



Firms Practice and Innovation Management: Case of Fujairah Emirate, United Arab Emirates

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ABSTRACT

Innovation management has received a lot of attention in the last few decades, from a vital determinant of the global competitiveness of nations over the coming decade to the primary driver of economic progress and well-being. Many countries over the world have adopted national strategic roadmaps to foster innovation and enhance its economic impact to boost productivity and growth. The United Arab Emirates (UAE) came forward with the launch of the National Innovation Strategy in 2014. Hence, this paper has investigated the strategic importance of innovation management as a need for change and firms practices in one of the UAE Emirates (Fujairah Emirate). In doing so, the paper has sought to understand whether the concept of innovation management is featured in the UAE Company's culture and strategic plans or whether the management of the business firm is highly committed to innovation management and what an essential driver for UAE to engage in innovation management. To investigate this problem, a qualitative case study methodology is used to collect and analyze the data. Results indicate that there is a clear line of innovation management strategies in UAE and business firms in Fujairah Emirates response to concerns by integrating innovation management into business structure and systems.

Keywords: Innovation Management, National Innovation Strategy, United Arab Emirates, Fujairah

JEL Classifications: M10, M12, M13, M14, M19, L25

1. INTRODUCTION

Managing innovation often entails a balancing act between exploration and exploitation – cutting edge, new products and a focus on the bottom line and efficiency. This balancing act involves preserving a state of uncertainty on the one hand, while on the other building employees' beliefs in their work and in themselves. It is the governance mechanism that strikes a balance between order and chaos, creative adventure and commercial reality within a firm. Innovative organizations (e.g., new product design manufacturing, architectural and building practices, corporate identity consultancies) have identified a strong set of tensions in this balancing act of managing innovation. The difficulty lies in achieving a balance between these phenomenological opposite management processes

and practices to unleash creative potential, while preserving financial soundness. The proposed study aims to explore the management of this balancing act within innovative firms.

The United Arab Emirates (UAE) imbued with the idea of Innovation which appeared since the launch of the National Innovation Strategy in 2014, there have been substantial efforts used by UAE Government to encourage and raise innovation awareness and knowledge within the public sector and private sector with the aim of making the UAE one of the most innovative nations in the world within 7 years¹.

¹ <https://www.government.ae/en/about-the-uae/strategies-initiatives-and-awards/federal-governments-strategies-and-plans/national-innovation-strategy>. Downloaded on 10 May 2019

“The strategy will have four tracks

1. The first track will establish a stimulating environment for innovation in the form of supportive institutions and laws. It will shape specialized entities such as innovation incubators as well as technological infrastructure to fuel innovation in all sectors. It will also focus on research and development in various innovation fields.
2. The second track will develop government innovation by institutionalizing innovative practices with the support of an integrated system of modern tools. The strategy requires all government entities to reduce spending by 1% and dedicate the savings to research and innovation projects. National training and education programs on innovation will also be launched.
3. The third track will encourage private sector innovation by stimulating companies to establish innovation and scientific research centers, adopt new technologies and develop innovative products and services. The UAE will attract pioneering international firms in key innovation sectors, establish innovation communities and zones and support applied research in areas of national priority. It will also enhance the UAE’s position as an international centre to test innovations.
4. The fourth track will prepare individuals with highly innovative skills by concentrating on science, technology, engineering and mathematics, including the creation of educational material for schools and universities. The aim is to establish a national culture that encourages innovation and entrepreneurship through partnerships between the public, private and media sectors.

The framework for the strategy is structured around the following three key pillars:

1. An innovation-enabling environment
The strategy seeks to develop an environment that promotes and enables innovation by developing the right regulatory framework, providing comprehensive enabling services, enhancing the technology infrastructure and ensuring the availability of investments and incentives.
2. Innovation champions
The strategy seeks to create innovation champions in individuals, companies, institutions and government.
3. Innovation priority sectors

The strategy targets stimulating innovation in seven sectors. They are:

- a. Renewable energy
- b. Transport
- c. Education
- d. Health
- e. Technology
- f. Water
- g. Space.

The first phase includes 30 national initiatives to be completed within 3 years, which include:

- New legislation
- Innovation incubators
- Investment in specialized skills
- Private-sector incentives
- International research partnerships
- An innovation drive within government.”

Many benefits have been realized by adopting Innovation Management as a basis of change strategy in UAE, such as promoting economic growth, increasing competitiveness and providing new job opportunities².

Hence, the main objective of this paper is to investigate the concepts of innovation management in one of the UAE emirates. Fujairah Emirate is the only emirate that is located completely on the eastern coast of the UAE along the Gulf of Oman. The shores of Fujairah extend along the Gulf of Oman for about 70 km. from the city of Fujairah in the south to the town of Dibba in the far north. The total area of the emirate of Fujairah is 1,450 sq. km³.

