⁰: works on initiatives led by Arab youth, organizes meetings and events, and publishes relevant reports. The Center organizes the Arab Youth Marketplace¹²⁴¹ to showcase projects and network with investors.

Unbox Inc.¹²⁴²: workspace, business services and community network for entrepreneurs and corporations.

Re: Urban Studio¹²⁴³: membership based creative coworking space for like-minded creative thinkers.

TwoFour54¹²⁴⁴: business incubator, investment, and media free zone in Abu Dhabi.

Expo 2020¹²⁴⁵: innovation and partnership program including funding, acceleration and promotion through expo activities where over 50% of contracts are by SMEs.

Nook¹²⁴⁶: health, sports and wellness entrepreneurs coworking space and platform.

¹²³⁰ <https://twitter.com/stepconference>

¹²³¹ <https://kryptolabs.com/>

¹²³² <https://uaeusip.uaeu.ac.ae/>

¹²³³ <https://fintechabudhabi.com/>

¹²³⁴ <https://womona.com/womomentum/>

¹²³⁵¹²³⁵ <http://www.madtalks.com/>

¹²³⁶ <http://innovation360.co/>

¹²³⁷ <https://www.hbmsu.ac.ae/>

¹²³⁸ <https://www.goodforcelabs.com/>

¹²³⁹ <https://www.chalhoubgreenhouse.com/>

¹²⁴⁰ <http://arabyouthcenter.org/>

¹²⁴¹ <http://aysm.arabyouthcenter.org/>

¹²⁴² <https://unboxinc.com/>

¹²⁴³ <https://www.re-urbanstudio.com>

¹²⁴⁴ <https://www.twofour54.com>

¹²⁴⁵ <https://www.expo2020dubai.com/>

¹²⁴⁶ <https://duplays.com/nook>

Dubai Smart City Accelerator¹²⁴⁷: supports innovative companies in the IoT and connectivity, urban automation and mobility, artificial intelligence, blockchain, open city data, smart government, and smart retail.

Reg Lab¹²⁴⁸: regulatory lab and fintech sandbox designed to foster innovation within the UAE financial services market, part of Abu Dhabi Global Market.

Witwork¹²⁴⁹: subscription based workspace in restaurants, cafés and other meeting places in UAE and other countries.

Mind Cloud Academy¹²⁵⁰: business and entrepreneurship academy, provides training, mentorship and advisory for entrepreneurs, has standard programs¹²⁵¹.

Womenable¹²⁵²: an initiative to support women business owners, organizes events in collaboration with Grow.ME¹²⁵³.

Khalifah Innovation Center¹²⁵⁴: incubation center that supports the commercialization of local high-tech technologies, nurturing them into successful startups, provides mentorship and access to funding.

Impact Hub Dubai¹²⁵⁵: a coworking space and community of entrepreneurs offering space, workshops, events, lab and networking.

Glass Qube¹²⁵⁶: coworking and private spaces and business services, multiple locations and countries.

Intelak¹²⁵⁷: led by the Emirates Group, GE, and Dubai Tourism Commerce and Marketing, a hub that inspires and develops teams to become part of the travel and aviation innovators, runs bootcamps leading to incubation.

500 Spaces¹²⁵⁸: new global platform of innovation hubs and coworking spaces to support MENA startups (forming in Abu Dhabi, MOU signed in May 2019).

WeWork¹²⁵⁹: a global network of workspaces, provides space, community and business services (launching).

Funding and Investing:

Equitrust¹²⁶⁰: venture arm of the Choueiri Group.

Hikma Ventures¹²⁶¹: invests in emerging companies in digital health, headquartered in

¹²⁴⁷ <https://dubaismartcity.org/>

¹²⁴⁸ <http://fintech.adgm.com/regulatory-laboratory/>

¹²⁴⁹ <https://witwork.co>

¹²⁵⁰ <https://mindcloudacademy.com>

¹²⁵¹ <https://mindcloudacademy.com/program/>

¹²⁵² <http://women-able.com/>

¹²⁵³ <http://www.grow-me.biz/>

¹²⁵⁴ <http://www.khalifainnovation.ae/>

¹²⁵⁵ <http://impacthub.ae/>

¹²⁵⁶ <https://www.glassqube.com/>

¹²⁵⁷ <https://www.intelak.com/>

¹²⁵⁸

https://www.zawya.com/mena/en/companies/story/ADFG_GS_SHOP_and_500_Startups_to_launch_Global_Coworking_and_Innovation_Platform-ZAWYA20190507114946/

¹²⁵⁹ <https://www.wework.com/l/dubaiv>

¹²⁶⁰ <https://www.linkedin.com/company/choueiri-group/>

¹²⁶¹ <https://www.hikmaventures.com>

London.

Mohammad Bin Rashid Innovation Fund¹²⁶² (MBRIF): public-private partnership for UAE and other innovation realizing future vision, runs an accelerator.

Numu (growth) Capital¹²⁶³: seed fund that invests in MENA tech startups.

Wamda Capital¹²⁶⁴: regional Venture Capital Firm focused on deploying growth capital in MENA's leading technology companies.

MBC Ventures¹²⁶⁵: an investing arm of the media group MBC.

Turn8¹²⁶⁶: a venture fund comprised of a growth accelerator program and follow-on investment fund, provides investment, mentorship, training and year-long business development support.

Khalifa Fund¹²⁶⁷: provides capacity building and funding in Abu Dhabi and other UAE regions.

Venture Souq¹²⁶⁸: Early stage equity funding platform that connects great ideas with smart people and capital in technology startups.

BECO Capital¹²⁶⁹: early stage venture capital firm with focus on innovation and tech entrepreneurship.

Mubadala¹²⁷⁰: global investment company based in Abu Dhabi, active in various sectors.

Jabbar Internet Group¹²⁷¹: invests in great ideas and startups (Souq, Maktoob, payfort, ...).

Arzan VC¹²⁷²: invests in innovative startups, has offices in UAE and Kuwait.

Faster Capital¹²⁷³: a virtual incubator based in Dubai Internet City, provides acceleration, incubation and funding. Has offices worldwide.

AI Venture Labs¹²⁷⁴: AI and cloud-based startup accelerator, provides labs, knowledge and capital, in cooperation with Microsoft.

ASA Ventures¹²⁷⁵: invests in various industries like customer satisfaction, business optimization, retail and modest fashion.

Dubai Angel Investors¹²⁷⁶: a member-led investment company made up of like-minded individuals (capital and expertise).

Innovest¹²⁷⁷: a buy-in firm that partners with high potential Entrepreneurs and SME founders during their startup and growth stage.

Shorooq Investments¹²⁷⁸: invests in technology, tech-enabled services, healthcare and consumer sectors and adds entrepreneurial experience.

¹²⁶² <https://ia.mbrif.ae/>

¹²⁶³ <https://numucapital.com/>

¹²⁶⁴ <http://www.wamdacapital.com/>

¹²⁶⁵ <https://www.mbc.net/en/corporate/ventures>

¹²⁶⁶ <https://turn8.co>

¹²⁶⁷ <https://www.khalifafund.ae/>

¹²⁶⁸ <https://www.venturesouq.com/>

¹²⁶⁹ <https://becocapital.com/>

¹²⁷⁰ <https://www.mubadala.com/>

¹²⁷¹ <http://www.jabbar.com/>

¹²⁷² <http://www.arzanvc.com>

¹²⁷³ <http://www.fastercapital.com/>

¹²⁷⁴ <http://aiventurelabs.com>

¹²⁷⁵ <https://www.asa.ventures/>

¹²⁷⁶ <https://www.dubaiaangelinvestors.me>

¹²⁷⁷ <https://innovest.me/>

¹²⁷⁸ <http://shorooq.ae>

Dtec Ventures¹²⁷⁹: part of Dubai Silicon Oasis, provides coworking space, acceleration, partnerships and funding for early stage tech startups.

Women's Angel Investors Network¹²⁸⁰: an investor network for women in the MENA region with a goal is to build an informed ecosystem of women investors who support women entrepreneurs in the Arab world.

Global Ventures¹²⁸¹: venture capital fund with focus on enterprise technology investments.

Precinct Partners¹²⁸²: provides capital, expertise and network to support the rapid growth and development of startups in growth stage.

Ginco Investments¹²⁸³: consolidated family investment office of GINCO Group, accelerator and investment in partnership with TechStars.

Genero¹²⁸⁴: Dubai based Investment company focused on corporate finance advisory and private equity Investments in MENA.

Jisr Partners¹²⁸⁵: growth stage investments in healthcare, consumer goods, fintech and new media.

GlowFish Capital¹²⁸⁶: invests in seed and growth stages of disrupting startups.

Pecunio¹²⁸⁷: interested in future financial markets like cryptocurrencies.

Gulf Islamic Investments¹²⁸⁸: investment opportunities in private equity, venture capital, infrastructure and real estate.

Sanad AD¹²⁸⁹: Abu Dhabi-based investment development company supporting startups from inception to rollout in verticals like healthcare, real estate and hospitality.

MENA Angel Investor¹²⁹⁰: a team of private equity investors that support entrepreneurs throughout the Middle East by providing new business funding in Dubai, Saudi Arabia, Oman and Qatar.

Falcon Network¹²⁹¹: a global network of angels that partners with incubators to select and invest in startups.

Hayaat Group¹²⁹²: investing interests range from next generation disruptors to real estate and urban regeneration.

Mindshift Capital¹²⁹³: global, women-run venture firm investing in women-led companies.

Millennial Capital¹²⁹⁴: investment and management firm providing growth capital to global emerging brands in the consumer sector which target to enter the GCC.

¹²⁷⁹ <https://dtec.ae/ventures/>

¹²⁸⁰ <https://womensangelinvestornetwork.wordpress.com>

¹²⁸¹ <https://www.global.vc/>

¹²⁸² <http://precinctpartners.com/>

¹²⁸³ <https://www.ginco.investments/>

¹²⁸⁴ <http://www.genero.ae>

¹²⁸⁵ <http://jisrpartners.com/>

¹²⁸⁶ <https://www.glowfishcapital.com>

¹²⁸⁷ <https://pecun.io/>

¹²⁸⁸ <http://gii.ae/>

¹²⁸⁹ <https://sanadad.ae/>

¹²⁹⁰ <https://www.menaangelinvestor.com>

¹²⁹¹ <https://falconnetwork.org>

¹²⁹² <http://www.hayaatgroup.com/>

¹²⁹³ <https://www.mindshiftcapital.com/>

¹²⁹⁴ <https://www.millennialcapital.net/home/venture-capital>

Mohammed Bin Rashid Fund for SMEs¹²⁹⁵: supports and funds Emirati young citizens' projects in addition to small and medium enterprises.

Al Zarooni Emirates Investments¹²⁹⁶: holding company managing investments in healthcare, logistics, education, food and beverage, and financial services.

Iliad Partners¹²⁹⁷: invests in early stage technology companies with a focus on the MENA region.

Enhance¹²⁹⁸: venture builder and startup studio, owns Joi Gifts¹²⁹⁹.

Eureeca¹³⁰⁰: multi-regulated equity crowdfunding platform to invest and raise capital.

Startups and companies:

Advertising and Marketing

ArabyAds¹³⁰¹: performance marketing platform with KPI, influencer and affiliate marketing solutions. Has offices in UAE and Egypt.

Cobone¹³⁰²: digital daily deals (discounts or coupons) in UAE and Saudi Arabia.

Alpha Apps¹³⁰³: mainly a mobile app developer but offers user acquisition service and has loyalty card app among projects.

Point Checkout¹³⁰⁴: online loyalty and reward points/miles management and payment platform.

Bebuzzd¹³⁰⁵: digital loyalty, customer acquisition and engagement service provider (earn and redeem).

Task Spotting¹³⁰⁶: brand advocacy platform powered by consumer generated content as word of mouth.

ArabClicks¹³⁰⁷: an affiliate marketing network for GCC (except Qatar) matching publishers and advertisers with focus on micro influencers.

Insider¹³⁰⁸: digital experience and growth management platform for marketers from customer acquisition to retention, using AI.

Zbooni¹³⁰⁹: social commerce platform enabling merchants to sell over chat applications.

ClipTheDeal¹³¹⁰: digital groceries deals coupons (find and accept deals to get cashback).

Urban Buz¹³¹¹: customer integrated data platform with CRM, customer engagement and loyalty, offers insights and analytics.

¹²⁹⁵ <https://www.thefund.ae/>

¹²⁹⁶ <http://www.zeinvestments.com/>

¹²⁹⁷ <https://www.iliad-partners.com/>

¹²⁹⁸ <https://www.enhance.online/>

¹²⁹⁹ <https://www.joigifts.com/>

¹³⁰⁰ <https://eureeca.com>

¹³⁰¹ <https://arabyads.com/>

¹³⁰² <https://www.cobone.com>

¹³⁰³ <https://www.alpha-apps.ae>

¹³⁰⁴ <https://www.pointcheckout.com>

¹³⁰⁵ <https://www.bebuzzd.com/>

¹³⁰⁶ <https://taskspotting.com>

¹³⁰⁷ <https://www.arabclicks.com>

¹³⁰⁸ <https://useinsider.com/>

¹³⁰⁹ <https://www.zbooni.com>

¹³¹⁰ <https://www.clipthedeal.com/>

¹³¹¹ <https://urbanbuz.com/>

DeliWer¹³¹²: online loyalty program for shopping and delivery, travel, food, lifestyle and services.

