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ABU DHABI CHAMBER

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# Innovation in Abu Dhabi

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In association with  IHS Markit



# Dear reader



Innovation is the path to economic growth as it is vital to successful business, playing a crucial role in growth and development. It is the process beginning with the plan of an idea, followed by the production and generation of that idea, and finally the implementation of the production scheme.

Innovation is arguably the most important driver for building competitive capabilities. In today's information age, the world is witnessing technological revolutions and change that are outpacing regulatory measures.

The Abu Dhabi Chamber recognizes the importance of innovation and is committed to supporting creativity and innovation in Abu Dhabi. While most of the Chamber's members are family business members and small- and medium-sized enterprises, the status of innovation in Abu Dhabi is crucial to their success.

This report looks at international best practices to provide examples of how other countries and governments are supporting innovation. A review of best practices globally is provided and compared with the current status of innovation in the region and specifically in Abu Dhabi.

We conclude the report with recommendations on how the government of Abu Dhabi can continue to support and spread the culture of innovation. A multi-step plan is provided to bring innovation in Abu Dhabi to the next level. These steps include 1) offering incentives to undertake research and development (R&D), 2) promoting training and education, 3) improving collaboration between academia and industry, 4) creating innovation metrics, and 5) simplify policy by cutting bureaucracy. Following these steps will take innovation in Abu Dhabi to the next level.

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### Leading practices around the world

The world is constantly changing. Innovation and new technologies together are affecting businesses, governments, and people. In today's digital age, the global population is experiencing unprecedented change. Government policies and practices around the world need to keep up with the speed of change. While digital technologies and developments are helping governments adapt, more progress is needed.

The Organisation for Economic Co-operation and Development (OECD)'s February 2019 report "Embracing Innovation in Government Global Trends 2019" highlights case-studies and innovative global trends and identifies governments that are leading the way. Three global trends that were identified in public-sector innovation include visibility by making government more transparent to the public, opening doors to be less limiting and more available to the public, and taking advantage of machine-readable technologies to encourage new technologies.

Innovation requires investment and a different mindset than business-as-usual operations. The private and public sectors must create a culture of innovation that allows for trial and errors and is open to new ideas and processes.