In 2015, Fujairah launched “Fujairah Plan 2040,” one of the reasons for launching Fujairah 2040 Plan is to be able to cater to its population that is expected to exceed half million by 2040, up from 202,66⁴.

Moreover, Fujairah Emirate has an easy access to global shipping routes, that played an important role in its development as one of the world’s top oil-bunkering ports. Over 40 massive tankers pass through the Fujairah port on daily basis⁵. The Economy of Fujairah highly liberalized and has well-structured infrastructure provides exceptional backing for entrepreneurs to grow and diversify. The Department of industries and commerce also offers infrastructural support for business in Fujairah to boom.

This is the main reason why Fujairah is elected for the study. The major objective of this study is to understand how business firms in Fujairah emirates response to innovation management.

2. LITERATURE REVIEW

In the globalised world, innovation is important for business survival. It is a global phenomenon that require a new method or thinking to solve existing problems. Organisation for Economic Co-operation and Development (OECD) manual’s defined Innovation is a way which works with process and outcomes. Process is a way to adapt, assimilate and provides a new product in economy and for society. It further spread along the market in the form of services and deployment of new products. In the whole process, it helps to organize a new management system that try to gain a positive results⁶.

Innovation is a process to generate and realize about any new ideas in the process of production and services. It should be an original invention with creative ideas⁷. Innovation plays an important role in the organisations. It plays as a means for entrepreneurs to increase wealth with the application of new ideas in existing

2 <https://www.government.ae/en/about-the-uae/the-uae-government/government-of-future/innovation-in-the-uae>. Downloaded on 09 May 2019

3 <https://www.government.ae/en/about-the-uae/the-seven-emirates/fujairah>. Downloaded on 05 December 2019

4 <http://www.fscfuj.gov.ae/books/book2014.pdf>. Downloaded on 09 May 2019

5 <http://www.fujairah.ae/en/pages/about.aspx>. Downloaded on 30 May 2019

6 Innovation. Downloaded on 30 March 2018. <https://www.en.wikipedia.org/wiki/Innovation>

7 Innovation in American Government: Challenges, Opportunities, and Dilemmas. Brookings Inst Pr. ISBN 9780815703587

resources or producing more of it⁸. For an organisation, it constitutes everyone such as, individuals, team member and small to largest private companies.

The European Commission Green Paper on Innovation (1995) indicates that the term innovation is commonly used in two different ways: - the innovation process itself (i.e., the process of bringing any new, problem solving idea into use) and the result of the innovation process (i.e., a new product, process, service or work practice). Thus, an innovation may be a radical breakthrough or a product, process or service improvement or an adaptation.

2.1. Innovation Management

Innovation is the successful implementation of creative ideas within an organization. It helps the management to run the organization adequately. Innovation management is the process of managing innovations. It refers to ideas in organisations that generates with the innovation cycle. Cycle describes the whole activities for any new product and services launch into the market. It is of two types - developing the innovative product or service and building the business to market the product or service (Downey, 2007). In another words, innovation management is a combination of the management of innovation processes, and change management. It refers to product, business process and organizational innovation⁹.

It allows the organization to respond to external or internal opportunities, and use its creativity to introduce new ideas, processes or products (Kelly and Kranzbur, 1978). The concept of innovation in economics was first used by economist J. Schumpeter. Accordingly, an 'innovation' is accomplished only with the first commercial transaction involving the new product, process, system or device. It is part of the economic system¹⁰. Later on, in economic theory, the management of innovation has been studied by Aghion and Tirole (1994). Innovation provides the product differences and service competitiveness (Danneels, 2002; Li, 2004). Kumpe and Bolwin (1994) presented the importance of innovation. They states innovation is a magic word, which helps large business firm to innovate their strategies amidst of intense competition and technological development. The increasing demand for efficiency, quality and flexibility of product motivate firms to focus on product prices that can be acceptable by the society. This can be experimented by innovation within the firm through various scientific methods. Higgins (1996) suggests that there are four types of organisational innovation: Product innovation, process innovation, managing innovation and marketing innovation. Timing, radicalness and speed are important characteristics of innovation.

2.2. Types of Innovation

Organization for Economic Cooperation and Development (OECD) Oslo manual, 2005 described four types of innovation

among any firm - product innovation, process innovation, marketing innovation and organizational innovation. A product innovation related to the improvement of a goods or services. Process innovation involves the improved method of production. It intended to decrease unit cost or deliver significantly new product. To apply a new marketing method for new product is known marketing innovation. It involves change in product design or packaging, product placement, product promotion or pricing which help the easy adaptation by the market and consumer. An Organizational innovation is the implementation of a new method within the organization in the form of practices, workplace or external relation. It helps to increase the performance by reducing transaction cost, improving workplace satisfaction or labour productivity, gaining external knowledge or reducing transaction cost. Firms, in general, take part to improve in these four types of innovations.