KeepFace¹³¹³: influencer marketing platform operating in several countries and linking brands with influencers.

Susurrus¹³¹⁴: online marketplace that helps brands run influencer marketing campaigns automatically.

AladdinB2B¹³¹⁵: online business intelligence, partnering and prospecting tool streamline sales, marketing and promotional cycle.

Audianc¹³¹⁶: provides technical solutions in the ad tech and programmatic space to help advertisers utilize their in-house data and the power of AI and machine learning.

Localyser¹³¹⁷: online reputation management platform for restaurants, hotels, health, leisure and retail industries (track multi-location brands via web and social media).

Znap¹³¹⁸: platform for shopping that provides cashback after offers are bought.

Qmeter¹³¹⁹: customer feedback and satisfaction management tool from provided customer experience.

Agritech

Pure Harvest¹³²⁰: smart agritech startup, innovator in sustainable agriculture focused on the production of greenhouse fruits and vegetables in the extreme climates of the Arab Gulf.

AI and Analytics/VR/AR

Votek¹³²¹: Arabic speech recognition technology standard and dialects, empowers government apps, mobiles, smart characters and toys.

Derq¹³²²: MIT spin off between Detroit and Dubai, using AI and connected vehicles technology to predict and prevent road accidents.

CrowdAnalyzer¹³²³: Arabic focused social media monitoring platform using AI and NLP.

Wrappup¹³²⁴: speech insights technology provider, now part of US company voicea¹³²⁵.

Labiba.ai¹³²⁶: AI and robotics process automation provider, a platform for building chatbots.

Narratiive¹³²⁷: headquartered in Canada with second office in Dubai, provides user behavior measurement (across platforms and media) services especially in MENA and Africa using AI.

Narrativa¹³²⁸: natural language generation service that transforms data into human-sounding narratives using artificial intelligence, serves sectors like health, media and financial services, has

¹³¹² <http://www.deliwer.com/>

¹³¹³ <https://keepface.com/>

¹³¹⁴ <https://www.susurrus.io/>

¹³¹⁵ <https://aladdinb2b.com>

¹³¹⁶ <http://www.audianc.com>

¹³¹⁷ <http://www.localyser.com/>

¹³¹⁸ <https://znapapp.com/>

¹³¹⁹ <https://www.qmeter.net/>

¹³²⁰ <https://pureharvest.ae>

¹³²¹ <https://votek.me/>

¹³²² <http://en.derq.com>

¹³²³ <https://crowdanalyzer.com/>

¹³²⁴ <https://www.wrappup.co/>

¹³²⁵ <https://www.voicea.com>

¹³²⁶ <https://www.labiba.ai>

¹³²⁷ <https://www.narratiive.com/>

¹³²⁸ <https://www.narrativa.com>

offices in UAE, Germany and Spain.

Inception Institute of AI¹³²⁹: Abu Dhabi based national research organization with focus on applied and fundamental AI research.

Pyxidial¹³³⁰: utilizing technology to capture emotions and sentiments from social media and visualize data, supports Arabic.

AIME¹³³¹: Artificial Intelligence Middle East, part of Gulf Data International, provides data and AI powered solutions for healthcare, banking, education and other sectors.

Fournxt¹³³²: developers of chatbots, IoT and robotics, with offices in UAE, UK and India.

Saal¹³³³: uses AI in education, health care, finance and public sectors.

Careers

Searchie¹³³⁴: online recruitment platform manages searching and matching through freelance recruiters and AI.

Oliv¹³³⁵: career platform for the youth, connects companies and university students for internships and jobs opportunities in UAE, MENA and outside.

Dubizzle¹³³⁶: a classifieds marketplace including cars, properties for rent and sale, jobs and other community ads, mainly in UAE in addition to other GCC members, Lebanon and Egypt. Now acquired by OLX Group¹³³⁷.

Bayt¹³³⁸: online jobs marketplace covering MENA region.

Bloovo¹³³⁹: online recruitment platform matching job seekers with employers (UAE, Kuwait, Oman and Saudi Arabia).

Laimoon¹³⁴⁰: online career platform (free for employers and job seekers) and training courses marketer in UAE and other MENA and international countries.

ZoEasy¹³⁴¹: online platform which matches employers with their ideal domestic and blue collar workers and vice versa.

Edutech

Report Card¹³⁴²: student management platform with instant insights, handles payments and integrates with other applications.

School Voice¹³⁴³: online communication and social platform between schools and parents.

¹³²⁹ <http://www.inceptioniai.org/>

¹³³⁰ <http://pyxidial.tech/>

¹³³¹ <https://www.aime.ae/>

¹³³² <http://www.fournxt.com/>

¹³³³ <https://saal.ai/>

¹³³⁴ <https://searchie.me/>

¹³³⁵ <https://oliv.com>

¹³³⁶ <https://www.dubizzle.com/>

¹³³⁷ <https://www.olx.com/>

¹³³⁸ <https://www.bayt.com>

¹³³⁹ <https://www.bloovo.com/>

¹³⁴⁰ <https://laimoon.com>

¹³⁴¹ <http://www.zoeasy.co/>

¹³⁴² <https://reportcard.ae/>

¹³⁴³ <https://www.schoolvoice.com/>

Training Calendar¹³⁴⁴: platform for skill development and career progression powered by artificial intelligence and machine learning (courses, executive education and e-learning/MOOCs providers).

Taddrees¹³⁴⁵: online tutoring matching platform for after school support or private lessons (physical space).

JunkBot¹³⁴⁶: educational robotics and workshops provider.

Almentor¹³⁴⁷: online learning hub for personal development offering video courses (paid) and talks in Arabic and English.

Ibtikar Edu Tech¹³⁴⁸: innovative, technology based, educational solutions, products and services (electronics, 3D printing and robotics).

Energy

Enviromena¹³⁴⁹: mostly a clean energy (solar) provider with performance monitoring as a service, has offices in UAE and UK.

Yellow Door Energy¹³⁵⁰: provider of renewable energy and environmental management systems and solutions, has offices in UAE and Jordan.

Genr8¹³⁵¹: peer to peer clean energy exchange platform based on blockchain.

Fashion (clothing, beauty and eyewear)

The Luxury Closet¹³⁵²: Online retailer and marketplace focused on new and pre-owned luxury fashion items in the Middle East and other regions.

Eyewa¹³⁵³: eyewear (contact lenses, sun glasses and eyeglasses) ecommerce platform. Also operates in Saudi Arabia and Kuwait.

Shedul¹³⁵⁴: online booking platform for salons, spas and beauty centers, has offices in UAE, Europe and USA.

Sivvi¹³⁵⁵: fashion e-commerce platform for women, men and kids, acquired by Noon in April, 2019.

The Modist¹³⁵⁶: online modest fashion marketplace by leading brands.

GlamBox¹³⁵⁷: subscription-based online beauty and grooming platform that sends monthly samples of products and tips.

¹³⁴⁴ <https://www.trainingcalendar.com/>

¹³⁴⁵ <https://taddrees.com/>

¹³⁴⁶ <https://www.junkbot.co/>

¹³⁴⁷ <https://www.almentor.net>

¹³⁴⁸ <http://ibtikar.io/>

¹³⁴⁹ <http://enviromena.com>

¹³⁵⁰ <https://www.yellowdoorenergy.com>

¹³⁵¹ <https://www.genr8.io/>

¹³⁵² <https://theluxurycloset.com>

¹³⁵³ <https://eyewa.com/ae-en/>

¹³⁵⁴ <http://www.shedul.com/>

¹³⁵⁵ <https://en.sivvi.com/>

¹³⁵⁶ <https://www.themodist.com/en/>

¹³⁵⁷ <https://www.glambox.me/>

Mr. Draper¹³⁵⁸: membership based online styling service (for men) that sends curated outfits based on customer preferences.

BasharaCare¹³⁵⁹: online premium skin care and beauty marketplace.

Fintech

Now Money¹³⁶⁰: Digital payroll and accounts solution for companies and their low-income employees.

Dinariii Cash¹³⁶¹: enables money transfer using mobile wallet for foreign workers (especially Filipinos) to send money back home without a fee, also a cashpoint and small business payment services.

CashU¹³⁶²: online payment solution that does not require bank account.

Beehive¹³⁶³: peer to peer regulated lending platform connecting businesses needing funds with investors.

BitOasis¹³⁶⁴: digital assets wallet (buy, own or exchange) using blockchain and multi-signature technology.

Beam¹³⁶⁵: provides mobile wallet app for payments and reward management, with operations in UAE and outside MENA.

YallaCompare¹³⁶⁶: finance comparison site helping users to find and compare credit cards, personal loans, mortgages, car loans, insurance, bank accounts and others with operations in several MENA countries.

Souq al Mal¹³⁶⁷: compares financial and insurance products to help users take decisions, also active in Saudi Arabia

Network International¹³⁶⁸: payment processor for the Middle East, operates in UAE, Jordan and Egypt, has partnership with Master Card who invested in it.

TPay Mobile¹³⁶⁹: mobile payment platform that connects consumers, businesses, and mobile operators for operators billing (allows businesses to connect to the platform for direct carrier billing).

Hayya¹³⁷⁰: fintech solution replacing property rental security deposit using open banking and insurance technology.

Bridg¹³⁷¹: mobile payment platform for SMEs that works offline via Bluetooth for off-the-

¹³⁵⁸ <https://www.mrdraper.com/>

¹³⁵⁹ <https://www.basharacare.com>

¹³⁶⁰ <https://nowmoney.me/>

¹³⁶¹ <https://denarii.cash>

¹³⁶² <https://www.cashu.com>

¹³⁶³ <https://www.beehive.ae>

¹³⁶⁴ <https://bitoasis.net/en/>

¹³⁶⁵ <https://www.beamwallet.com>

¹³⁶⁶ <https://yallacompare.com>

¹³⁶⁷ <https://www.souqalmal.com>

¹³⁶⁸ <https://www.network.ae>

¹³⁶⁹ <https://www.tpay.me/>

¹³⁷⁰ <https://www.hayya.com/>

¹³⁷¹ <https://www.bridgtheapp.com>

counter or COD payments.

DepositBook¹³⁷²: owned by NewBridge Fintech Solutions, an open banking platform for wholesale deposits.

Foloosi¹³⁷³: payment gateway through a QR code displayed by business to customer enabling card payment without POS.

MoneyIncrypto¹³⁷⁴: online magazine covering latest financial insights about crypto industry.

E-Mal¹³⁷⁵: financial ecosystem based on blockchain (launching).

Qpal¹³⁷⁶: mobile payment solutions for banks and merchants using an AI agent.

Abu Dhabi Fin Islamic (ADFI)¹³⁷⁷: blockchain based financial services for SMEs in the Islamic finance space.

ADAX¹³⁷⁸: online portal for cryptocurrency trading.

OneGram¹³⁷⁹: cryptocurrency backed by gold (one gram per coin) in accordance with Islamic regulations

Food/Groceries Online

Reserveout¹³⁸⁰: restaurant discovery and reservations platform covering UAE, Saudi Arabia, Lebanon, Jordan, Oman, Bahrain and Qatar.

Deliveroo¹³⁸¹: home delivery service for food from restaurants, part of the parent UK company.

LunchOn¹³⁸²: lunch at work service and catering provider.

El Grocer¹³⁸³: a grocery on-demand delivery platform for shoppers, retailers and brands.

Jump The Q¹³⁸⁴: grocery shopping platform using smart phone with 24 hours delivery service.

Health and Fitness

OkaDoc¹³⁸⁵: doctor appointments online with operations also in Saudi Arabia

Health at Hand¹³⁸⁶: affordable consultation for non-emergencies, offers sick leave certificates, referrals and prescription delivery.

Dhonor HealthTech¹³⁸⁷: uses AI and blockchain to track donated organs and prescriptions

¹³⁷² <https://deposit-book.com/>

¹³⁷³ <https://www.foloosi.com/>

¹³⁷⁴ <https://moneyincrypto.com/>

¹³⁷⁵ <https://www.e-mal.ae>

¹³⁷⁶ <https://qpal.io/>

¹³⁷⁷ <https://adfi.ae>

¹³⁷⁸ <https://adax.ae/>

¹³⁷⁹ <https://onegram.org/>

¹³⁸⁰ <https://www.reserveout.com>

¹³⁸¹ <https://deliveroo.ae/>

¹³⁸² <https://www.lunchon.ae/>

¹³⁸³ <https://www.elgrocer.com/>

¹³⁸⁴ <http://www.jumptheque.ae/>

¹³⁸⁵ <https://www.okadoc.com>

¹³⁸⁶ <https://www.myhealthathand.com/>

¹³⁸⁷ <http://dhonor.org/>

Medicus AI¹³⁸⁸: provides analysis of blood tests and medical reports using artificial intelligence to provide personalized health tips and recommendations. Moved to Vienna for better startup ecosystem.

