VALIDATING A STARTUP
BUSINESS IDEA

Addressing entrepreneurs' challenges in the UAE
Entrepreneurship advocacy **I** White paper series

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CONTENTS

▷▷ EXECUTIVE SUMMARY

This white paper addresses a key challenge for startups in the UAE

Market Validation

By addressing this important topic,Dubai Chamber and its knowledge partner Roland Berger aim to shed light on what entrepreneurs in the UAE today see as a key obstacle to their success - conducting market validation of their products and services.

As an entrepreneur, one of the most challenging aspects of launching a new product or service is to ensure that it is serving the actual needs of a specific market. If this market evaluation is not conducted diligently, startups typically fail in acquiring both customers and investors. Globally, surveys[1] show that 42% of failures arise from the underlying product or service having no actual market need ("No Product-Market Fit").

Recent Dubai Chamber surveys confirm that entrepreneurs in the UAE see market validation and related need for industry and market data as key challenges. Addressing this challenge will drive faster development of a minimum viable product and higher success rates.

"Sell it before you build it" principle

As outlined in the Figure 1, the market need for a product or service can be validated by startups leveraging data to match concepts to market needs. This requires wide ranging datasets with information available at a granular level.

Alongside increased awareness and utilization of available datasets, co-creating focused solutions with target customers or partners (including corporate and government agencies) is also an effective way to conduct market validation on real life datasets.

[1] Start-up Genome Report Extra on Premature Scaling, UC Berkeley - 2011
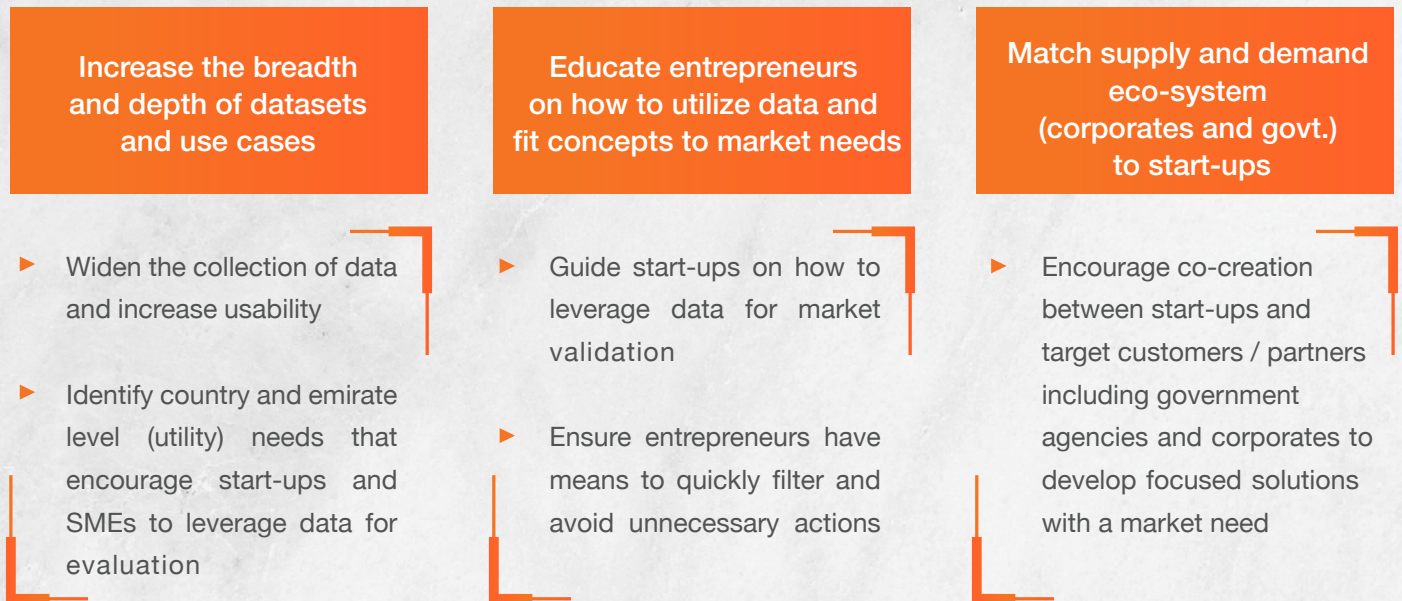
MARKET VALIDATION ENABLEMENT

