Introduction

The UAE is celebrating 2015 as its Year of Innovation. His Highness Sheikh Khalifa Al Nahyan, President of the UAE, declared that: “Announcing 2015 as the Year of Innovation comes to support federal government efforts, attract national skills, increase distinguished research, as well as boost efforts to build a national cadre who are able to lead our future in this field towards more progress, prosperity and innovation.” In the same vein, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister and Ruler of Dubai, in announcing the UAE Innovation Strategy, stated that: “This innovation strategy is a national priority for our programme of development and progress. It is a primary tool to achieve Vision 2021 and an engine for the growth across the nation.”

Around the world, innovation is recognised as a driver of economic growth and social progress. Global spending on R&D activities currently tops one trillion US dollars.¹ The private sector is a key player in the innovation arena not least through its massive investment in R&D. The expenditure among Global Innovation 1,000 companies alone has reached US$547 billion last year.²

In the first issue of this Innovation Briefs Series, we examine the firms behind innovation in the UAE, with a particular focus on Abu Dhabi – the largest of the seven UAE emirates. In which sectors are they located? How might we characterise successful innovation in firms? And what policy insights can be drawn?
Innovators’ Features

To help answer these questions, we can draw upon the long-standing Community Innovation Survey (CIS) that was first undertaken in Europe in 1992, and which is coordinated by the European Statistical Office (Eurostat). The CIS was designed to help identify which firms are innovating, what type of innovation they carry out and how. Currently conducted in over 30 countries, the survey furnishes rich insights into the profiles of innovators.

Innovators can be found in all sectors, manufacturing and services, and in firms of all sizes. However, not all sectors are innovating equally and not all innovations are equal. The CIS shows that in the Europe-15 group of countries, slightly less than half of their manufacturing firms (46.7%) undertook innovative activity whilst only 36% of the service firms reported doing so. However, in knowledge-intensive service sectors which tend to employ more graduates, the ratio of innovating firms (46.2%) is nearly on par with manufacturing.

The rate of innovation varies substantially with firm size. The proportion of innovating firms tends to increase with workforce size, ranging from 45.2% for small firms (10-49 employees) to 60.5% for medium firms (50-250 employees) and 80.6% for large firms (with more than 250 employees) in Europe-27.

Most innovations are incremental in nature, involving small improvements on existing solutions. Although radical innovations have been shown to create significant financial value, they occur less frequently.

The profile of the most typical innovator is that of a large firm in a high-tech manufacturing or knowledge-intensive service sector that mostly generates organisational innovations for the domestic market.

Presenting the Abu Dhabi’s Innovative Firm

While a UAE-wide innovation survey has yet to be conducted, the Department of Economic Development in Abu Dhabi undertook and published the Abu Dhabi Innovation Index (2014), which includes the results of the second Abu Dhabi Innovation Survey. Based on a representative sample of 500 Abu Dhabi companies (excluding the Oil & Gas sector), the survey asked these firms about product-, process- and/or service-innovations that they had introduced to local and/or international markets.

Some 55% of the firms surveyed in Abu Dhabi reported that they had introduced innovations during the period 2008-2011. This figure exceeds the EU-15 average of 54.3%. However, almost 50% of these innovating firms were process innovators only, implementing new or significantly improved processes or delivery methods (including significant changes in techniques, equipment and/or software). While 15% of innovating firms are process as well as product or service innovators, only 18% of firms reported undertaking all three types of innovative activity which is on par with the EU-15 average of 19%.

The typical innovating firm in the UAE is a medium-to-large firm, around 20 years in age with approximately 1,000 employees and a turnover ranging between 10 and 20 million AED. Such a firm creates mostly process innovations with a preference for supporting activities such as maintenance systems.
Innovative enterprises are defined as product, process and/or organisational innovators (including enterprises with abandoned/suspended or on-going innovation activities). Eurostat data based on CIS 2012.

Europe-27: Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.


The empirical results presented in this paper are based on a set of robust logit regressions estimating the probability of introducing a product, process and/or service innovation, using weighted data and corrected for the potential heteroscedasticity.

Innovation surveys provide a rich information source about the characteristics of innovating firms, including their age, size, type and economic activity and they have been widely used to analyse firms’ propensity to innovate. Using statistical analyses, we present estimates of the impact of different firm characteristics on innovation propensity among Abu Dhabi firms, based on data drawn from the Abu Dhabi Innovation Survey.

**Age & Size**

While a typical innovator in Abu Dhabi is a 20 year old firm with around 1,000 employees, estimates based on the Abu Dhabi Innovation Survey data show no significant effects for firm age or employment size on innovation propensity. Even start-up companies which are often considered engines of innovation and growth, do not appear to be any more innovative than older more established firms. However, when firm size is measured in terms of total sales, size is found to increase the likelihood of innovation. This means that Abu Dhabi firms that sell more also innovate more.

**Sectors & Industries**

Most of Abu Dhabi’s innovative firms are found in the construction sector, followed by the manufacturing. The average investment in R&D is around 5% of turnover (10% if we only consider firms investing in R&D). Of these firms, the highest share is in the service sector, followed by manufacturing. However, there is no statistically significant difference in R&D intensity across sectors. Furthermore, sectors do not appear to affect the propensity of firms to innovate. This means that being in a particular sector does not necessarily increase the chances that a firm will innovate.