Sympaticus¹³⁸⁹: online platform for mental health services by licensed therapists, also in Lebanon and UK.

TachyHealth¹³⁹⁰: uses virtual reality and artificial intelligence, targets health insurance and health providers, has office in the US.

Ver2 Digital Medicine¹³⁹¹: B2B telemedicine platform to share knowledge, expertise and data.

Udenz¹³⁹²: dentists booking platform connecting dental clinics with users, operates in UAE, Saudi Arabia, Oman, Bahrain, Kuwait, Egypt and Palestine, Lebanon, Jordan and Qatar (selected cities).

Inkin¹³⁹³: social fitness platform that allows a fitness tracker to connect and compete with friends for individual and corporate wellness.

Waqty Fitness¹³⁹⁴: online health and fitness platform providing digital content on nutrition and workouts in addition to tracking dashboards and professional platform trainers.

Media and Content

Almanhal¹³⁹⁵: provides Arabic scholarly and scientific content, access and Arabic full text search and cataloging.

Step Feed¹³⁹⁶: digital media, technology, entertainment and business publishing platform about modern Arab world.

Collective¹³⁹⁷: content creation company (text, audio, video and AR/VR).

Dukkan Media¹³⁹⁸: multi-platform company (content and publishing) for a regional storytelling, collaborates with MenaBytes¹³⁹⁹ on tech and startup show (the MENA Bytes Drop).

Kerning Cultures¹⁴⁰⁰: podcast network telling local stories from the Middle East, holds listening events and allows visitors to listen to podcasts or submit theirs.

DhowNet¹⁴⁰¹: subscription based service covering news of prominent people and major organizations in GCC.

¹³⁸⁸ <https://medicus.ai/>

¹³⁸⁹ <https://www.sympaticus.com/>

¹³⁹⁰ <https://www.tachyhealth.com/>

¹³⁹¹ <http://ver2digimed.com/>

¹³⁹² <https://udenz.ae/>

¹³⁹³ <https://www.inkin.com/>

¹³⁹⁴ <https://waqtyfitness.com/>

¹³⁹⁵ <https://www.almanhal.com/>

¹³⁹⁶ <https://stepfeed.com>

¹³⁹⁷ <https://collective.ae/>

¹³⁹⁸ <https://www.dukkanmedia.com/>

¹³⁹⁹ <https://www.menabytes.com/odiggo-seed/>

¹⁴⁰⁰ <https://kerningcultures.com/>

¹⁴⁰¹ <http://dhow.com/>

Retail/Ecommerce

Souq¹⁴⁰²: an online marketplace that is now part of Amazon after an acquisition, initially operating in UAE, Saudi Arabia and Egypt. On May 1st, 2019 Amazon fully changed Souq into its brand¹⁴⁰³.

Melltoo¹⁴⁰⁴: second hand ecommerce platform that connects buyers to sellers.

EzHire¹⁴⁰⁵: can rental platform allowing customers to select a car from a mobile app and get it delivered, also picked up when done.

Sprii¹⁴⁰⁶: online marketplace for mums operating in UAE, Saudi Arabia, Bahrain, Oman, Qatar and Kuwait.

Bulkwhiz¹⁴⁰⁷: ecommerce platform for bulk orders for home or office supplies (shopping lists delivered per schedule).

Awok¹⁴⁰⁸: online ecommerce marketplace covering around 30 categories, also works in Saudi Arabia and other countries.

MumzWorld¹⁴⁰⁹: online shopping site in the Middle East for everything mother, baby and child, also active in Saudi Arabia.

JustMop¹⁴¹⁰: online marketplace for on-demand cleaning services for home and office.

Property Finder¹⁴¹¹: online real estate marketplace offering residential and commercial properties for sale or rent, also operates in Bahrain, Qatar, Saudi Arabic, Lebanon, Egypt and Morocco. Part of the company now belongs to General Atlantic based on investment in 2018.

Bayut¹⁴¹²: online property listing (sale or rent), search and property guide with operations also in Morocco, Pakistan and Bangladesh. Bayut acquired the German online property platform Lamudi¹⁴¹³ in April, 2019 and started offering 2D and 3D property views.

OfficeRock¹⁴¹⁴: business to business ecommerce platform with focus on office supplies and needs.

Handiss¹⁴¹⁵: online marketplace that connects project owners with freelance architects and engineers (probably originated from Lebanon).

FloraNow¹⁴¹⁶: floral online marketplace, offering cut flowers from selected growers to flower shops, hotels and event organizers in GCC and Jordan.

¹⁴⁰² <https://www.souq.com>

¹⁴⁰³ <https://magnitt.com/news/seattle-comes-middle-east-souqcom-becomes-amazonae-worlds-largest-e-commerce-platform-now-giving>

¹⁴⁰⁴¹⁴⁰⁴ <https://www.melltoo.com/>

¹⁴⁰⁵ <https://www.ezhire.life/>

¹⁴⁰⁶ <https://www.sprii.com/>

¹⁴⁰⁷ <https://beta.bulkwhiz.com/>

¹⁴⁰⁸ <https://awok.com>

¹⁴⁰⁹ <https://www.mumzworld.com>

¹⁴¹⁰ <https://www.justmop.com/>

¹⁴¹¹ <https://www.propertyfinder.ae/>

¹⁴¹² <https://www.bayut.com/>

¹⁴¹³ <http://www.lamudi.ae/>

¹⁴¹⁴ <https://www.officerock.com/>

¹⁴¹⁵ <https://www.handiss.com/>

¹⁴¹⁶ <https://floranow.com/>

Namshi¹⁴¹⁷: online marketplace for major fashion brands (women, men and kids), also operates in Saudi Arabia, Egypt, Bahrain, Kuwait, Oman and Qatar.

Noon¹⁴¹⁸: online marketplace with various departments (fashion, electronics, home & kitchen, beauty & fragrance and baby & kids), also ships to Saudi Arabia and Egypt.

Let's Tango¹⁴¹⁹: online marketplace for deals and offers for major brands, ships to different countries.

Helping¹⁴²⁰: online marketplace for home cleaning services (search, book and pay online).

Aqeed¹⁴²¹: compare, customize and buy insurance quotes for home, business, vehicles and health.

Car Switch¹⁴²²: online used and new car marketplace that takes care of matching sellers and buyers and provide logistics like inspection, marketing and viewing.

TheList¹⁴²³: e-commerce platform that offers a wide selection of curated luxury products.

InstaShop¹⁴²⁴: online shopping and service request platform in UAE and Egypt.

Matic¹⁴²⁵: online platform for cleaning services (book and pay), also in Saudi Arabia.

RentSher¹⁴²⁶: online marketplace for rentals for events, electronics, medical and travel related products with delivery.

Deafood Souq¹⁴²⁷: online marketplace for fresh seafood (transparent and direct buyer and seller transactions).

Washmen¹⁴²⁸: on demand laundry and dry clean delivery services (wash, dry and fold).

[Website has secure connection issue, FB: <https://www.facebook.com/pg/getwashmen>).

Cook-a-box¹⁴²⁹: a platform for cooking at home with easy to manage recipes and ingredients delivered to customer's door.

Plantshop¹⁴³⁰: online platform for plant shoppers (browse and buy indoor or outdoor plants or gardening items and get them delivered).

Nufsh¹⁴³¹: online shopping platform for brands and styles in UAE and Saudi Arabia.

KartBlock¹⁴³²: ecosystem that is a combination of the e-commerce platform, digital wallet, and tokenized reward mechanism.

Invigo¹⁴³³: car subscription app that enables customers to interact with automobile dealers in a

¹⁴¹⁷ <http://namshi.com>

¹⁴¹⁸ <https://www.noon.com>

¹⁴¹⁹ <https://www.letstango.com/>

¹⁴²⁰ <https://www.helping.ae/>

¹⁴²¹ <https://www.aqeed.com/>

¹⁴²² <https://carswitch.com/>

¹⁴²³ <https://gothelist.com/>

¹⁴²⁴ <https://instashop.ae/>

¹⁴²⁵ <https://maticservices.com/>

¹⁴²⁶ <https://www.rentsher.ae/>

¹⁴²⁷ <https://www.seafoodsouq.com/>

¹⁴²⁸ <https://www.washmen.com/>

¹⁴²⁹ <http://cookabox.com/>

¹⁴³⁰ <https://plantshop.ae/>

¹⁴³¹ <https://www.nufsh.com/>

¹⁴³² <https://www.kartblock.io/>

¹⁴³³ <https://www.invigo.com/>

new way to shop, rent, get approved and pay for a car.

Services and Management

Tarjama¹⁴³⁴ (translation): Tarjama operates in several MENA countries. While translation is not necessarily a data powered business, initial work can be done using machine translation powered by AI, same as transcription. Tarjama recently raised \$5 million to automate its translation services¹⁴³⁵ and runs another service called Ureed¹⁴³⁶ (I want) for freelance translation.

Magnitt¹⁴³⁷: a database of MENA startups, investors and jobs, provides search, networking and reporting.

Amal Glass¹⁴³⁸: smart multifunction glass with controller for the visually impaired. Also operates in Saudi Arabia and Egypt.

JRD Group¹⁴³⁹: property portal developer offering real estate solutions to brokers, agents, home seekers and investors.

Geeks¹⁴⁴⁰: repairs, maintenance and business IT support marketplace.

Bayzat¹⁴⁴¹: health insurance platform that allows comparison of policies, aggregation of data from providers and optimization of benefits.

Sarwa¹⁴⁴²: an automated investment advisory platform, driven by algorithms, allows automated investment as an option.

Frank Porter¹⁴⁴³: management service for AirBnB properties (preparation, pricing, listing and booking on behalf of owner).

ProTenders¹⁴⁴⁴: construction intelligence and tendering platform, helping construction companies find products, partners and streamline tendering processes. Has offices in UAE and Canada.

Addenda¹⁴⁴⁵: uses blockchain for insurance transactions and data communication.

Nabbesh¹⁴⁴⁶: a freelance platform matching jobs or projects from clients with freelance professionals, manages contracts and payments.

WakeCap¹⁴⁴⁷: IoT-based enterprise solution to improve safety and productivity at the construction site.

¹⁴³⁴ <https://www.tarjama.com/>

¹⁴³⁵ <https://www.menabytes.com/tarjama-series-a/>

¹⁴³⁶ <https://ureed.com/>

¹⁴³⁷ <https://magnitt.com>

¹⁴³⁸ <http://amalglass.com/>

¹⁴³⁹ <http://jrdgroup.com>

¹⁴⁴⁰ <https://geeks.ae/>

¹⁴⁴¹ <https://www.bayzat.com/>

¹⁴⁴² <https://www.sarwa.co/>

¹⁴⁴³ <https://www.frankporter.com/>

¹⁴⁴⁴ <https://www.protenders.com>

¹⁴⁴⁵ <https://www.addenda.tech/>

¹⁴⁴⁶ <https://www.nabbesh.com/en/>

¹⁴⁴⁷ <https://www.wakecap.com/>

Eventtus¹⁴⁴⁸: event management platform for conferences, meetings and other events, has offices in UAE and Egypt.

Service Market¹⁴⁴⁹: online marketplace for home services like moving, cleaning, maintenance and gardening.

MyBox¹⁴⁵⁰: everyday chores on customer's behalf (laundry and dry clean, delivery, tailor and alteration, shoe therapy device repair).

Invoice Bazaar¹⁴⁵¹: a platform that connects SME suppliers to mid and large buyers and optimize procurement process (financial inclusion solution for startups and SMEs).

Telr¹⁴⁵²: payment aggregator and provider (gateway) catering for startups and SMEs.

ChefXchange¹⁴⁵³: online marketplace that connects amateur and professional chefs to foodies (private consulting, catering, meals and cooking classes).

Jaizer¹⁴⁵⁴: property social network platform to list, discover, share and promote or find properties.

Mr Usta¹⁴⁵⁵: online platform that links customers to service providers (ustas) for home repairs, maintenance, cleaning, moving and more.

Foodics¹⁴⁵⁶: restaurant management, point of sale and payment system.

Democrance¹⁴⁵⁷: democratizes insurance for the poor using technology to match insurers and under-served customers through mobile operators.

Frontera¹⁴⁵⁸: a subscription-based content (news, research and analysis) provider on startups, investors and emerging markets. Frontera has offices in UK, Singapore, USA and UAE.

Buglance¹⁴⁵⁹: crowd testing platform connecting content and app owners with freelance testers and devices.

SmartCrowd¹⁴⁶⁰: real estate crowdfunding platform allowing customers to build a personalized investment property portfolio.

Ub-Cool¹⁴⁶¹: online platform for adventure discovery and booking.

StayHopper¹⁴⁶²: online platform for hotel micro-stay (pay per hour).