Increase the breadth and depth of datasets and use cases	Educate entrepreneurs on how to utilize data and fit concepts to market needs	Match supply and demand eco-system (corporates and govt.) to start-ups
▶ Widen the collection of data and increase usability	▶ Guide start-ups on how to leverage data for market validation	▶ Encourage co-creation between start-ups and target customers / partners including government agencies and corporates to develop focused solutions with a market need
▶ Identify country and emirate level (utility) needs that encourage start-ups and SMEs to leverage data for evaluation	▶ Ensure entrepreneurs have means to quickly filter and avoid unnecessary actions	

Figure 1: Open Data Initiative to aid market validation for start-ups

Call for action

Learning from global best practices, include some specific ways in which these three areas can be further developed:

▶ **Driving Open Data capture and access:**
as outlined in this paper, comparison of the UAE central data portal to leading global comparables, shows unrealized potential to increase the breadth and depth in datasets. It is key to encourage government agencies as well as private companies to share a wider number of datasets at a more granular level

▶ **Education and training on utilization of data:**
developing an open data knowledge platform that includes guidance on how to utilize datasets, highlights specific use cases and successful business case studies by sector, as well as online training courses on data analytics

▶ **Incentivizing corporates and government agencies to adopt co-creation models:**
facilitating start-ups to effectively partner with government agencies, corporates and other established institutions to reach potential customers for product testing and
co-create scalable solutions to market challenges

CONTEXT
Why startups need market validation

This is the third white paper in a series covering entrepreneurship topics, that is published by Dubai Chamber on a regular basis. The previous white papers focused on the difficulties in opening a bank account and accessing funding.

This third white paper was initially planned to focus on the challenge of finding affordable office space as this topic was ranked as the third-biggest challenge in a survey conducted by Dubai Chamber in the beginning of 2018. Since then, **affordability of office space** has significantly improved. Contributing factors include a softening of rental prices for office space, the growing incubator landscape and the arrival of affordable co-working spaces such as Letswork and Witwork.

In the beginning of 2018, the fourth-biggest challenge identified by entrepreneurs was **availability of industry and market data** which is critical for market validation. Hence, this white paper focuses on the need to foster market validation powered by open data. The relevance of this topic is further underpinned by a recent survey conducted by Dubai Chamber titled "Dubai Startup Hub Impact Assessment 2018", which showed that a large portion of entrepreneurs struggle with data access and market validation (as shown below).

Top challenges for entrepreneurs in the UAE
[% of respondents qualifying topic as (Very) challenging]