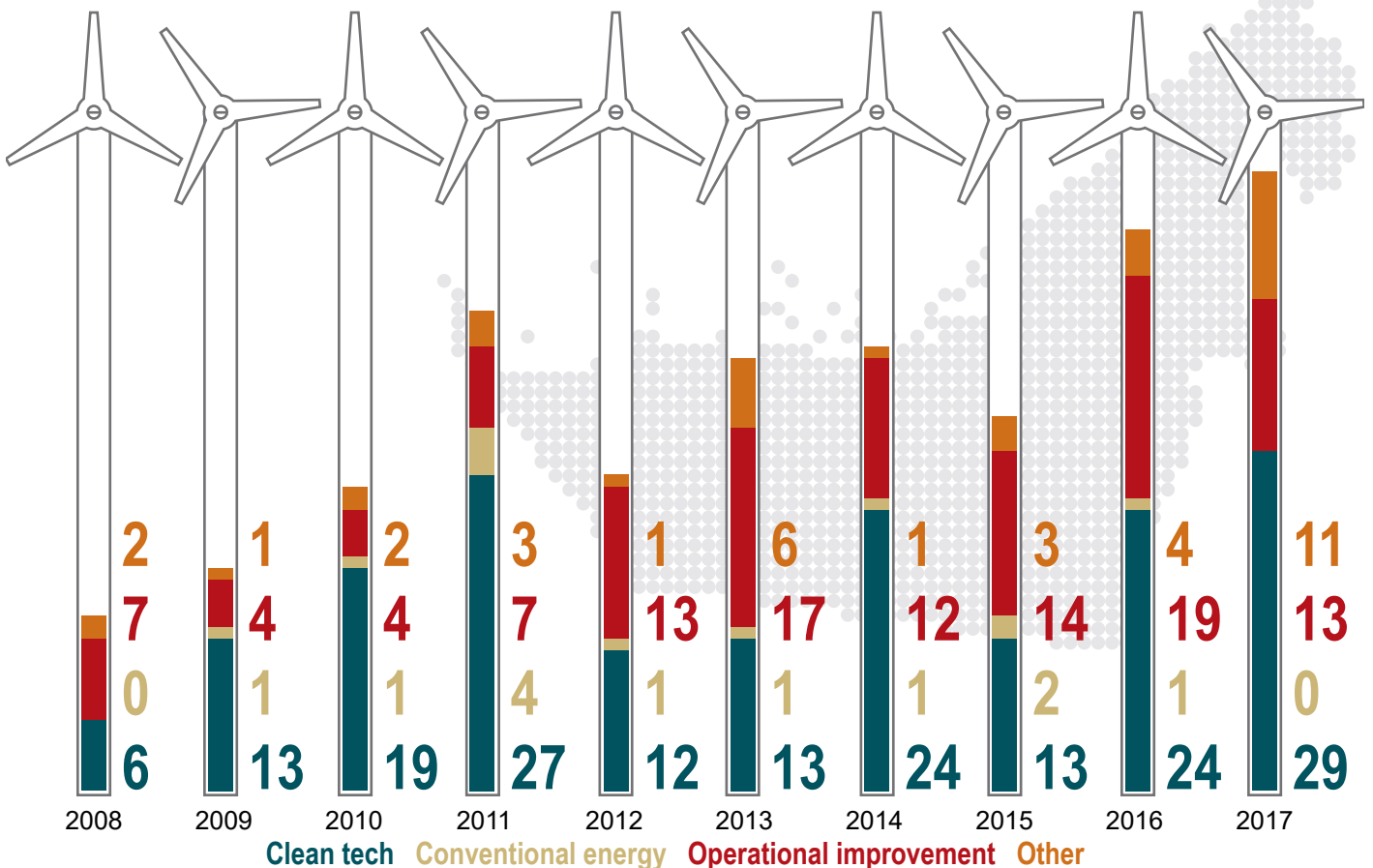
In addition to governments providing incentives, private-sector industries around the world are being disrupted and disrupting themselves through innovation and the adoption of new technologies. Global innovation in the oil and gas and clean energy sectors have impacted Abu Dhabi, and Abu Dhabi is often leading the global innovation in these sectors.

"Clean energy innovation"—an article published in The Wall Street Journal during CERAWEEK 2019 by IHS Markit—examines how economic, political, and technological developments are creating opportunities and challenges for the energy industry. Energy innovation requires the coordinated and purposeful interaction of three forces:

- public policies that fund basic research and early-stage development to create

### Chart 1: Rising importance of clean tech to oil & gas corporations

Count of financings with oil & gas participants globally, by investment type



Source: CB Insights



# 3

**forces required for energy innovation:  
Fund R&D;  
Translate R&D to viable applications;  
Public policy to encourage demand**

- new energy technologies;
- private-sector translation of research into viable applications that serve market needs;
- and public policy to spur market demand.

If any one of these three forces are weak, energy innovation will weaken. If all of them are strong, they will transform the future of energy. Clean tech is an increasing area of interest to oil and gas corporations (see chart 1).

A key insight to clean energy innovation can be found in the US innovation system with its focus on public investment in basic research and early-stage development, translation into applications by the private sector, and policies to spur market demand. This system is poised to enable clean energy breakthroughs in 10 key areas : storage and battery technologies; advanced nuclear reactors; hydrogen generated by zero-carbon power; advanced manufacturing technologies; construction and energy management technologies; electric grid modernization and smart cities; large-scale coordinated carbon management systems; carbon capture, use, and sequestration; conversion of sunlight to fuels through enhanced photosynthesis; and biological sequestration.

Historically, change in these systems has been driven by lower costs or better functionality and has played out over decades. Introducing new technologies into this environment is not easy. Successful innovation requires long-term research to get the basic science right, long-term development to get the engineering right, and scale to get the economics right.