Comae¹⁴⁶³: cybersecurity firm that diagnoses, prevents and recovers organizations (government and private sector) from cyber-attacks, services include threat intelligence, IoT security and

¹⁴⁴⁸ <https://eventtus.com>

¹⁴⁴⁹ <https://servicemarket.com>

¹⁴⁵⁰ <https://dubai.mybox.net/>

¹⁴⁵¹ <https://www.invoicebazaar.com/>

¹⁴⁵² <https://telr.com/>

¹⁴⁵³ <https://www.chefxchange.com/>

¹⁴⁵⁴ <https://www.jaizer.com>

¹⁴⁵⁵ <https://mrusta.com/>

¹⁴⁵⁶ <https://www.foodics.com>

¹⁴⁵⁷ <https://www.democrance.com/>

¹⁴⁵⁸ <https://frontera.net/>

¹⁴⁵⁹ <https://buglance.com/>

¹⁴⁶⁰ <https://www.smartcrowd.ae/>

¹⁴⁶¹ <https://www.ub-cool.com/>

¹⁴⁶² <https://www.stayhopper.com/>

¹⁴⁶³ <https://www.comae.com/>

training.

DG World¹⁴⁶⁴: specialized in industrial robotics, autonomous vehicles, customized drones and humanoid robots.

Digital Research Technologies¹⁴⁶⁵: providers of multi-device IoT and robotics services for health and transportation.

Arabian Chain¹⁴⁶⁶: public, open source blockchain for smart contracts and transactions.

Fincluziv¹⁴⁶⁷: SaaS platform that automates and simplifies the lending process.

BankOnUs¹⁴⁶⁸: compare banking and insurance services and pick what you see fit for you.

BlockGemini¹⁴⁶⁹: blockchain development and consultancy group (uses blockchain to optimize business processes).

Compare 4 Benefit¹⁴⁷⁰: financial products comparison website (loans, mortgage, insurance, ... etc.).

AmpUz¹⁴⁷¹: impact driven social enterprise that intersects the worlds of technology and advisory, had SDG monitoring tools.

Lock & Stock¹⁴⁷²: mobile app that rewards students for not using their mobile phones (earn points and redeem at participating stores).

Artelliq¹⁴⁷³: builds blockchain and other solutions for enterprises, developer of TruCerts¹⁴⁷⁴ for asset tracking.

Sports and Entertainment

Yalla Esports¹⁴⁷⁵: platform for organizing esports (online games) competitions.

StarzPlay Arabia¹⁴⁷⁶: on demand viewing service for entertainment and documentary content from famous studios (movies, TV shows, ids and Arabic content).

Scene¹⁴⁷⁷: social discovery platform and network for entertainment and city experiences.

Moonshine¹⁴⁷⁸: online platform for nightlife venues and events.

Soul Artists¹⁴⁷⁹: performing artists platform (discover and book artists for an event).

Switch DBX¹⁴⁸⁰: online leisure, fitness and well-being platform.

¹⁴⁶⁴ <https://www.dgworld.com/>

¹⁴⁶⁵ <https://digitalresearch.ae/>

¹⁴⁶⁶ <https://www.arabianchain.org>

¹⁴⁶⁷ <https://fincluziv.com>

¹⁴⁶⁸ <https://bankonus.com>

¹⁴⁶⁹ <https://www.blockgemini.com>

¹⁴⁷⁰ <https://www.compare4benefit.com/>

¹⁴⁷¹ <https://ampuz.com/>

¹⁴⁷² <https://www.lockandstock.xyz/>

¹⁴⁷³ <https://artelliq.com/>

¹⁴⁷⁴ <https://trucerts.com/>

¹⁴⁷⁵ <https://www.yallaesports.com/>

¹⁴⁷⁶ <https://arabia.starzplay.com/>

¹⁴⁷⁷ <https://scene.app/>

¹⁴⁷⁸ <https://moonshineapp.com>

¹⁴⁷⁹ <https://www.soulartists.net/>

¹⁴⁸⁰ <http://www.switchdxb.com/>

Feesheh¹⁴⁸¹: online music and musical instruments store, operates in UAE, Jordan and Saudi Arabia.

Kora¹⁴⁸²: football news and culture content provider for Arab and international teams and their fans.

Telecom and Mobile Services

Channel VAS¹⁴⁸³: development and aggregation of mobile value-added services, mobile fintech and big data analytics.

Callix¹⁴⁸⁴: digital call management center service provider.

Ziwo¹⁴⁸⁵: cloud-based call and contact center that integrates with other applications.

Triple¹⁴⁸⁶: mobile merchant platform for payment and cash in.

Transportation and Logistics

Fetchr¹⁴⁸⁷: package pick-up and delivery platform with tracking, also operates in Jordan, Egypt, Saudi Arabia, and Bahrain.

Dubz¹⁴⁸⁸: baggage tracking and management including check-in from and delivery to home or residence.

Aramex¹⁴⁸⁹: logistics and supply chain firm based in UAE with operations in MENA and abroad, serves businesses and customers, an enabler of ecommerce in the region (founded in Jordan).

Load Me¹⁴⁹⁰: a shipping and transportation marketplace connecting transporters and logistics companies with a truck fleet, has GPS tracking, proof of delivery and real-time notification, operates in MENA, mostly GCC.

Trukkin¹⁴⁹¹: platform connecting shippers and truckers, handles logistics and offers tracking, has offices in UAE and Saudi Arabia.

TruKker¹⁴⁹²: on-demand trucking service matching truck operators with customers, handles logistics and offers tracking, operates in GCC.

Boxit¹⁴⁹³: self-storage platform in UAE and Kuwait, pickup and delivery. Boxit is probably acquired.

Careem¹⁴⁹⁴: cab (with driver) booking service covering most MENA region and other countries like Pakistan and Turkey with inhouse technology, infrastructure and payments.

¹⁴⁸¹ <https://feesheh.com/>

¹⁴⁸² <https://kora.com/>

¹⁴⁸³ <http://channelvas.com/>

¹⁴⁸⁴ <https://www.callix.ae/>

¹⁴⁸⁵ <https://www.ziwo.io/>

¹⁴⁸⁶ <https://triple.com/>

¹⁴⁸⁷ <https://fetchr.us/>

¹⁴⁸⁸ <https://dubz.com/>

¹⁴⁸⁹ <https://www.aramex.com/>

¹⁴⁹⁰ <https://www.load-me.com/>

¹⁴⁹¹ <https://trukkin.com/>

¹⁴⁹² <https://www.trukker.ae/>

¹⁴⁹³ <https://www.boxitstorage.com>

¹⁴⁹⁴ <https://www.careem.com>

Careem also runs a food delivery service called Careem Now¹⁴⁹⁵. Careem has been acquired by Uber¹⁴⁹⁶.

Forward Delivery (FoDel)¹⁴⁹⁷: last mile delivery platform providing parcel pickup locations connecting local merchants and online shopping platforms with buyers, also offers parcel tracking, has plans to expand to Saudi Arabia.

WIMO¹⁴⁹⁸: delivery logistics platform to manage, track and analyze last mile operations for field teams.

Cycle¹⁴⁹⁹: bike sharing platform, acquired by Careem in May 2019.

UDrive¹⁵⁰⁰: self-drive car sharing and rental per minute platform.

Fero.ai¹⁵⁰¹: Ai powered freight management platform with a voice agent (phone listed in US).

Travel and Tourism

HolidayMe¹⁵⁰²: integrated travel services provider (holidays, flights, hotels and activities), operates in UAE, Saudi Arabia and outside MENA.

Events:

TEDxAlWaslWomen¹⁵⁰³: part of the TEDWomen community, thoughts and ideas by volunteers, December 8, 2018.

World Government Summit¹⁵⁰⁴: a global platform for shaping the future, organized during February 10-12, 2019.

Innovation in Health Hackathon¹⁵⁰⁵: organized by Ministry of Health and Wamda, February 27-28, 2019.

Middle East Venture Partners Annual Investor Conference¹⁵⁰⁶: February 28, 2019.

CET Middle East¹⁵⁰⁷: customer engagement technology conference, 21st edition, March 13, 2019.

Finnovex 2019¹⁵⁰⁸: Middle East leading summit on financial services innovation, March 19, 2019.

Chief Data Officer Summit¹⁵⁰⁹: a gathering of data analytics executives, by IMB and Smart Dubai. March 20, 2019.

¹⁴⁹⁵ <https://www.careemnow.com/>

¹⁴⁹⁶ <https://www.wamda.com/en/2019/03/uber-acquires-careem-3-1-billion>

¹⁴⁹⁷ <https://fodel.com/>

¹⁴⁹⁸ <https://wimoapp.com/>

¹⁴⁹⁹ <http://www.bikeshare.ae/>

¹⁵⁰⁰ <https://www.udrive.ae/>

¹⁵⁰¹ <http://fero.ai/>

¹⁵⁰² <https://www.holidayme.com/>

¹⁵⁰³ <https://www.tedxalwaslwomen.com/>

¹⁵⁰⁴ <https://www.worldgovernmentsummit.org>

¹⁵⁰⁵ <https://www.wamda.com/2019/02/innovations-health-hackathon>

¹⁵⁰⁶ https://mevp.com/ContentFiles/MEVP%20Annual%20Investor%20Conference%202019_2-190320195103.pdf

¹⁵⁰⁷ <https://cetmiddleeast.com/>

¹⁵⁰⁸ <https://finnovex.com/finnovexmiddleeast/>

¹⁵⁰⁹ <https://cdo-mea.coriniumintelligence.com/>

Angel Rising Symposium¹⁵¹⁰: by Tamkeen (SmartAD) at New York University Abu Dhabi in partnership with VentureSouq, March 23, 2019. Angel investors discussing entrepreneurship in UAE and looking east (digital silk road).

World AI Show¹⁵¹¹: connects top AI experts, enterprises, government representatives, data scientists, technology leaders, startups, investors, researchers, academicians, and global AI innovators (March 24 -25, 2019).

Abundance 360 Dubai¹⁵¹²: meetup of highly curated group of leaders, entrepreneurs and investors, March 26-27, 2019.

Future Blockchain Summit¹⁵¹³: the second edition of the conference (April 2 – 3, 2019), the world's largest blockchain event for government visionaries, blockchain revolutionists, startups, investors and the brightest disruptors with themes including government, retail and energy.

UAE AI Camp¹⁵¹⁴: organized in Abu Dhabi, Dubai, Sharjah, Ajman and Al Ain (April 7 -10, 2019), in cooperation with the Federal Youth Authority, Dubai Future Foundation, Mohammed bin Rashid School of Government, Higher Colleges of Technology, and ACTVET.

Annual Investment Meeting¹⁵¹⁵: world's leading platform for foreign direct investment (FDI), themed "Mapping the Future of FDI: Enriching World Economies through Digital Globalization", April 8 – 10, 2019.

RAK Tech Startup Weekend¹⁵¹⁶: ideation, mentorship and networking for entrepreneurs, April 11 – 13, 2019.

GCC Smart Government and Smart Cities Conference¹⁵¹⁷: facilitating comprehensive institutional development and future vision for smart cities and smart government, April 21 – 25, 2019.

World Blockchain STO Summit¹⁵¹⁸: hosts world-class blockchain technology pioneers, STO (security token offering) experts, providers of solutions and security token offerings and educating organizations on the value of blockchain and STO. April 29 – 30, 2019.

Arab Youth Startup Marketplace¹⁵¹⁹: themed Arab Youth Shaping the Creative Economy, April 29 – 30, 2019.

Kaggle Days Dubai¹⁵²⁰: organized with Logic AI and AI Everything¹⁵²¹ (part of Gitex), April 30 – May 1, 2019. Kaggle is the international data science competitions platform (acquired by Google).

AI Everything Summit¹⁵²²: organized by the National Program for Artificial Intelligence, April

¹⁵¹⁰ <http://sites.nyuad.nyu.edu/nyuadstartad/angel-rising/>

¹⁵¹¹ <https://dubai.worldaishow.com/>

¹⁵¹² <https://www.abundance360.com/dubai>

¹⁵¹³ <https://www.futureblockchainsummit.com/>

¹⁵¹⁴ <https://www.aicamp.ae/>

¹⁵¹⁵ <http://www.aimcongress.com/>

¹⁵¹⁶ <http://communities.techstars.com/united-arab-emirates/rak/startup-weekend/14226>

¹⁵¹⁷ <http://www.gccsmartgovernment.com/EventInfo.aspx>

¹⁵¹⁸ <https://worldblockchainstosummit.com/>

¹⁵¹⁹ <https://magnitt.com/ArabYouthForm>

¹⁵²⁰ <https://kaggledays.com/dubai/>

¹⁵²¹ <https://ai-everything.com/>

¹⁵²² <https://ai-everything.com/>

30 – May 1, 2019.

Dubai Smartpreneur Competition¹⁵²³: 4th version, by the Smart Dubai Hub with 250 business ideas, results were out in May, 2019.

TradeFinex - Blockchain Powered Trade and Finance¹⁵²⁴: a one-day roundtable event that brings together trade and infrastructure finance stakeholders on one single platform to address the increasing global trade finance gap as well as infrastructure deficit by leveraging blockchain technology. hosted at Abu Dhabi Global Market (ADGM), June 18, 2019.