BANKING	FUNDING	AFFORDABLE OFFICE SPACE	AVAILABILITY OF INDUSTRY AND MARKET DATA
65%	61%	53%	46%
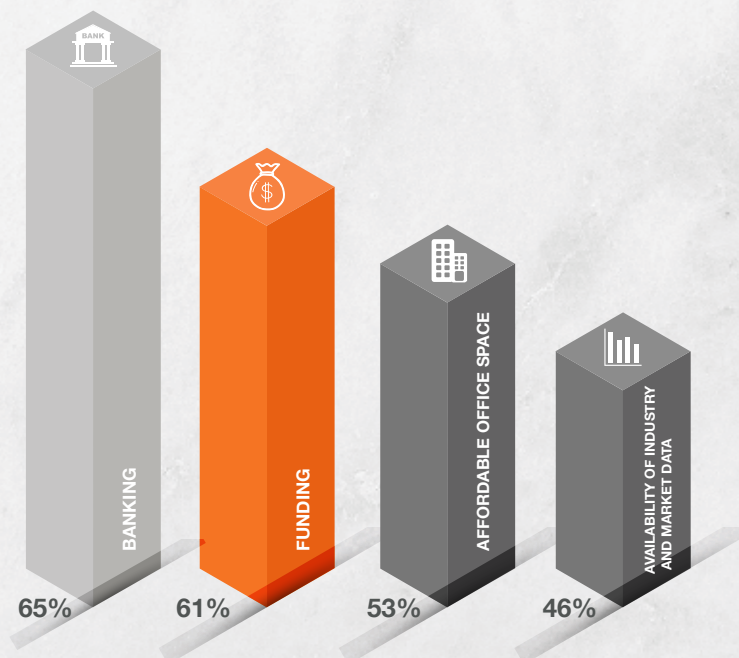
According to international reports, 90% of startups fail[2] within their first three years. This statistic confirms that entrepreneurship is indeed extremely challenging and that the start-up landscape needs to be navigated with extreme caution and sensitivity towards the targeted market. However, in **the MENA region specifically, startups often fail due to insufficient and ill-calculated matches of respective products and services with market needs.** Within the MENA region, 'no market need' has been cited as a reason for failure of 27% of start-ups.

This chapter explores this challenge along three dimensions:

► Breadth and depth of dataset

► Training on how to use data

► Market access and co-creation models

1. Increase the breadth and depth of datasets

Analyzing the availability and quality of a country's data portal (measured by the Open Data Index, not currently assessed for the UAE) against Ease of Doing Business (which reflects the "Start-up Friendliness" of a country), shows a clear proportional relationship as outlined in the figure below.
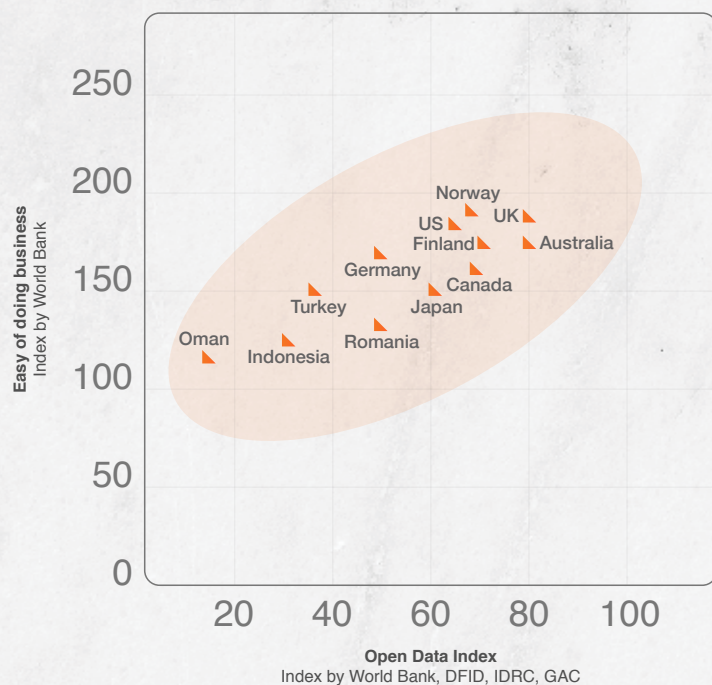

Figure 2:
Ease of doing business vs. Open Data Index

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[2] Start-up Genome Report Extra on Premature Scaling, UC Berkeley - 2011

Start-ups critically require access to open data for a number of reasons, including but not limited to:

► Estimating addressable market size, scale of problem being solved

► Assessing potential markets for expansion

► Efficiently targeting marketing spend

► Testing and iterating products and services on real life datasets

► Validating demand of a product and service by analyzing target demographics

► Inspiring investor confidence with a quantified growth plan

A Deloitte Analytics white paper[3] indicates that a total of 49 countries now have more than 220 distinct official or unofficial open data websites, which provide downloadable public datasets at a national, local, city and even district level. The list is led by the United Kingdom, United States and Canada.