### **Innovation in the UAE:**

The Global Innovation Index (GII) ranks the innovation performance of 126 economies around the world on an annual basis. The index provides a measure for assessing and improving innovation, while comparing countries by their innovation level.

In 2018, the UAE ranked 38 out of 126 with an overall GII score of 42.6, one of the top innovation regions as rated by the index. As a primary oil and gas producer in the Middle East, the UAE benefits from a resource-rich and high-income economy.

According to the Global Innovation Index Report 2018, the UAE has in the last few years ranked consistently with strong performances in innovation inputs, ranking in the top 25. The input sub-index captures innovative activities including institutions, human capital and research, infrastructure, and market and business sophistication.

Meanwhile, outputs are ranked at 54, up two from 2017. The output sub-index captures innovation activities within the economy such as knowledge, technology, and creative outputs. This is significant since the goal to improving performance is to convert innovative inputs into higher innovative outputs.

One main takeaway from the GII report is that countries with more diversified economies tend to do better in innovation. This holds true when looking at all high-income economies with and without oil exporters. Taking that a step further, resource-rich economies are more innovative when they have more diverse economic structures.

To that end, the UAE government approved the national strategy for advanced innovation in February 2018, which is an updated version of the national innovation strategy of 2014 that focuses on innovation priority sectors including renewable energy, transport, education, health, technology, water, and space. The updated strategy emphasizes innovation in areas such as future skills, quality of health, living, green power, and transportation. The intent of this is to inspire innovation and entrepreneurship among emirates. Further, the UAE also has designated February as Innovation Month. During this month, there is a strong collaboration among the national and emirate levels, private-sector companies, and community members to spread a culture of innovation.

There is a need to couple innovation and entrepreneurship to further boost economic growth in the UAE. Members of the UAE's Dubai Biotechnology Research Park (Dubitech, a subsidiary of the government of Dubai's holding company Dubai Holding) were polled in 2015 with various innovation-related questions. Poll results indicated that 27% consider a lack of funding to be a main contributor to a non-conducive environment for innovation, while 23% believe it is current market dynamics. Regulations on intellectual property (IP) and patent regulations were also cited as innovation barriers.

Incentives such as granting investors 100% foreign ownership and tax-free operations have contributed to growing portfolios for attracting large industry players. UAE IP laws—now complying with World Trade Organization (WTO) standards—and research infrastructure have improved, setting the scene for greater foreign engagement in research and development (R&D), despite still being perceived as a barrier by the industry. However, clearer foreign direct investment (FDI)-related



policies, expanded entrepreneurship involvement, and more targeted funding are required to further attract R&D initiatives and innovation in sectors like life sciences.

Dubai is recognized as a hub for innovation and technology. The Museum of the Future is a museum of innovation and design. The exhibits explore the future of science, technology, and innovation. The first major initiative of the museum was to create the world's first 3D-printed building in Dubai. Free zones promoting innovation in Dubai have also been established to create a business park known as the Innovation Hub, bringing together a community of innovators in one space.

The Dubai government has developed several programs to promote itself as a center of innovation. One example is the Dubai Future Accelerators program—this AED1-billion (USD275 million) program was initiated in 2016 and is set to invest in new technology innovation for five years. Partnerships are promoted between businesses, the private sector, and government entities.

### Current status of innovation in Abu Dhabi:

The Ghadan 21 program is a three-year initiative with a AED50-billion (USD13.6 billion) budget from the government to enhance the competitiveness of Abu Dhabi in driving economic development, innovation, and ease of doing business. Many of the initiatives that have been announced will help promote innovation in Abu Dhabi.

To answer the call for additional funding and recognizing the importance of diversification to help foster innovation, the Abu Dhabi executive council in June 2018 revealed plans to lure startups and support R&D under the third pillar—knowledge and innovation—of the emirate's stimulus plan. Doing so will boost the emirate's competitiveness and support diversification efforts. Plans include a comprehensive program that will support Abu Dhabi's shift toward becoming a knowledge economy, where the production of goods and services are based primarily upon knowledge-intensive activities. The key is to develop, attract and retain high caliber talent, while supporting the development of the latest technologies across all sectors of the economy. Part of the funding will support industrial research and development by encouraging automation and renewables for "large industries," funding university and startup R&D, and promoting R&D regulation.