World Congress & Expo on Biotechnology and Bioengineering¹⁵²⁵: experts and disciplines of biotechnology and bioengineering. September 2 – 3, 2019.

The Artificial Intelligence Summit¹⁵²⁶: impact of AI on businesses and government. September 4 – 5, 2019.

Global Innovation Summit¹⁵²⁷: brings together the leaders and renowned experts to provide an unrivalled high-level forum for senior decisionmakers to share insight and form powerful connections. September 5, 2019.

Artificial Intelligence Week Middle East¹⁵²⁸: AI business leaders forum in government, health, finance, banking and telecom. September, 9 – 10, 2019.

Seedstars¹⁵²⁹: global startup competition, Sharjah, October 10, 2019.

MTech MENA¹⁵³⁰: emerging technologies that are likely to change the world, November 4 – 5, 2019.

¹⁵²³ <https://www.entrepreneur.com/article/333961>

¹⁵²⁴ <http://events.tradefinex.org/>

¹⁵²⁵ <https://biocoreconferences.com/biotechnology-congress/index.php>

¹⁵²⁶ <http://artelligenceforum.com/>

¹⁵²⁷ <https://www.innovationsummit.ae/>

¹⁵²⁸ <https://www.aiia.net/events-aiweek>

¹⁵²⁹ <https://www.seedstarsworld.com/event/seedstars-sharjah-2019>

¹⁵³⁰ <https://emtechmena.com/>

| Success Stories

In this section, we feature a few successful data startups from the Arab MENA region as random examples. Success is not necessarily measured by the number or amount of investments or market size and value. Original and innovative ideas leveraging data to solve economic or social problems are more impactful in this part of the world. Success is contagious and so is failure with both driving the startup scene in different directions. We did not include failure stories in this report although around 9 of every 10 startups end up vanishing within two years. Many startups die quietly or their owners pivot in different directions calling earlier attempts a learning exercise. There are more great startups in e-commerce, logistics, HR, fintech and digital health (ex. Careem, Maktoob, Souq, Al-Tibbi, Arabot, Shezlong, Payfort ... etc.) than we can include here and there are startups which we may not know and others that are just starting on the success road.

Mawdoo3¹⁵³¹: started as a website created by two young Jordanians (Mohammad Jaber and Rami Qawasmi) in a coffee shop in 2010¹⁵³², Mawdoo3 grew into the most popular site in the Arab world. It offers curated organic articles in different topics serving as an Arabic encyclopedia where relevant Arabic content on the Internet is scarce, missing or hard to find and read. Jaber and Qawasmi saw a great potential with over 400 million Arabic speakers (4.5% of world's population) with less than 1% of Arabic content on the Internet (back then). In addition to solving the issue of low-quality Arabic content on the Internet, the increase in Internet penetration and smart devices in the region helped Mawdoo3 to scale and attract investment (Mawdoo3 secured three series of investments with a total of \$25m). It collaborates with a number of partners including several educational institutions to generate content with over 150,000 articles and 6000 editors and 50 million monthly users¹⁵³³. As content industry is growing fast, Mawdoo3 offers a wide set of features to access and discover information in Arabic including search by voice, listening to articles and personalized user experience. Rather than following earlier plans to enter into e-commerce or provide content in other languages, the company is moving into AI services¹⁵³⁴ and has already demonstrated an Arabic AI agent called Salma¹⁵³⁵ using its unique Arabic corpus and user data as assets. Mawdoo3 is expanding its team and Arabic NLP and NLU services (ex. text to speech, voice recognition and sentiment analysis) to customers and programmers using APIs. It also started a question/answer service called Ujeeb¹⁵³⁶.

Arabia Weather¹⁵³⁷: founded in 2006 by Mohammed Al-Shaker in Jordan with offices in Amman, Riyadh and Dubai, Arabia Weather is the leading provider of localized weather products,

¹⁵³¹ <https://mawdoo3.com>

¹⁵³² <https://www.usnews.com/news/world/articles/2016-03-09/website-launched-by-jordan-duo-in-a-cafe-now-no-1-in-arabic>

¹⁵³³ https://mawdoo3.com/About_Us

¹⁵³⁴ <https://ai.mawdoo3.com/>

¹⁵³⁵ <http://salma.ai/>

¹⁵³⁶ <https://ujeeb.com/>

¹⁵³⁷ <https://www.arabiaweather.com/>

services, and solutions to consumers, businesses, and government. Al-Shaker was a weather dreamer and enthusiast since childhood and was not satisfied with a modest degree on pharmacy to pursue a degree in aviation meteorology. He relied on personal resources with little help (or rather discouragement) to establish Jordan Weather and start providing forecasts to small media outlets before he became famous and scaled regionally with Arabia Weather. In 2012, Arabia Weather got its first seed fund for around \$700,000 followed by three series A rounds (a few millions each) in 2014, 2015 and 2017. Arabia Weather sources its raw data directly from weather satellites and national weather services before it localizes the data and uses artificial intelligence algorithms to run forecasting models. The services provided by Arabia Weather today (in Arabic and English through web, mobile and social media) cover the MENA region and beyond. These services include weather news and forecasts, weather data, weather and aviation maps, media services and solutions. Arabia Weather serves customers, governments and enterprises.

Mashvisor¹⁵³⁸: due to the hard situation in Palestine, it is not easy for a startup to gain traction and succeed, but Mashvisor was a different story. Founded by two young Palestinians (Peter Abu Zolof and Mohammed Jebrini) in 2014 as an idea in a Startup Weekend activity, Mashvisor got a small seed fund from Ibtikar Fund in 2015 after which it qualified for a 500 Startups program in the Silicon Valley in 2016. With hard work, dedication and a few investments (\$3800,000 as reported by Crunchbase¹⁵³⁹), Mashvisor moved on to win the Ramallah Seedstars in 2018 and the 12th MITEF Pan Arab Startup competition in 2019. Realizing the difficulties faced by real estate and property investors to take informed decisions, Abu Zolof and Jebrini started sourcing data from Airbnb, HomeAway, Zillow and other property sites from which reports were generated and marketed in the American market. Now, the company acquires data from more sources and applies data analytics and machine learning algorithms to classify and assess properties and serve customers.

Tarjama¹⁵⁴⁰: founded in 2008 by Nour Al Hassan, a law graduate who had a mission to empower skilled Jordanian women¹⁵⁴¹, Tarjama is now the Middle East's leading language service provider. Around 90% of its 400 full-time and part-time workers are women. Tarjama's network of translators, editors, and linguists cover 150 languages and operate in eight countries and now has a language services marketplace called Ureed¹⁵⁴² for small businesses and freelance linguists to collaborate on a variety of content-related tasks like copywriting, editing, documentation and translation. Tarjama found a better ecosystem in Abu Dhabi with a 5-year discounted rent and 3-year retainer for the incubator's translation work¹⁵⁴³. In early 2019, Tarjama raised \$5 million to scale business operations and develop its technology platforms including a specialized Arabic

¹⁵³⁸ <https://www.mashvisor.com/>

¹⁵³⁹ <https://www.crunchbase.com/organization/mashvisor>

¹⁵⁴⁰ <https://www.tarjama.com/>

¹⁵⁴¹ <https://womenpreneur-initiative.com/inspire/nour-al-hassan/>

¹⁵⁴² <https://ureed.com/>

¹⁵⁴³ <https://www.entrepreneur.com/article/309211>

machine translation engine which will employ artificial intelligence¹⁵⁴⁴. AI powered machine translation is becoming a global trend.

MAGNiTT¹⁵⁴⁵: providing data for the MENA startup ecosystem, MAGNiTT was founded out of an idea at a startup bootcamp in 2014 by Philip Bahoshy who was raised in the UK with an MBA from Insead and BSc from London School of Economics. Bahoshy, who has lived in the UAE and has worked there for several years in the financial services sector¹⁵⁴⁶, self-funded MAGNiTTv (which started as a match making model for MBA entrepreneurs to MBA alumni and then pivoted soon after to focus on transparency and access to data in the MENA region) in the early stages of setup and platform development. In 2018 MAGNiTT got a million-dollar investment with “data and transparency” being important drivers in the investment decision¹⁵⁴⁷.

MAGNiTT has 3 core pillars to its platform: a community, allowing founders to connect to investors, talent and up to date information. It has data aggregation profiles on over 10,000 MENA based startups with research that provides analysis on the MENA startup ecosystem usually referenced in international platforms. The platform thus fills a serious gap in the MENA region where the community had no means of communications and players and events were not easy to find and track. MAGNiTT is becoming a data driven platform around data access and data analytics to allow data driven investment decisions, a niche not covered in MENA (Turkey and Pakistan are planned as new destinations).

Vezeeta¹⁵⁴⁸: Empowering patients through data is Vezeeta’s mission which was founded in 2011 in Cairo by Amir Barsoum who holds a bachelor in pharmacy and an MBA with management and consulting experience. Barsoum noticed the lack of consistent healthcare across the region and started Vezeeta to solve the problems of accessibility and medical data availability. The company provides consumers with the ability to discover and book medical appointments (physician, clinic or hospital) and health services with verified user reviews. It also provides SaaS solutions that utilize cloud computing and big data with artificial intelligence to empower doctors and the broader healthcare ecosystem. Vezeeta raised \$12 million in late 2018 to expand regional operations (currently Egypt, Saudi Arabia, Jordan and Lebanon) and develop new products¹⁵⁴⁹.

InstaDeep¹⁵⁵⁰: enterprise artificial intelligence startup InstaDeep was founded in Tunisia in 2014 by Karim Beguir and Zohra Slim after which it went global with headquarter in UK and offices in Tunisia, Kenya, Nigeria and France. InstaDeep, which raised \$7 million in May of 2019¹⁵⁵¹, utilizes deep reinforcement learning and advanced machine learning techniques to create AI systems

¹⁵⁴⁴ <https://magnitt.com/news/tarjama-region%E2%80%99s-leading-language-service-provider-raises-5-million-series-funding-round>

¹⁵⁴⁵ <https://magnitt.com/>

¹⁵⁴⁶ <https://streamsofprogress.com/magnitt/>

¹⁵⁴⁷ <https://www.thenational.ae/business/economy/magnitt-the-start-up-for-mena-start-ups-secures-1m-in-funding-1.716097>

¹⁵⁴⁸ <https://www.vezeeta.com/>

¹⁵⁴⁹ <https://magnitt.com/news/egypt%E2%80%99s-vezeeta-raises-12m-series-c-round-led-stv>

¹⁵⁵⁰ <https://www.instadeep.com/>

¹⁵⁵¹ <http://disrupt-africa.com/2019/05/tunisias-instadeep-raises-7m-funding-to-expand-ai-in-africa/>

that can optimize decision-making processes in real-life industrial environments in manufacturing, logistics, mobility and energy supported by strong research. The investment (from an African fund and an American fund) will be used to update InstaDeep's platform (using Google technology like Tensor Flow) and expand AI opportunities in Africa. Instadeep's founders offer mentorship and training programs in AI in Tunisia and Africa.

Crowd Analyzer¹⁵⁵²: founded in 2014 by Ahmed Saad and Bahaa Galaa, Crowd Analyzer is an Arabic (standard and regional dialects) social media monitoring, content, relevance and sentiment analysis using artificial intelligence, machine learning and natural language processing. The company currently operates from Dubai Media City and serves a wide range of local, regional and global customers. Crowd Analyzer secured a \$1.1 million investment in 2018¹⁵⁵³ and intends to use it to expand to Saudi Arabia and the rest of MENA.

Deepen¹⁵⁵⁴: a Silicon Valley startup founded by a group of Google engineers in 2017, one of whom (cofounder and CEO) is Muhammad Musa who started a computer engineering degree in Jordan and transferred to Santa Clara university where he got his BSc and Masters in computer engineering. Deepen is a data annotation tools provider (AI powered) with focus on autonomous driving space (computer vision and deep learning). This includes self-driving cars, robots and autonomous mining where objects need to be identified using sensors in both space (2D or 3D) and time. Deepen was named one of the top 13 automotive disruptors¹⁵⁵⁵ in May 2019. Part of Deepen's work is augmented by off-shore labor (most likely outside MENA).

Widebot¹⁵⁵⁶: conversational commerce (interacting with businesses through messaging and chat apps) is becoming an established trend and AI can help automate, at least, parts of this – especially when human agents are offline or busy with other customers. Chatbots are being developed to achieve this with different levels of complexity based on natural language understanding (NLU). Very few intelligent chatbots support Arabic and Widebot, founded by Mohamed Nabil and Ahmed Labib in late 2016, is one of these. Widebot enables businesses (SMEs through enterprises) to build smart chatbots that understand Arabic (including several dialects) without coding. In June 2019, the company secured an investment¹⁵⁵⁷ to grow the 25-member team and develop the product further.