As start-ups and businesses get more proficient in leveraging open data, countries have started to realize and quantify wider economic benefits. A comprehensive EU study[4] estimated the market size of Open Data in Europe to range from EUR 193 bn to 209 bn. Similarly, as an example, the Danish Agency for Data Supply and Efficiency[5] estimated the economic value of open geospatial data keeping in mind two factors: its own (production) and resulting efficiencies.

The total socio-economic value of open geospatial data was estimated at DKK 3.5 billion as shown in the figure below.
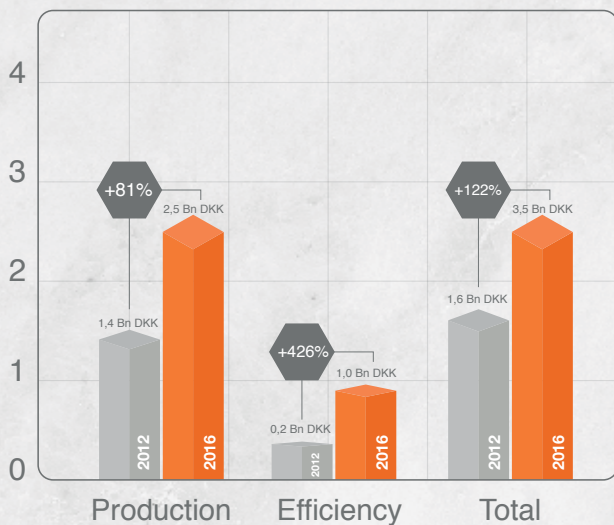
[3] Open Data - Driving growth, ingenuity and innovation, Deloitte - 2012
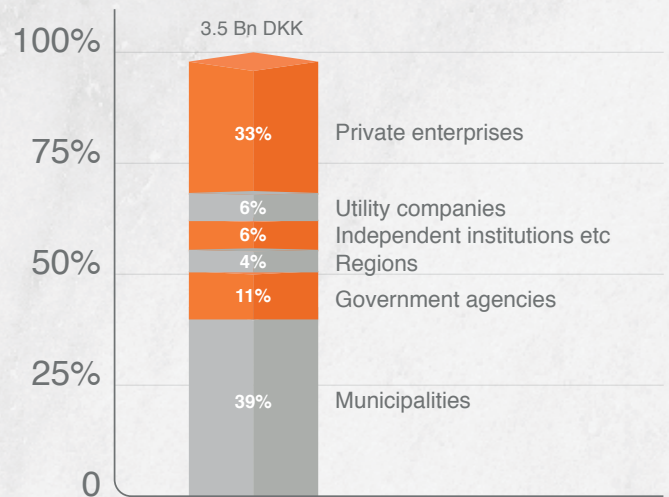
[4] Creating Value through Open Data, EU Study - 2015

[5] The impact of open geographical data, Danish Agency for Data Supply and Efficiency - 2016

Socio-economic value created from Open Data
(Billions of DKK, ▮ 2012 -2016 ▮)

Socio-economic value split by agency type
(Percent)

Figure 3: **Production and efficiency gains from Open Data in Denmark**

Both private enterprises and utility companies, as well as government agencies and municipalities were the major beneficiaries, accounting for more than 50% of the overall socio-economic value.

Assessment of the current data provision in Dubai, UAE.

UAE's official government data portal, Bayanat, already holds 1,131 datasets. However, there is room for improvement in both the breadth and depth of these datasets, when compared to leading global benchmarks such as the United Kingdom which holds over 40,000 datasets.

How availability of dataset translates into business opportunities in healthcare industry. Technology start-ups ranging from hospital management solutions to AI-driven patient care solutions require granular data on hospital beds such as occupancy by specialty by district. An example spot check was conducted on UAE's Bayanat, Dubai Health Authority and the United Kingdom's Department of Health data portal, for the number and occupancy of hospital beds. Results from the spot check are shown in the table below.