One recent example under the Ghadan 21 initiative is the Abu Dhabi instant license, which has simplified the process of applying

to conduct commercial activity in Abu Dhabi. This innovative licensing framework moves the process online, allowing businesses to conduct activities immediately. More improvements like this are encouraged.

### Innovation in Abu Dhabi by sector

While Abu Dhabi has made significant investments in renewable energy and is leading in climate innovation, Abu Dhabi's culture of innovation is touching nearly every industry and government department. Examples of innovation in existing and new industries include:

#### FinTech:

The Abu Dhabi Innovation Challenge is in its third year. This challenge helps bring innovative solutions to real corporate problems. It pairs fintech startups from around the world with regional corporate leaders. The corporate leaders present areas where they need innovation and the startups compete to provide solutions. The winning competitors get the opportunity to establish long-term relationships with the corporations and set up a base of operation on Abu Dhabi's Al Maryah Island.

#### AgTech:

In March 2019, Abu Dhabi passed a funding and tax incentive package of AED1 billion (USD272 million) for Agtech companies to develop the future of agriculture by solving traditional farming challenges. According to His Excellency Saif Mohammed Al Hajeri, Chairman of the Department of Economic Development, the "aim is to position Abu Dhabi as a beacon for innovation in agriculture technologies applied to desert environments."

The three main subsectors targeted for R&D are:

- algae-based biofuels that can harness Abu Dhabi's year-round sunlight, access to seawater and its land will fulfill the growing demand for alternative, sustainable fuel sources;
- indoor farming technology that conserves water and helps supply quality produce for Abu Dhabi's growing population is a priority;
- lastly, there is precision agriculture and ag-robotics, which will help local farmers reduce waste of critical resources including water, energy, and land.

#### Health:

In 2017, the Health Authority – Abu Dhabi (HAAD), which regulates the health care sector in the Emirate of Abu Dhabi,