¹⁵⁵² <https://www.crowdanalyzer.com/>

¹⁵⁵³ <https://gulfbusiness.com/dubai-social-media-start-crowd-analyzer-raises-1-1m/>

¹⁵⁵⁴ <https://www.deepen.aiv>

¹⁵⁵⁵ <https://www.intellias.com/top-13-automotive-disruptors-to-see-at-the-autonomous-vehicle-test-development-symposium/>

¹⁵⁵⁶ <https://widebot.net>

¹⁵⁵⁷ <https://www.menabytes.com/wide-bot-pre-series-a/>

| Summary of Findings

A growing number of commercial cognitive and AI use cases have been developed in the MENA region. Current deployments are more inclined to improving customer experience and bringing about IT and business process automation. Use cases involving virtual agents (chatbots), humanoids, and robotic process automation are also on the rise. Collectively, organizations in the finance and public sector vertical markets remain the biggest spenders on cognitive and AI solutions in the region¹⁵⁵⁸.

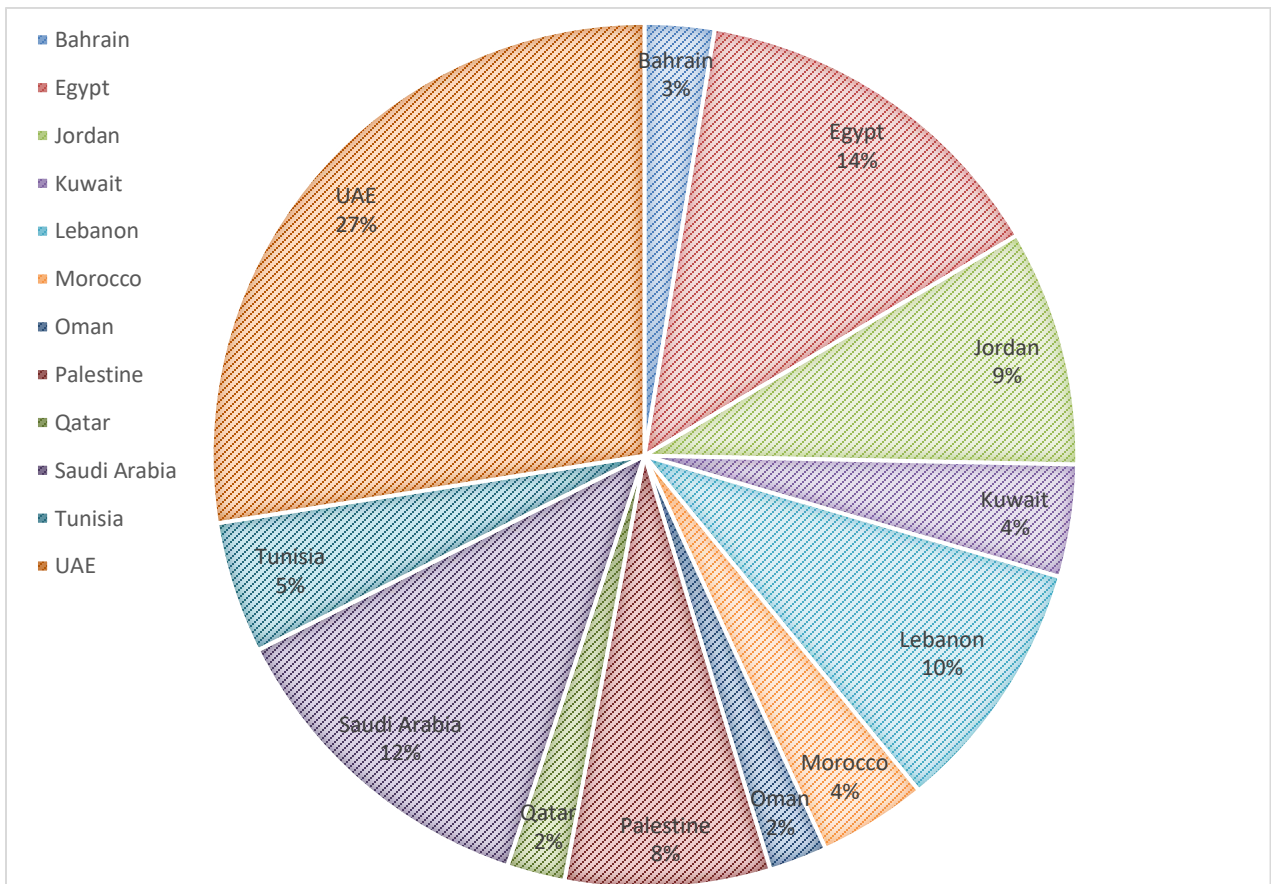


Figure 3: Distribution of data startups across 12 MENA countries

After scanning the data-sharing economy in 12 MENA countries, we found around 690 active startups that are either enabled by data to a certain extent or fully powered by data (startups that are still in the ideation phase and those that are no longer active were not included). UAE is home to the largest number of startups followed by Saudi Arabia and Egypt. Table 2 provides a summary of counts, a ‘startup density’ measure (number of startups per 100,000 of the population) and the country’s share of the top 100 Arab startups selected by WEF in 2019. These

¹⁵⁵⁸ <https://www.idc.com/getdoc.jsp?containerId=CEMA44387218>

numbers should be viewed as rough indicators since startups appear and disappear at short notices and some relocate in search for a better ecosystem.

Country	Population (m)	Startups	Startups Per 100k	WEF Top 100 %
Bahrain	1.6	18	1.125	5
Egypt	100.3	96	0.096	17
Jordan	9.99	61	0.611	27
Kuwait	4.22	29	0.687	2
Lebanon	6.08	66	1.086	7
Morocco	36.41	28	0.077	1
Oman	4.92	15	0.305	1
Palestine	5.2	54	1.019	4
Qatar	2.72	15	0.551	1
Saudi Arabia	33.85	86	0.254	10
Tunisia	11.72	34	0.290	6
UAE	9.61	190	1.977	21
Total	226.62	692	0.305	102

Table 2: population, data startups count, startup density and WEF top 100 share

As for the areas of activity, table 3 shows the distribution of covered industries in the data fields per country (raw counting is not the best metric as size and impact are not taken into account).

Category\Country	Bahrain	Egypt	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	Saudi Arabia	Tunisia	UAE	Total
Advertising and Marketing	1	6	3		1	3		2		2	2	19	39
Agritech		1	1		1					1	2	1	7
AI and Analytics/VR/AR		11	7	3	11	1	3	6	3	12	4	11	72
Careers	2	6	3				1	4	1	2	1	7	27
Edutech	1	2	3		5	2	1	1	2	6	2	7	32
Energy		2			2	2					2	3	11
Fashion (clothing, beauty and eyewear)	1	1	1	3				1		1	2	8	18
Fintech	4	12	7	4	7	1		2	1	6	1	19	64
Food/Groceries Online	2	7		3	1	1	1			11		5	31
Health and Fitness		5	3	3	8	1		5	2	3	4	10	44
Media and Content		2	8	1	7	1		1		3		6	29
Retail/Ecommerce	2	4	8	2	6	4	3	4		10		30	73
Services and Management	3	17	11	7	12	9	3	17	5	18	11	38	151
Sports and Entertainment	2	3	3	2	1	1		4		3	1	8	28
Telecom and Mobile Services		5	2		2		1	2	1	2		4	19
Transportation and Logistics		9		1	2	2	2	3		4	2	13	38
Travel and Tourism		3	1					2		2		1	9
Total	18	96	61	29	66	28	15	54	15	86	34	190	692

Table 3: distribution of data startups across industries for each country

Apart from the ‘services and management’ catch-all-other category, the table shows the presence of several gaps for different countries and for the region (12 countries) as illustrated in the chart below (Figure 4). For example, there is obvious shortage in agritech, energy and travel/tourism activities in general. The situation for each country can be read from the table.

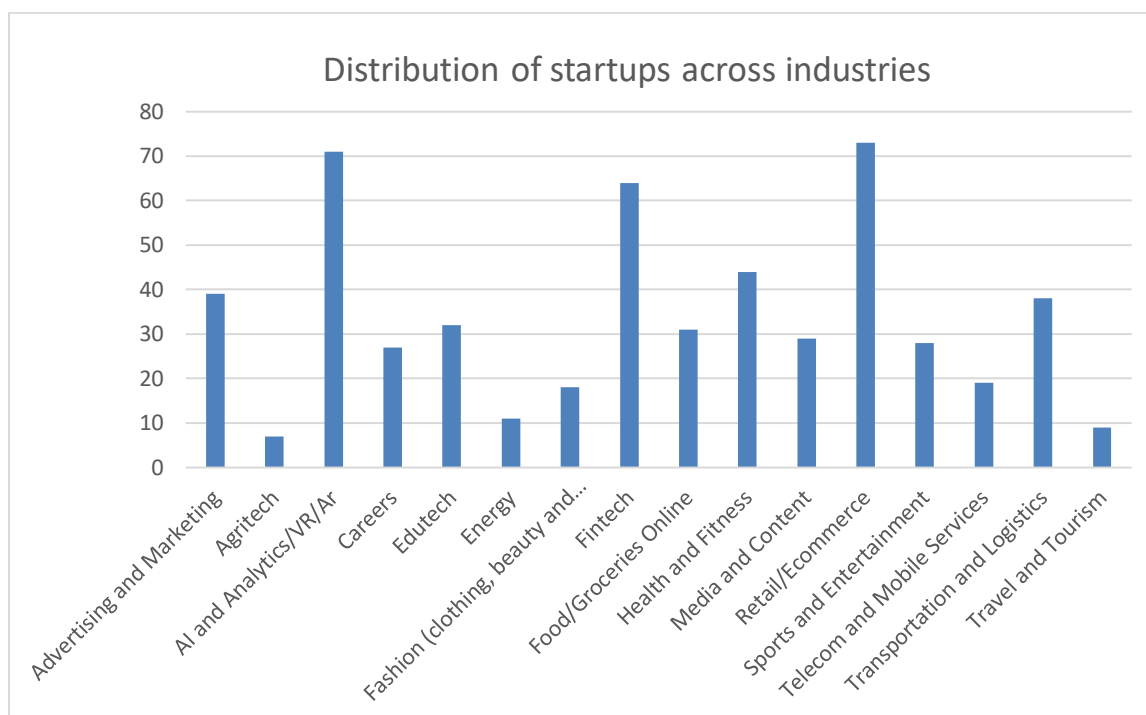


Figure 4: distribution of data startups across categories

The data-sharing economy and ecosystem in Arab MENA are not up to expectations or challenges. The following observations apply to the region in general.

1. Market fragmentation: not only across geography and regulations, but across sectors and even at the business idea. This is seen in digital health, food and delivery, e-commerce and grocery shopping and automated services to mention a few.
2. Fewer original ideas solving local problems than copy and paste ideas (either from global or regional origin and copy/paste also applies to investing in rounds of same or similar ideas) or monetization of pain. Repetition of ideas (national and regional) causes further market fragmentation and prevents scaling leaving very few competitors operational. Also, few ideas addressing refugees and internally displaced people (one reported program uses blockchain to validate food coupons). In general, few startups are based on following founders' passion and the rest are either out of necessity or following an entrepreneurship 'life style'.
3. While Africa is a potential market extension (already explored by some countries like Egypt, Morocco and GCC countries), Africa is also becoming a competitor for programs and venture funds with Kenya, South Africa and Nigeria and Ghana receiving most funding or investment with focus on Fintech¹⁵⁵⁹ as Africa is largely unbanked. It should be noted that MENA has the financial capital for funding and investments locally and regionally, but many VCs prefer other markets.
4. Some startups synergize and are enabled by others – ex. e-commerce and logistics benefit from fintech and Careem uses Unifonic's cloud services for communication – which is a

¹⁵⁵⁹ <https://hackernoon.com/state-of-africa-vc-investing-in-2018-d77947337ba7>

healthy practice.

5. There is a trend to invest in fintech and AI, just at face value, which is similar to e-commerce earlier – more hype than understanding with many failures expected. In 2018, 46 funding rounds took place in fintech startups (around \$50m, with UAE, Egypt and Jordan leading the scene¹⁵⁶⁰).

6. There are great opportunities of fintech empowered by telecom providers (ex. mobile payments) as more people carry smart mobiles than have bank accounts¹⁵⁶¹ but failing to move fast may render future efforts obsolete with mobile device manufacturers and social media giants introducing their own cryptocurrencies and payment gateways.

7. Most startups do not use data as a commodity or produce data products to monetize. Data is used as medium or enabler, analytics are done for internal purposes like optimization.

8. E-commerce, fintech, logistics and consumer services are preferred sectors (MENA ecommerce is over \$8 billion¹⁵⁶² with over 60% in KSA and UAE).

9. Acquisitions like Yahoo of Maktoob, Thomson Reuters of Zawya, Amazon of Souq and Uber of Careem (see immediate reactions to the deal¹⁵⁶³) may encourage startups as success stories but may not be good to local or regional economy which turns into a consumer market with limited options and large corporates control (Amazon rebranded Souq as its own in May, 2019).

10. Some business intelligence (BI) and business analysis providers repackage their products and services as data science and AI for marketing and investment purposes ending up as bad examples.