	Bayanat (UAE)	Dubai Health Authority (Dubai)	Dept. of Health (United Kingdom)
Earliest year available	2001	2003	2001 with prior data available upon request
Latest year available	2015	2017	Q4 2018-19
Reporting frequency	Annual	Annual	Quarterly, with some datasets available monthly
Most granular level of data available	► Emirate level ► Data by health authority but incomplete and only available in Arabic	► Available by government hospital only	► County level ► District level ► Hospital level
Data dimensions available	► Number of total beds ► Limited or no occupancy data ► Private vs. Government	► Total number of total beds, (without occupancy) ► Aggregage occupancy data available in some government reports ► In-patients by speciality but only for government hospitals	► Occupancy ► Day vs. Night ► Critical vs. Residential ► Split by type: General & acute, Maternity vs. Mental illness vs. learning disabilities vs. others ► Can also be broken down by speciality: radiology, ENT etc.

Figure 4: Comparison of UAE and UK data portals on a specific healthcare indicator

As shown, while data on the total number of hospital beds (capacity) in the UAE is available, it remains at a very high level with limited information on occupancy, tracking of areas within an emirate, break-down on type of in-patient occupancy. Although updated in 2019, the latest year for which data is available on Bayanat is 2015.

In contrast, the United Kingdom offers quarterly (in some regions, monthly) occupancy data, by district or hospital level with information on the type of diagnosis and specialty amongst other dimensions. This data is published each quarter, covering the preceding quarter.

Insufficient market data translates to limited evidence regarding a target market's attitude, market size and spending patterns which is critical to developing a business case or introducing any new product / service to the market.

2. Education and training on how to utilize datasets

Beyond making relevant datasets available, start-ups can benefit from education and training on how to access and best utilize datasets for their ventures.

This can be delivered through an online education platform which outlines what datasets are available and provides examples of how they can be used.

Bodies such as the Open Data Institute, based in the United Kingdom, focus on the aggregation and utilization of open data, highlighting successful business case studies.

Amongst other services, such institutes offer:

► Guides on leveraging data for different sectors

► Guides on using data for city leaders and urban planners

► Data skills framework guide

► Comprehensive online courses on subjects such as change or grow your business with better data

3. Market access and Co-creation models

Alongside being a major source of data, government agencies and corporates are also target customers for many start-ups. This creates an opportunity for start-ups and corporates to potentially co-create solutions that fulfil a market need and help start-ups iterate their product or service on real life datasets.

As corporates become increasingly aware of potential digital disruption, many are proactively engaging with start-ups to stay ahead of the curve. In a survey conducted by Forbes, 51% of executives reported a high level of risk to their company over the next five years from technology driven start-ups or innovations.

Dubai Future Accelerators, launched by the Government of Dubai in 2016, is designed to facilitate partnerships between entrepreneurs, private sector organizations and government entities to co-create solutions.

As a result, there have been examples where resident start-ups in Dubai have been able to gain market access through partnerships with government departments with fruitful results. One such example in the education technology space is outlined below.

Startup partnership with the Knowledge and Human Development Authority, Dubai

Launched in 2015, Nexquare is a startup which provides curriculum-agnostic education management solution with enhanced data analytics capabilities, offering an education technology service which empowers both education providers (school owners, professors, principals) and education consumers (parents, students) across emerging markets.

Nexquare partnered with KHDA to conduct a Proof of Concept to deploy a predictive data analytics solution into public schools across the country that aggregates manual input data into a central repository. This dataset provides analytical insights into student and school performance over 10 years. For example, it can determine the likelihood of a student failing mathematics from a certain demographic which can help diagnose the underlying reasons. Nexquare is now working with the KHDA to help implement a comprehensive data aggregation project to be instituted system wide.