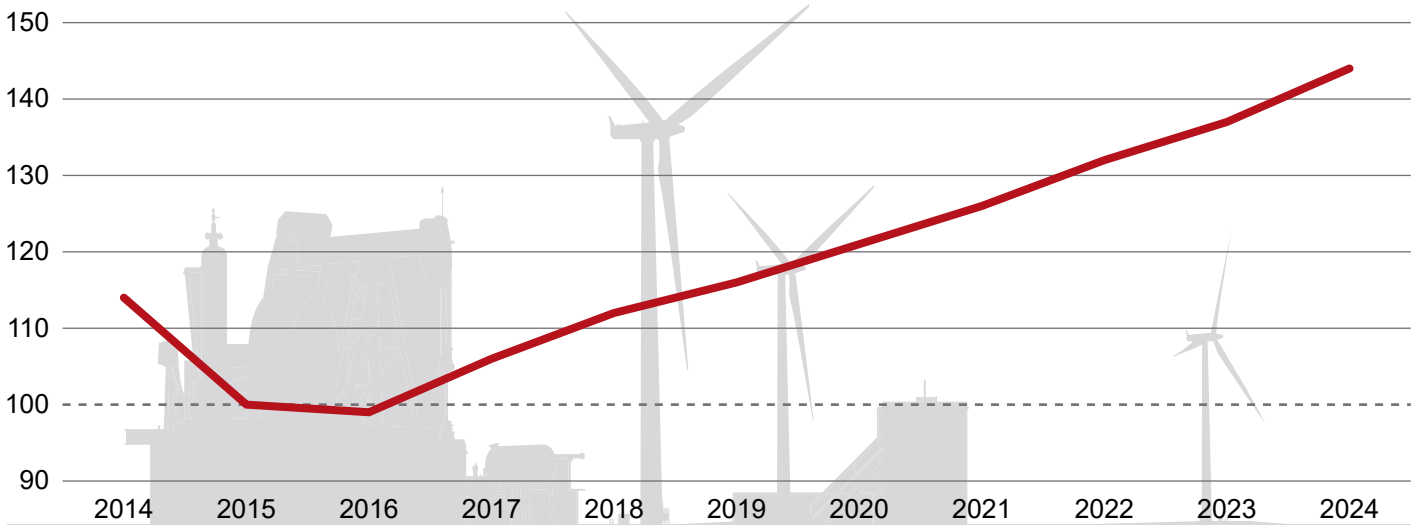


# 38<sup>th</sup>

is where the UAE  
ranks out of 126  
in the Global  
Innovation Index



### Chart 2: UAE labor productivity index



Source: IHS Markit

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# 27%

**of Dubiotech members said lack of funding was the main barrier to innovation**

announced the launch of the Abu Dhabi Healthcare Innovation Award (ADHIA). The goal of the award is to encourage continuous innovation in the health care sector and to promote the development of a state-of-the-art health care research network covering private and public entities across the emirate.

In 2018, 23 out of 1,182 applicants for the Technology Innovation Pioneers (TIP) healthcare awards received prizes worth AED3 million dirhams. Furthermore, there is an additional AED30 million of potential funding available from interested investors.

#### Urban planning:

In April 2019, Cityscape Abu Dhabi was inaugurated, and Abu Dhabi's Department of Urban Planning and Municipalities (DPM) showcased a wide array of new urban development projects carefully designed to improve quality of life and livability in the city. The government has pledged a total investment of AED50 billion in financing to achieve the ambitious goal of making Abu Dhabi one of the most livable cities in the world by 2021. This falls under the banner "Transforming out Abu Dhabi," which is centered on the four key pillars: business and investment, society, knowledge and innovation, and livability.

#### Transportation:

In January 2018, NYU Abu Dhabi signed a Memorandum of Understanding (MoU) with Abu Dhabi Airports to foster innovation in aviation. The MoU will further accelerate the development of advanced capabilities for

Abu Dhabi International Airport and to a new standard of technological progression.

#### Recommendations to promote innovation:

To facilitate innovation, a multi-step plan is recommended. Taking these steps will bring innovation in Abu Dhabi to the next level.

**Step 1:** Offer incentives to undertake R&D. To implement a new product or new process, research and development is crucial. To promote R&D, the government should help in the form of tax credits or grant funding. Innovation hubs that bring resources together to help implement solutions should also be encouraged through the promotion of partnerships, tax credits, and funding. Investing in R&D can be done through public and private funding.

The Abu Dhabi Investment Office (ADIO) has launched a Corporate R&D fund with up to AED4 billion in rebates. The fund will support local companies expanding R&D operations or developing new Abu Dhabi-based projects. An additional rebate is also available for R&D activities that result in successful product commercialization in the market.

**Step 2:** Promote education and training. People are at the center of innovation. Abu Dhabi needs to continue emphasizing education, especially tertiary education and the cooperation between local universities and companies. While everyone agrees this is necessary, there is still a lack of qualified local MBAs, engineers, lawyers, and other staff needed to run a company. Investing

in education will attract and retain the best innovators.

Abu Dhabi should continue to diversify and expand its economy by enhancing skills and innovation training. The government's policies should continue to encourage higher value-added economic activities that rely on less manpower, particularly foreign manpower, while preserving the economy's competitiveness.

Ways to do this include incentivizing innovation and enhanced productivity, research and development, skills upgrades, land-use efficiency, and the adoption of information and communications technology (ICT) solutions among local small- and medium-sized enterprises (SMEs). These policies can be implemented through various grants and fiscal incentives.

**Step 3:** Improve collaboration between universities and industry. Universities recruit students with bright minds and provides industry research, which can innovate and improve companies.

Industry looks to universities to provide qualified workers to the workforce. Improving ties between businesses and universities will help close the industry-academia gap. A good example are the research centers and faculty labs that originated in the Abu Dhabi campus of New York University.