**Firm Type & Ownership**

In general, firms that are part of a multinational group are held to generate more new ideas than the purely domestic firms. The reason being that because they have access to a larger pool of knowledge via processes that diffuse information within firms, they are better positioned to generate innovations.

However, being part of an enterprise group does not seem to increase innovation propensity in Abu Dhabi. Just under half of the firms surveyed in Abu Dhabi reported belonging to a group of enterprises (48%). Of those, 74% belong to local Emirati firms who were found to perform better than comparable firms in non-Emirati enterprise groups. In fact, belonging to an Emirati group of firms more than doubles the likelihood of innovation.

Emirati firms commit more money to innovation-related activities than do other firms (11% of their turnover vs. 8%). Compared to non-Emirati counterparts, they buy more external knowledge and invest more in training. However, they seem to be less active when it comes to introducing new products or other solutions to the market place.

**Domestic vs. Foreign Markets-Orientation**

Engaging in export activities is not associated with a greater propensity for innovation among firms in Abu Dhabi. Only 12% of the firms surveyed reported export activity - comprising an average of 36% of their total output. On the other hand, innovating firms are no more likely to export either. Given the already highly internationalised domestic market, exporting firms do not appear to possess any additional advantage over non-exporting firms in this respect.
Firms in the UAE and Abu Dhabi in particular are innovating in all sectors, irrespective of employee numbers or market orientation. While this suggests that a good foundation exists, it also implies that the UAE in general and Abu Dhabi in particular, have yet to develop niche areas in innovation that may contribute to its economy with a competitive advantage.

Only 25% of firms in Abu Dhabi invest in innovation related activities. These firms dedicate approximately 10% of their turnover to innovation activities - slightly below the EU-27 average of 13% for the comparable period. Investing in machinery, equipment and software takes precedence in 84% of firms, followed by training (59%) and in-house R&D (58%).

All other factors held constant, investing in innovation-enabling activities significantly increases its likelihood. We estimate that if Abu Dhabi firms were to increase the share of annual turnover dedicated to innovation related activities by just 1%, they would be 7% more likely to innovate.

The type of innovation activity that has the most statistically significant impact on innovation is in-house R&D. Given that the results show a clear benefit for Abu Dhabi firms who increase investment in R&D, the government may wish to consider incentives to further private sector investment in this area, particularly given that less than 0.5% of the surveyed firms reported any public financial support for innovation-related activities compared to around 26% on average in selected OECD countries.

Finally, it is worth noting that foreign firms do not seem to invest substantively in innovation-related activity in the UAE. Policy measures could also be implemented to encourage knowledge-intensive foreign direct investment into the country. The R&D incentives mentioned above could also be an important component to attract internationally-mobile R&D operations to establish an active presence in the UAE.
The private sector is a key player in the innovation arena through its investments in R&D, its entrepreneurial drive and its openness to adopting innovative approaches and technological advances. This can fuel economic growth if market structures and the regulatory environment enable the more productive activities to expand.

In this regard, decision-makers in the private sector have an important role to play. In addition to R&D spending, an organisation’s “culture” is a key driver of innovation and has not yet evolved within Abu Dhabi companies. Not all innovation is driven by R&D. A corporate culture that favours the emergence of new ideas to either improve existing processes or to create new offerings to customers is important for any firm to increase its rate of innovation. An innovation culture requires that senior management in corporations create frameworks for innovation that are aligned with their overall strategy. This often entails an organisational structure that permits continuous interacting with the external environment, seeking internal feedback, and discussing successes and failures in order to maintain momentum for change toward an innovation culture. Among Abu Dhabi firms, although incentives for sharing knowledge within the firm are widely used (64%), the share of firms that dedicate resources to monitor and obtain knowledge from outside is quite low, at only 13%.

But there are also a number of interventions that governments can undertake to support innovation culture and activities. The pressure points identified by the Abu Dhabi Innovation Survey underscore areas where government intervention could make a significant difference.

Firstly, governments could introduce incentives to help firms invest more in technology, including new machinery and software. This can be done by facilitating access to finance, especially for the SMEs. International best practices are numerous, ranging from Public Grants (such as R&D vouchers), to Venture Capital and loan guarantees.

Secondly, governments could introduce new instruments to stimulate inward R&D-intensive investments. In this regard, governments may consider setting up an inward investment promotion programme specific to foreign R&D-intensive firms. Adopted by many countries, an inward investment agency (IIA) promotes the flow of R&D to certain locations by providing R&D-specific pre-investment and implementation services and delivering customised services to foreign investors.

Finally, to address the high costs associated with R&D, governments can provide incentives to reduce associated capital cost by providing the necessary physical and institutional infrastructure. Prominent examples of such institutional instruments are Industrial R&D Funds such as TEKES in Finland, the TNO in the Netherlands and the Competence Centres in Austria. These organisations help private companies engage in R&D by providing the skills, equipment, space, and institutional infrastructure, which help reduce the costs associated with long-term strategic R&D activities.