2.3. Innovation and Firm Growth

Innovation is one of the main sources of firm growth. It is an important determinant, which play a key role in the growth process of any firm (Audretsch et al., 2014). Gunday et al. (2011), analysed 186 manufacturing firm performance in Turkey. They found positive and significant impacts on innovative performance. Similarly, Walker (2004) conducted comparative research for the effects of product and process innovations on firm performance. They indicated that particular product improvements are positively associated with firm's growth. Innovation influences growth via improved productivity, employment and competitiveness.

Ahelstrom and Ding (2014) argue that business innovation provides benefits to the society in the form of new goods and services. Further, it also helps to economic growth through various industries, including high technology oriented firms (Coad and Rao, 2008). Further, Coad and Rao (2008) also mention that the innovation and sales growth are positively related to each other. The important role innovation plays for firms to expand their market share. They used information on both R&D expenditure and patent statistics to extract information to increases in commercially useful knowledge. They talk about technological opportunity that help innovator to come up with a winning innovation and rapidly gain market share. Similarly, Carden (2005) in his study uses the McKinsey Global Survey of Business Executives report and writes that, executives always say that innovation is what their companies need most for growth. Another survey focusing on small and medium enterprises reports that investment in product innovation is the single most popular strategy for expansion, a finding which holds across various industries (Hay and Kamshad, 1994). Economic theories also recognize the centrality of innovation in growth of firm. It links patterns of innovations which comes with the growth of the firms and their performance (Geroski, 2000, 2005; Aghion and Howitt, 1992). It is seen as an urgent challenge for future research (Cefis and Orsenigo, 2001, p. 1157). Also, Mason et al. (2009) present positive links between innovation and productivity growth in the United Kingdom (UK). There is two way relationship between firm growth and innovation. Investment leads to firm growth and growing firm are also better innovator. Similarly, employment growth is usually positively related to product innovations. Innovation input measures such

8 "The Discipline of Innovation." Harvard Business Review. Downloaded on 30 march 2018

9 Innovation management. Downloaded on 30 March 2018. https://www.en.wikipedia.org/wiki/Innovation_management

10 Introductory Lecture. Downloaded on 30 March 2018. http://www.debis.deu.edu.tr/userweb//sedef.akgungor/dosyalar/Introductory_lecture.pdf

as R&D spending or R&D employment provide no indication of the effectiveness of firms' innovation activities.

Result was based on after analysing Community Innovation Survey (CIS) data and firm-level data on employment growth derived from the business structure database (BSD) for 12,672 firms with ten or more employees in the time period of 2002-2004. They find that innovation activity by high-growth firms compared to other firms which did not achieve the 20%-plus high-growth in employment or turnover. On three different indicators of innovation – new products, new processes and innovations in business structures and high-growth firms are significantly more innovative than other firms. Some 38% of high-growth firms reported product innovations compared to 33% in non-high-growth firms. Similarly, high-growth firms contribute disproportionately to aggregate innovative activity, and innovation itself drives firm growth. The proposed reason behind is that a high-growth firms are relatively new and within this only some new firms are able to gain high growth rate. In case of larger and well performed firms, they maintain their growth rate.

Braunerhjelm et al. (2016) used the time series data of Swedish firm from the period of 2002 to 2012 to create a model and conclude that there is a positive relationship between employment growth and innovation. The firm innovation and employment growth depends upon the size of the firm. The large firm generally create more employment in the foreign market, but the small firm presents a larger share of employment generation. They investigate the relationship between employment growth and ownership structure. It helps for understanding the employment impact of foreign- and domestically-owned firms. Among four owner types, foreign owned multinational enterprises (FMNEs) are exhibited the lowest employment growth. This may reflect a higher capability of transforming innovations into higher productivity, or that innovations are primarily used in affiliates outside of Sweden. It never influencing local demand for labor. Multinational enterprises may also have a tendency to use less labor intensive production in a 22 high wage country such as Sweden and move labor intensive production into low wage countries. Some other variables that are likely to affect firm growth such as physical capital, wages, regions, industries and time trend. However, during early 1990s, new jobs primarily originated in smaller and new firms (Loveman and Sengenberger, 1991; Dachs et al., 2015). By comparing the process and novelty, growing firms introduce products, processes, and business model innovations, develop new markets and change the rules of the game of their industries (Bhide, 2000). Smaller firms are more motivated to develop, use, and introduce radical, market-making products that give the firm a competitive edge over incumbents (Casson, 2002a). Almeida and Kogut (1999) in their finding states, that small firms innovate in relatively unexplored fields of technology.