11. Some startups from outside the region target local funding by including people from the region or setting temporary presence thus competing for allocated resources, and other startups relocate after getting investment.

12. There is very limited regional talk about major societal implications like data ethics, privacy and the future of jobs.

13. The region suffers from data power being used against the disadvantaged like regimes using data journalism to advance their own narrative, traditional business standing against innovation (ex. transportation and car parking) and big data being used to track people's activities under the banner of national security.

14. Despite the improvement in the ecosystem in most countries, there are still major challenges. It may be easy to start, but not so to close (ex. if no bankruptcy law, an entrepreneur could go to jail and closing may take years). Labor laws may make it difficult to hire and fire and funding comes with control. It is also hard to jump ahead of regulation.

15. Although this is changing, but the trend is to invest in financial markets or real estate rather than VC funds (SoftBank's \$100b fund is largely funded by Saudi Arabia and UAE¹⁵⁶⁴).

16. Government agencies and large corporations go for big companies, not startups, for

¹⁵⁶⁰ <https://magnitt.com/research/top-fintech-funding-rounds-2018>

¹⁵⁶¹ <https://www.gfmag.com/magazine/april-2019/out-africa-mena>

¹⁵⁶² <https://www.thenational.ae/business/technology/exclusive-rocket-internet-eyes-more-start-up-acquisitions-and-investment-in-middle-east-1.847915>

¹⁵⁶³ <https://twitter.com/careem/status/1110446676861423616>

¹⁵⁶⁴ <https://magnitt.com/news/softbank-said-be-talks-investors-add-15-billion-its-100-billion-tech-fund>

their tech solutions restricting markets for startups (UAE is taking some steps to support startups).

17. Taxes are still an issue for startups in some countries (over 30%) causing those startups to incorporate in safe havens like Delaware and Cayman Islands.

18. Addressing (for logistics and trade), payments, transportation and pollution are major issues. Although there is progress in the payment and transportation cases, much is still to be done.

19. UAE leads by investments and deals¹⁵⁶⁵ followed by Egypt, Lebanon and Jordan. For a map of investors and distribution of investments across industries, see Annexes 2 and 3 which illustrates the size of the funding gaps (56% on lifestyle and transportation, 3% on education and healthcare).

20. There are too many activities, meetings and events at the regional and national levels leaving less time and effort for entrepreneurs to prioritize and focus on business building.

21. There is a serious lack of visibility and weak public relations activity by many of the small or early startups and enablers. They either stick to one social media platform (especially Facebook) or fail to update their websites and social media platforms.

22. For data powered startups, there is lack of talent (or talent is expensive) and universities are not graduating skilled or talented people, some startups either look outside for resources or move entirely abroad.

23. Major players have already established presence in the region (ex. IBM, Microsoft, Oracle, Google, Apple, Facebook, Twitter, LinkedIn, Airbnb, Booking, Expedia, Uber, Talixo¹⁵⁶⁶ and Amazon, ...) in addition to branches of international universities (or American University franchises like Cairo, Beirut, Madaba, Bahrain, UAE, Palestine) along with training providers like Udacity in the gulf. This has a double-sided effect where capacity building acquired is tied to specific products and services.

24. Fintech remains popular driven by e-commerce (many have no bank accounts or credit cards but they have smart devices) and also health care (obesity and other common problems). Fintech has great competition from international providers in addition to offerings from Apple, Google and Facebook.

25. Security and trust are two major issues for the data sharing economy. Data is hoarded and kept within walls with unclear governance. There is a preference for COD purchases and data providers are not willing to share their data outside their companies' walls (or firewalls).

26. The region is very poor in data research and development in addition to the lack of local or regional datasets. Educational systems are still traditional and require reforms.

27. Local, national and regional collaboration and synergies are generally missing and a lot of effort (including that leads to failure) is repeated or copied poorly. As one team leader assessing the establishment of an incubating system described it: "there is an *egosystem*

¹⁵⁶⁵ <https://news.crunchbase.com/news/middle-east-and-north-african-startups-gain-traction-but-challenges-remain/>

¹⁵⁶⁶ <https://magnitt.com/news/watch-out-uber-and-careem-your-rival-has-arrived>

rather than an ecosystem". In May 2019, 12 incubators started a network¹⁵⁶⁷ making some progress in this direction.

28. There is a clear need to invest in data protection and security as digital transformation exposes vital resources to potential threats. In May 2019, services in some US areas were disrupted¹⁵⁶⁸ by digital hackers, an example that could take other forms affecting households and individuals.

¹⁵⁶⁷ <https://www.menabytes.com/mena-accelerator-incubator-network/>

¹⁵⁶⁸ <https://www.nytimes.com/2019/05/25/us/nsa-hacking-tool-baltimore.html>

| Recommendations

The target groups for these recommendations are decision and policy makers, academic and training institutions, entrepreneurs and startups, investors and funding providers, local and international organizations, and the media.

According to the CEO of Ring¹⁵⁶⁹ - an American tech start-up acquired by Amazon that is planning to enter the region: “there is no silver bullet that will allow entrepreneurs and startups in the Middle East to succeed other than luck and hard work”.

The data sharing economy in Arab MENA is taking more than just baby steps and it has a great potential but there are considerable challenges and setbacks. Contrary to the first three industrial revolutions, the fourth is lightning fast and affects all aspects of life. Thus, it calls upon all stakeholders to exert a concerted effort to reap the benefits and avoid the consequences. Some of the following recommendations may apply to one stakeholder, but all efforts should be coordinated, planned ahead and acted upon before it is too late:

1. Utilize synergies and common strengths or opportunities and face challenges together. Pooling of resources (human, capital and infrastructure) is a great strategy and tactic.
2. Reduce logistical, regulatory and financial friction. This may take some time but market fragmentation cannot be fixed without streamlining logistics, tariffs, regulatory and financial barriers.
3. Invest in research and development using local or regional data and within a local or regional context.
4. Focus on capacity building to prepare new talents for the data economy at different levels based on capabilities and target roles. For example, data journalism for social sciences graduates and advanced data science for graduates in computer science and engineering.
5. Introduce data literacy in standard school curricula with advanced programs in undergraduate and graduate university curricula with practical work linking industry and academia in addition to encouraging entrepreneurship at various stages.
6. Create and run awareness campaigns for policy makers, executives, students and the general public through the appropriate media channels for each group.
7. Coordinate efforts and share data and knowledge on startups and empower enablers for better decision making (ex. startups should not get same series funding from different incubators or investors or countries).
8. Pay immediate attention to issues of ethics and inclusion and start national and regional efforts to establish data ethics codes and policies on inclusion, data privacy and protection.
9. Compile a database of failed startups with postmortem to see why they failed and disseminate lessons learnt so entrepreneurship won't repeat the same mistakes.
10. Plan and implement programs for the future of work (reskilling and upskilling) and raise awareness.
11. Work on policies and regulations to democratize AI and protect startup markets from outside and inside (reactionary) economic forces.

¹⁵⁶⁹ <https://www.arabianbusiness.com/startup/417196-no-silver-bullet-for-middle-east-entrepreneurs-says-us-unicorn-founder>

12. Release governmental Open Data sets, geospatial and economic activity datasets (ex. updated company and property registries) and encourage this practice by all stakeholders (private sectors, academia, NGOs and CSOs).
13. Establish a regional open platform with all players in the startup ecosystem so entrepreneurs can find resources easily and avoid duplicate work. The platform should verify all entries and keep them updated with sector, contact information, status and updates (ex. investments or acquisitions). Magnitt (a startup in UAE) could be empowered to complete missing features and release content as open data (Crunchbase¹⁵⁷⁰ does similar work at a global level).
14. Transform the educational system to prepare for the 4th industrial revolution and the future of work (topics, skills, activities, learning environment and outcomes).
15. Simplify entrepreneurs' work (startup formation and operation) and invest in the datapreneurship ecosystem (infrastructure, capacity, access to funding, marketing and championship).
16. Coordinate efforts and interventions (and events) locally, nationally and regionally and avoid conflicting agendas or low priority initiatives and projects (especially those from foreign actors).
17. Increase activity on Islamic/Sharia products and services (Hajj, Umrah, Ramadan, religious tourism, banking, ... etc.) utilizing AI, IoT, data analytics and fintech/blockchain (ex. in collaboration with telecom operators¹⁵⁷¹), sports, user experience and A/B testing.
18. Focus on innovation in solving local or common regional problems rather than copying solutions from abroad or working in saturated ideas like food and retail.
19. Create networks of communities of practice mixing different stakeholders (including expatriates) and disciplines to share knowledge and insights.
20. Encourage data powered social entrepreneurship with social value as valuable as economic one and provide training, mentorship, awareness and funding for such activities.
21. Encourage more angel investment and corporate involvement in entrepreneurship (mentorship, training and funding).

| Capacity Building

To bridge the knowledge and skills gap, there are three main areas of intervention based on major target groups:

Data Literacy: mainly targets schools and the general public.

Data Journalism: for media students, graduates and practitioners.

Data Science: for students, graduates and practitioners in computer science, computer engineering and those interested and capable of coding, lateral thinking and analytical skills.

The contents of these programs are under development.

¹⁵⁷⁰ <https://www.crunchbase.com/search/organization.companies>

¹⁵⁷¹ <https://www.strategyand.pwc.com/media/file/Blockchain-for-MENA-telecom-operators.pdf>

| Outreach and Public Awareness

Parallel to the mapping effort and in coordination of the initial findings, a list of stakeholders was identified along with appropriate channels, content to deliver and mechanisms to assess impact. This work is still ongoing.

| References

General references and resources not part of footnotes for further reading.

Media and News:

1. Wamda¹⁵⁷²: research and media outlet, has a capital arm and organizes events. Focuses on startups with headquarter in UAE and offices in Jordan and Lebanon.
2. MenaBytes¹⁵⁷³: online media publication that covers technology and startups from the MENA region.
3. Magnitt¹⁵⁷⁴: a startup ecosystem platform with database and news about players and enablers in MENA (some premium content requires subscription). Similar providers include Crunchbase, CBInsights, Zawya and Bloomberg.
4. ArabNet¹⁵⁷⁵: a leading events, insights and innovation programs focused on tech business and innovation in the MENA region. ArabNet also publishes the State of Digital Investment report¹⁵⁷⁶.
5. Racha's Space¹⁵⁷⁷: a weekly roundup of the top headlines from the digital sector in MENA.
6. Arabian Business¹⁵⁷⁸: Middle East region's premier resource for informed news, features, and commentary.
7. MENA FN¹⁵⁷⁹: leading provider of online and wireless financial content and financial technology platforms to leading institutions and consumers around the Arab world.
8. Entrepreneur Middle East¹⁵⁸⁰: business media outlet with focus on entrepreneurship in the Middle East.
9. Forbes Middle East¹⁵⁸¹: media outlet covering the Middle East business, technology and events.
10. Startup MGZN¹⁵⁸²: independent digital publication and platform for startups in the MENA region.
11. Arab Bit¹⁵⁸³: Arabic news portal on blockchain and cryptocurrencies.
12. Fintech News¹⁵⁸⁴: fintech news outlet with focus on the Middle East.
13. Angel List¹⁵⁸⁵: filtered on UAE, connects startups with angel investors and posts jobs at startups.
14. AME Info¹⁵⁸⁶: leading Middle East business resource.

¹⁵⁷² <https://www.wamda.com/>

¹⁵⁷³ <https://www.menabytes.com>

¹⁵⁷⁴ <https://magnitt.com>

¹⁵⁷⁵ <https://www.arabnet.me/>

¹⁵⁷⁶ <https://www.arabnet.me/english/business-intelligence/digital-investment-2019>

¹⁵⁷⁷ <https://racha.space/>

¹⁵⁷⁸ <https://www.arabianbusiness.com/>

¹⁵⁷⁹ <https://menafn.com/>

¹⁵⁸⁰ <https://www.entrepreneur.com/>

¹⁵⁸¹ <https://www.forbesmiddleeast.com/>

¹⁵⁸² <https://www.startupmgzn.com>

¹⁵⁸³ <https://arabbit.net/>

¹⁵⁸⁴ <http://fintechnews.ae/>

¹⁵⁸⁵ <https://angel.co/united-arab-emirates>

¹⁵⁸⁶ <https://www.ameinfo.com/>

15. CNBC Arabia¹⁵⁸⁷: Arabic version of CNBC channel on company news.
16. Hashtag Arabi¹⁵⁸⁸: tech and entrepreneurship news in Arabic.
17. Who's who in Jordan's ICT¹⁵⁸⁹: a publication and website by Int@j and Media Scope profiling Jordan's ICT companies and startups.