▶ MARKET VALIDATION
Global best practices and examples

In this section we detail some key examples, whilst in the appendix section a list of local and international best practices for private and public companies supporting data can be found. As an example of how government programs can aid start-ups on market validation through data is the Massachusetts Mass Digital Health Initiative. Organized by the Executive Office Health and Human Services (Boston) in 2016, the program includes the Living Lab initiative which aims to simulate a complete healthcare eco-system for incubated start-ups to trial their products and services as shown in Figure 5.

Massachusetts Mass Digital Health Initiative

Launched	Country	Govt. Department	Status	Mass Digital Health Council
2016	United States of America	Executive Office Health and Human Services	Ongoing	▶ Wide council membership designed to advise Governor on the digital health industry ▶ Includes academics, private sector c-level leadership, scientists, technologists and others

Overview
► The Massachusetts Digital health Initiative is a comprehensive public-private partnership working to establish Massa chusetts as a leading ecosystem for digital health innovation, driving economic impact and improving healthcare costs and quality
► Digital health market is emerging rapidly and has the potential to create jobs, attracting investment, and developing solutions that improve healthcare delivery and ultimately help contain healthcare costs

How the program works?
► The program Improves healthcare delivery by spanning a variety of technologies including electronic health records, consumer wearable devices, care systems, payment management, big data analytics and telemedicine
► Digital health market is emerging rapidly and has the potential to create jobs, attracting investment, and developing solutions that improve healthcare delivery and ultimately help contain healthcare costs

Traction to date
► The initiative will develop within a digital health cluster working with 30 venture capital firms investing in digital health and over 10 digital health-specific innovation programs
► MassChallenge HealthTech concluded its first startup program with five winners from 30 high potential digital health startups that participated in the program

Figure 5: Overview of the Massachusetts Mass Digital Health Initiative

One of the three major pillars of the Mass Digital Health Initiative is to support the Living Tech in Bay Spring. Living Tech is a platform that includes all the assets, facilities and systems of a major health system, perfectly representative of the broader healthcare market.

This provides start-ups access to datasets that includes:

► +20 years of electronic medical record data for a stable Western Mass population

► Cerner and Meditech EMRs

► 12,000+ people working region-wide

► 5 hospitals and 1,000 beds, a flagship academic hospital

► 90+ medical practices, a VNA, and a regional reference lab

► Medical school focused on population health, affiliation with University of Massachusetts

► A Next Generation ACO and Medicaid ACO

► Health New England, a state-owned insurance company

► Regional HIE and Patient Portal by Inter-systems

Examples of start-up business models built on government data

Additionally, there are a number of startups that not only rely on data for market validation but have government data as part of their core business model. The table below shows such examples in the UK that successfully utilized open data as part of their core offering.

Company	Sector	Open Data Sources used in the UK
Red Spotty Hanky	Transport	▶ Online ticket retailer ▶ Relies on data from rail industry to offer low cost advance bookings
DueDil	Data Analytics	▶ Business information provider utilizes data from Companies House, HMRC and a number of other sources
Parkopedia	National	▶ Car parking mobile application ▶ Utilizes live data from local authorities to identify free car parking spaces

Most national data portals work to ensure a user-friendly experience for data analysis and maintain basic guidance on data availability and extraction. The Open Data Institute, based in the United Kingdom, leads in promoting the aggregation and utilization of Open Data. It provides a good benchmark in the provision of education and training materials for government data portals to emulate. Figure 6 outlines some of its features.