To bridge the gap and improve collaborations, it is suggested that the government promote, fund, and facilitate partnerships. Help set up fellowships, internships, and training programs to provide experiences and expand opportunities. Competitions can be hosted to help find innovative solutions.

In support of the overall UAE Innovation Strategy, Abu Dhabi has launched pilot initiatives to collaborate with leading international institutions and companies in the priority sectors.

One such collaboration—launched during the 2018 Innovation month—is the Google Innovation Hub in Al Ain. This is a partnership among the UAE University, Abu Dhabi Education Department, and Google. It is designed to train young people on the skills needed to innovate and work in the 21st century.

The Innovation Hub opened for applicants in 2019 for their courses in App Factory, Makers Space, and Machine Learning. It can host up to 120 students per day. The Makers Space courses are applicable to students aged between 8 and 16. The Machine Learning and App Factory courses, which include coding in virtual reality and lessons in robotics, are available to students aged

between 16 and 24.

Moreover, during the UAE Innovation Month, Abu Dhabi attracted more than 100 innovators, 25 innovative projects from government and private organizations, 27 science workshops, approximately 7,000 students in school trips, and 35,000 visitors. While in Al Ain, 600 students in school trips and 8,000 visitors attended six interactive workshops organized at three shopping malls.

**Step 4:** Create metrics. The Statistical Yearbook of Abu Dhabi 2018 does not mention innovation or R&D. Measuring innovation requires metrics to be created, tracked, and reported. Metrics of key performance indicators should be developed. Having transparent measures will also ensure that priority areas for innovation are accomplished.

Input metrics are metrics on things that drive innovation. Specifically, this includes R&D spending by industry, the number of individuals working in R&D occupations, the number of patents filed, and venture capital or other investment dollars invested in new innovations or startup companies.

Outcome metrics measure expected results from innovation. This includes productivity by industry, as well as measures of priority industries such as renewable energy. **Chart 2** is an example of such a metric that could be expanded to all renewables as well as other innovations such as new farming techniques or the adoption of technologies such as artificial intelligence, 3D printing, or virtual reality by industry.

Another example of a successful metric that Dubai has in place is the Dubai Innovation Index. The index creates awareness of total innovation efforts of Dubai. Creating this index for Dubai and other global cities provides a powerful tool for Dubai to evaluate their innovation practices and outcomes.

Once metrics have been created, a platform or portal for recording data or hosting data should be established. This would help to coordinate the data from the different departments such as education, urban planning, economic development, health, etc.

**Step 5:** Less bureaucracy. Instead, the government should consider putting better solutions in place to create new processes and new products. This can be accomplished by meeting expectations and building trust. One recommendation is to bring businesses and consumers together to define problems. Similarly, it will be beneficial to improve citizens access to the policy making process. The government should listen to concerns and engage with citizens to collaborate with



120

students per day  
can be trained  
at the Google  
Innovation Hub



the public. Citizens will be happy to have their contributions incorporated into the design of new policies. The government should be responsive and willing to change by making informed choices.

When creating policies and measures, aim at simplification. This is helpful in order to improve processes viewed as cumbersome that can impede innovation. The government should focus on setting up an environment where innovation can succeed, which means paperwork should be reduced. For example, reduce the paperwork it takes to set up a business, making the process more user friendly and open.

It would be helpful to have information listed on office websites in Arabic and English. Changes to rules and regulations should be updated promptly in order to notify businesses of changes in a clear and informative way. Information listed on official websites should serve as official requirements.

Another recommendation is to improve communication between government departments themselves. Doing this will reduce conflicting information between different government entities. Government resources tend to be spread out and would benefit from a restructure to become more streamlined. Being a fiscally dominated economy, even private entities react on government policies and guidance. Various government entities, ministries, and even think tanks in the country all react to the same mandate. This can result in different government entities perhaps setting up workshops with overlapping themes. To improve this, the government needs to set clear policies and provide action plans. Streamlining the process will result in businesses and the Abu Dhabi community better able to benefit from government policies.

Making these changes will create trust and an environment for innovation to succeed. ■

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