¹⁵⁸⁷ <https://www.cnbcarabia.com/>

¹⁵⁸⁸ <https://www.hashtagarabi.com/>

¹⁵⁸⁹ <http://www.jordanict.com/>

| Abbreviations

MENA: Middle East and North Africa
IoT: Internet of things
AI: artificial intelligence
AR: augmented reality
VR: virtual reality
MR: mixed reality
NSO: national statistical office
NLP: natural language processing
NLU: natural language understanding
OGP: open government partnership
GIS: geographical information system
SDGs: sustainable development goals
ADP: Arab Development Portal
COD: cash on delivery
UNDP: United Nations Development Programme
ILO: International Labor Organization
OECD: Organisation for Economic Cooperation and Development
GCC: Gulf Cooperation Council
GDP: gross domestic product
GPU: graphical processing unit
WEF: World Economic Forum
STEM: science, technology, engineering and math
VC: venture capital
API: application programmer interface
SaaS: software as a service

Annexes

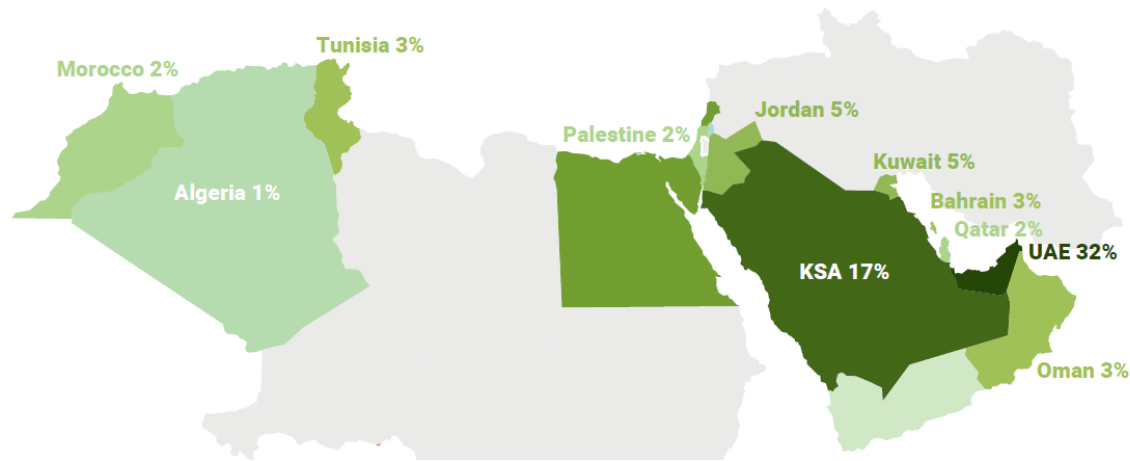
Annex 1: List of Indicators:

Name	Ref	Date	Notes
Population	Digital2019	Jan-19	Digital 2019, global digital yearbook, Hootsuite and We are Social https://datareportal.com/
Urbanization	Digital2020	Feb-19	
Mobile penetration	Digital2021	Mar-19	
Internet penetration	Digital2022	Apr-19	
Unemployment	Worldbank/ILO	Sep-18	from ILO, modelled, https://data.worldbank.org/indicator/sl.uem.totl.zs
unemployment female	Worldbank/ILO	Oct-18	same, https://data.worldbank.org/indicator/SL.UEM.TOTL.FE.ZS
Corruption Perceptions Index CPI	Transparency Int'l	Jul-05	https://www.transparency.org/cpi2018 , https://www.transparency.org/cpi2018#results
ODIN score open data inventory	Opendatawatch	2018/2019	http://odin.opendatawatch.com/Report/annualReport
gender gap combined	digital gender gaps project	Mar-19	https://www.digitalgendergaps.org/pct-of-females-to-males.65-1.0
Human Capital Index HCI (health, education and standard of living)	worldbank	Dec-18	2019-WDR-Report.pdf in folder
Ease of doing business EODB	worldbank	Dec-18	DoingBusiness2019-report_web-version.pdf in folder
NECI score out of 10 National entrepreneur context index)	GEM	Dec-19	gem-2018-2019-global-report-080319-1552040234.pdf in folder, selected countries p58
GII global innovation index	Cornell, insead	Dec-18	GlobalInnovationIndex-GII 2018 Full print.WEB.pdf in folder
Prosperity index (9 components)	Legatum	Dec-18	www.prosperity.com , Legatum_Prosperty_Index_2018_Rankings_table.pdf in folder
Freedom score	Freedom House	Jan-19	https://freedomhouse.org/report/freedom-world/freedom-world-2019/map
Government AI readiness score (out of 10)	Oxford Insights	2019	https://www.oxfordinsights.com/ai-readiness2019

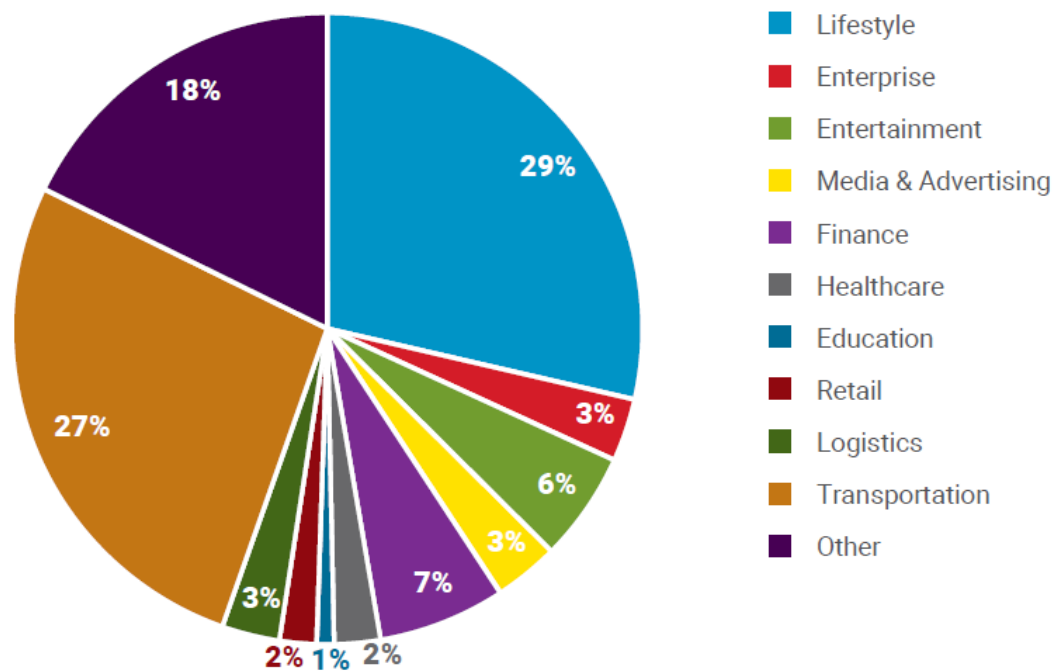
Annex2: Map of investors in MENA¹⁵⁹⁰

MAP OF INVESTORS BY GEOGRAPHY

This map shows the concentration of investors in MENA according to their geographic location. The UAE and Saudi Arabia dominate in the GCC region, Lebanon in the Levant, and Egypt in North Africa.



Annex 3: Investment Value per Industry (2013 – 2018)¹⁵⁹¹



Cumulative years: 2013-2018

¹⁵⁹⁰ The State of Digital Investment in MENA (2013 – 2018), P. 21. Report by ArabNet and Dubai Foundation (<https://www.arabnet.me/english/business-intelligence/digital-investment-2019>)

Annex 4: List of Experts and Stakeholders Interviewed in Palestine

Some of the targeted interviewees did not respond to the questions or request to meet the interviewer (in person or online). New names were added later to fill some gaps (especially gender imbalance as several candidates chose not to respond). Following are people who were interviewed or responded in writing (in no specific order).

1. Sam Bahour, AIM (consultancy)
2. AbdurRazzaq Natshed, professor at An-Najah University
3. Olga Batran, Birzeit University Business Hub
4. Daoud Ghannam, uMake
5. Bassem Al-Wazeer, Flow
6. Sufian Abu Harb, Palestinian Central Bureau of Statistics
7. Faisal Awartani, Alpha international
8. Ibrahim Abu Qteish, Leaders Organization
9. Habib Hazan, Ibtikar Fund
10. Fadel Na'eem, Siraj
11. Ashraf Taha, Agritech accelerator
12. Rami Azmi, Senior Software Developer and Data Science Practitioner
13. Fayrouz Khoury, Bethlehem Business Incubator
14. Saeed Zeidan, Palestinian IT Association of Companies (PITA)
15. Rania Naser-Jaber, Palestinian Ministry of ICT
16. Omar Sahili, Business Alliance
17. Fares Zaher, Yamsafer
18. Mohammad Abu Qare', Imagry
19. Rasem Suwwan, Technopark
20. Thaer Ayase, Transcend
21. Lama Amr, Build Palestine
22. Maryam Shaheen, Birkakaya
23. Amjad Hamarsheh, Jobs.ps
24. Ali Taha, Rucab
25. Abdullah Shaikh Ali, data science practitioner (Gaza)
26. Mohammed Jebrini, Mashvisor
27. Tayyeb Aqel, Redcrow
28. Yafa AbdulRahim, Cerati
29. Raya Sbitani, Derma Beauty Lab

¹⁵⁹¹ The State of Digital Investment in MENA (2013 – 2018), P. 53. Report by ArabNet and Dubai Foundation (<https://www.arabnet.me/english/business-intelligence/digital-investment-2019>)

Annex 5: List of Questions for data experts, accelerators and incubators, entrepreneurs and startups; and investors in Palestine

Experts/Data Celebrities:

1. How do you prefer to be identified if we use your name in the data economy report (one liner). Please see the background info.
2. Do you think there is a data economy in Palestine? If yes, who are the top actors (public or private institutions or NGOs)?
3. What are the main drivers for a vibrant data economy, in Palestine, in your opinion?
4. What are the main challenges or barriers?
5. How, do you think, we can bridge the gap and improve the data economy in Palestine?
6. What areas or activities can Palestine specialize in to improve its data revenue?
7. Do you think Palestine can 'export' data products or services? If yes, what types and to whom?
8. Who are the main stakeholders in the data economy? Are they doing their job well?
9. What are your main ethical or social concerns as a result of data economy?
10. Can you name a few people we should talk to and get more insights for this task?
11. What do you expect will happen in 5-10 years as part (or result) of the data economy?
12. In your opinion, what are the problems or challenges (economic, social, ...) that data powered technology (ex. AI, machine learning) can solve?
13. Do you think the educational system (schools and universities) can prepare students for the 4th industrial revolution? If the answer is no, what should be done?
14. At the personal level, do you think you are 'data literate'? Where do you get your knowledge from, and what would you like to learn more?
15. Do you think a community of practice around data economy is a good idea? Would you join and be active if invited?

Funders/Investors:

1. How long have you been in the investment business?
2. What industries and stages do you focus on?
3. How many startups do you have in your portfolio?
4. What elements do you look for in a candidate startup?
5. What is the acceptance rate of applicant startups and success rate of portfolio startups?
6. What are the barriers or impediments you face before or after investing in a startup?
7. Why do you think startups who receive funding fail?
8. Do you think there is enough funding for startups in the Arab region? (number of entities and size of funds)
9. Do you think there are enough great ideas or startups to choose from?
10. Do you find it difficult to find information on candidate startups? What sources of information do you use?
11. Do you coordinate with other investors (especially those who funded earlier rounds)?
12. How do startups led by men and women compare in terms of commitment, capacity and success?
13. How do you envision the future of startup funding and investment in the next few years?
14. What is missing from the current investment/funding ecosystem in your

country/countries of operation? What are your suggestions/recommendations?

Entrepreneurs/Startups:

1. What area or industry you work in? For how long?
2. What is the size of the team and percentage of women?
3. How did you bootstrap (self-funded, from friends and family, incubator, accelerator)?
4. What are the top major issues did you face in term of severity to your startup success?
5. How do you evaluate the entrepreneurship ecosystem? What is working and what is not working?
6. What skills were missing in your team and how did you overcome that?
7. Did you find your education relevant? If not, why?
8. What do you plan to do with your idea (sell, merge, keep, ...)?
9. What do you think will happen in 5 years regarding your business model?
10. Have you considered relocating or exploring new market? Why?
11. Are there enough funding/investment entities available for your startup?
12. What factors do you consider when approaching an investor (track record, size of ticket, terms, network, support, ...)?
13. Why do so many startups fail in your opinion?
14. What do you advise new entrepreneurs?
15. Any comments or suggestions you'd like to add?

Accelerator/Incubator:

1. How long have you been in operation?
2. What areas/industries do you focus on?
3. What makes your program/services unique?
4. How many startups applied to your main program since operation?
5. How many startups have you worked with (accepted in a program) since operation?
6. How many of the accepted startups are gaining traction (successful)? Struggling? Failing?
7. What do you think are the main traits of a successful startup?
8. Why do you think startups fail?
9. What are the major ingredients of the entrepreneurship ecosystem that are keeping it healthy?
10. What are the gaps in the ecosystem and how do you suggest they can be bridged?
11. What do you expect will happen in 5 years from now regarding the job market? Will artificial intelligence replace human labor?
12. What is your advice to 1) entrepreneurs and 2) policy makers to realize the potential of the data economy?
13. What are the lessons (or best practices) you learned while working with startups, entrepreneurs and other players (policy makers, investors, ...)?
14. Any other comments or suggestions you'd like to add?