Open data intitute:

Launched	Country	Govt. Department
2012	United Kingdom	Independent, non-profit and non-partisan company

Overview
▶ The Open Data Institute works with companies and governments to build an open, trustworthy data ecosystem, to enable better decision making using data and manage any harmful impacts

Programs and Features
▶ **Strategic advice** - identifying how data can help to achieve program goals and how to measure success
▶ **Research** - from creating case studies of the role of data in the sector to rigorous impact evaluation
▶ **Training** - including blended learning packages that combine face-to-face, eLearning and webinars
▶ **Policy development and guidance** - scrutinizing the interaction between general data governance practices and sector norms
▶ **Technology development** - creating appropriate data standards and the tools needed to support them
▶ **Running competitions and acceleration programs**
▶ **Building communities with the sector**

Figure 6: Example online courses and guides on data utilization by the Open Data Institute

A specific example of how education and training on data utilization can support start-ups is in the estimation of addressable market size. A key criterion for investors in evaluating the potential of a start-up is the size of the market or scale of the problem that it aims to address. Since start-ups usually address a specific market niche or customer segment, addressable market size data may not be readily available. In such situations, it is important for start-ups to understand how to estimate the relevant market size and its underlying growth drivers.

The table below shows one such instance for illustration purposes based on UK example. With further implementation of current open data initiatives in the UAE, a large number of startups can benefit from using similar market sizing techniques.

Education and Training: estimating the addressable market size for a start-up

The application of technology in traditional sectors such as property and real estate (known as "Property-technology or PropTech) is an upcoming area of focus for start-ups and investors globally. Automation of real estate valuations / appraisals is one such opportunity that can also be a lucrative opportunity in the UAE. Estimating the market size of property valuation can be carried out in one of two ways as shown in the diagram below. Both estimations require essential data, such as, the number of registered property surveyors or the number of mortgages approved each year. Both these of these datasets are unavailable in the UAE. Comparatively, in the UK, the Bank of England provides data on annual mortgage approvals on its website where as the HMRC posts data on the number of registered property surveyors.

Estimating real estate surveying market size

Methodology I:

# Residential Sales by size and region	# Non-residential Sales	Mortgage and Loan renewals	**Methodology II:** Number of registered surveyors
x	x	x	x
Average surveying feeby size and district	Average commercial surveying fee	Discounted / Higher share of "Fly" valuations	Mean pay for registered surveyors
=	=	=	/
Estimated Residential surveying revenue	Estimated Commer cialsurveying revenue	Estimated surveying revenue from loan renewals	Average professional wages as % share of revenue
=	=	=	=
Estimated Surveying Revenue			**Estimated Surveying Revenue**

This example illustrates the importance of open data beyond just market validation and product iteration, but also its role in the development of market entry strategy and investor due diligence.

▷▷ RECOMMENDATIONS

1. Open-Data source policy playbook

As identified in this paper, there are several ways in which the government's current Open Data framework can be further developed. These constitute support for emerging entrepreneurs, creating data workshops and awareness campaigns, transferring data collection and formulating policies to open private sector data.

Some specific measures are outlined below:

► **Encouraging government agencies to share data relevant to the market**
(e.g. demand patterns per area and customer segments) As outlined, a higher breadth and depth of datasets will support start-ups in numerous ways ranging from market validation to product iteration and testing

► **Consistently establishing an active Data query service across all government departments**
Develop an active data query service that is represented across all government departments. For example, in the UK, startups and SMEs are the largest categories of requesters after private individuals. Currently there is inconsistent implementation of this service across government agencies in Dubai

► **Establishing a regulatory and policy environment conducive to enabling the maximisation of opportunities to open private sector data**
There might be some reservations from the private sector regarding opening private sector data for start-ups. The government can incentivize data sharing through various schemes or facilitate the sharing of data in a more anonymous fashion

► **Invite incubators and accelerators to participate in data sharing**
Given that Dubai and more widely, the UAE is host to a number of start-up incubators and accelerators, the government can develop data sharing arrangements with these incubators and accelerators to ensure sustainability of the data eco-system

2. Education and training on utilization of data

► **Support local portals (Dubai Pulse, Bayanat) to develop guides, data workshops and awareness campaigns to explain what is available and how to extract data**
Quite often significant data is available in the market but due to lack of awareness, start-up founders lack knowledge on how to obtain the data and where to get it from. Specific guidance and templates on how to use data and successful local case studies should be promoted, similar to examples identified in the United Kingdom and other countries

► **Active outreach and partnerships between Government Data Initiatives and key start-up hubs and entry points**
Government data initatives, including by Smart Dubai, can partner with leading incubators, accelerators and business registrations hubs, to apprise start-ups on available datasetss and knowledge of how to access aforementioned guidance and training

3. Market access programs and Co-creation models

► **Incentivizing corporates and government to adopt co-creation models**
Starting with government agencies, encourage established institutions including corporates to adopt co-creation models with start-ups to develop scalable solutions to market problems; including usage of open data.

► **Develop a market validation platform**
Platforms such as HowKya and Proved.co serve to provide fast market validations from potential customers for products and services. There are limited examples of governments establishing these however the government can consider including these within existing start-up incubation platforms.

▷ APPENDIX
Examples and best practices

The table below outlines exemplary programs and applications that demonstrate how policy makers and private sector partners can support in the capture, sharing and co-working of data to help starts-ups scale.

Program	Type	Country	Sector	Main Activities
Transport for London (TfL) - Open Data	Gov.	United Kingdom	Transport	▶ Over 600 apps currently utilize the TfL open data ▶ Private funded apps demonstrated much higher growth compared to TfL's own applications hence TfL now focuses on making more data available - Leveraging datasets and use cases - Educatation on how to use datasets
ACE Market Access Program	Gov.	Singapore	National	▶ Target market is identified with workshops on leadership and training in effective ways to pitch to investors ▶ Information relating to start-ups, ranging from the provision of open data sources, market access programs trainings and funding support is all in cluded on a single website - Educatation on how to use datasets - Market access / co-creation
Code4Viilnius	Gov.	Lithuania	National	▶ National program to encourage citizens to use the city's Open Data platform to analyze and improve on issues e.g. recycling rates, carpooling etc. - Leveraging datasets and use cases - Educatation on how to use datasets
Sentinel Hub (by Sinergise)	Private	Europe	Satellite data	▶ Data from satallites including Copernicus, USGS and others made easily accessible to end-users and application developers around the world - Leveraging datasets and use cases - Educatation on how to use datasets

Program	Type	Country	Sector	Main Activities
A-scale: Asian market access program	Private	Anthil Ventures, Singapore	Healthtech, Mediatech, Urbantech	▶ Start-ups get access to more than 100 global domain and technology experts, more than 50 corporate market channels and millions of customers for testing - Market access / co-creation
EIT Health: Product/Market fit program	Govt.	Europe	Healthtech	▶ Market information and data ▶ Quick market scan in Sweden, Estonia, Spain, United Kingdom, Germany, Belgium and France ▶ Access to key users including distributors ▶ Clinical validation ▶ Facilities in local eco-systems - Leveraging datasets and use cases - Educatation on how to use datasets - Market access / co-creation
Living Lab	Local Govt.	US	Healthtech	▶ 20+ years of electronic medical record data for a stable Western Mass population ▶ 12,000+ people working region-wide ▶ 5 hospitals & 1,000 beds, a flagship academic hospital ▶ 90+ medical practices, a VNA, and a regional reference lab - Leveraging datasets and use cases - Educatation on how to use datasets - Market access / co-creation
Founders Factory	Private	United Kingdom	General	▶ Co-creation model where start-ups work with international MNCs to develop products or services that solve a real-life problem - Market access / co-creation
US Market Access Center	Govt.	US	General	▶ Market Validation Program ▶ 10-12 meetings arranged with potential customers and partners ▶ Learning by doing customer development process - Market access / co-creation
Greenhouse by Chalhoub Group	Private	UAE	Fashion retail	▶ Retail technology accelerator and in-house incubator for Chalhoub employees ▶ Value proposition of the acclerator includes the opportunity for start-ups to trial products and services in the group's retail and distribution companies - Market access / co-creation