2.4. Digital Revolution and Innovation

Digital technology will transform most industries. In future, it provides new opportunities and latest developments and trends from the digitalization of business and society. The tendency for innovative activity to cluster spatially is well known and identified with places such as Silicon Valley, Research Triangle Park, Route

128 in Boston in the United States, Wireless Valley in Finland, Oxbridge in England, and Singapore, among others.

Every aspect of business such as operation and management is using modern technology. Such a digital transformation has changed every industry and revolutionized the way of serving the customers¹¹. To do this, there are active participation between business and customers. Pervasive digitization of services and products can be made to ensure there are no barriers between the business and their customers. Here we can see the role of social media. Social media helps enhance the knowledge about customer likes and dislikes along with their taste and habits. For this reason business try to work with efficiency and interaction with the real time experiences with customer's engagement works. Business has started looking at big data analytics and use the social media space to push their content to the customers. Monetization from digital platforms and collaborations with partners is also create a platform for develop the industry.

The GE Global Innovation Barometer illustrates the optimism about the power of innovation which helps to address some of society's greatest challenges¹². Human talent, ingenuity, collaboration and entrepreneurship will be essential to secure stronger, sustainable growth. Chief economist of GE, Marco Annunziata states the role of business leaders and citizens who use the available data to know more about the innovative products. They are even so enthusiastic about collaborate in the innovation process.

Big data, artificial intelligence, machine learning and the internet of things (IoT) are enabling us to transform the electric grid — making it cleaner, more affordable and more reliable. Software allows us to maximize the value of the power we generate through effective use of data in the form of new source of power. This helps to provides the electricity around 1.1 billion people in developing countries in the lack of reliable electricity. It further helps shift to a fossil-fuel free economy, says Dr. Amit Narayan, a Founder and CEO of AutoGrid, Inc.

Kakul Srivastava, Vice President of GitHub, says about software development and application in large numbers may be proved to be further innovation process. To do this, it is important to provide large number of software development opportunities to the people with open working environment. When it will be done, we will be able to reach new heights of technological advancement and explore new worlds. Innovation and collaboration are complementary to each other. Ford is working with Amazon to connect car to home, and supporting for technology competition by providing software development opportunities for future innovation to the connectivity with smart phones. Around 68% of executives said their firm is open to risk-sharing associated with innovation. At Ford, we're driving innovation in all parts of our business by encouraging our team to take risks, challenge custom and question tradition, says Don Butler, an Executive Director, Connected Vehicle and Services, at Ford Motor Company.

11 How digital innovation transformed today's business world. Downloaded on 4 March 2018. <https://www.fingent.com/blog/digital-innovation-transformed-todays-business-world>

12 4 innovation of future. Downloaded on 4 March 2018 <https://www.ge.com/reports/4-innovations-of-the-future/>

The impact of digital innovation is appearing on strategies and investment decisions of Italian firms¹³. Recent survey by Observatories of the Politecnico di Milano shows in 2018, one in three Italian companies (36%) experienced constant growth in budget spending to maintain growth rate of 1.8-1.9%. The survey also reveals that how extensively open innovation models are adopted, and the relating degree of satisfaction. The fact is that 55% of companies are attempting to raise awareness on internal venturing models and that 38% already collaborate with start-ups. Mariano Corso, Scientific Officer of the Digital Transformation Academy Observatory states that, in Italy the growth trend in digital innovation is expected to accelerate in 2018.

Innovation and awareness is increasing around the world. It motivates the organisation to review their roles, competencies and process for improve the ability to capture the market opportunities. Innovation provides customers to virtually connect with each other as buyer and seller. Today social sphere wants instant communication using social networking, blog marketing, and online communication (Chakraborty and Saha, 2018). Used of customer relationship management (CRM) characterized as the combination of web-based social networking with client relationship as the next cutting edge for organizations who desire to maximize the influence of social associations in order to expand the force of social connections to get nearer to clients¹⁴.

2.5. Innovation and Start-ups

Firm today adapting innovation to grow. In case of America, big companies are applying starts up strategies and tools for innovation, such as lean, focused, ad maniacally strategic. Whirlpool uses a network of innovation mentors (also called i-mentors), who are loaded with innovation tools and guidance to help business teams¹⁵. The motive behind is to accelerate the speed of innovation and provide business outside perspective, like reality checking. There are four strategies that anyone can use to start-up: follow customer home, Tao outside collaborators, stay small and stay the best, invent the rest. These companies are focused on pushing entrepreneurial thinking and practices.

Start-up can bring innovation to sales strategies also¹⁶. They tries new things and taking risk. Generally they are embracing some different elements such as, adapt customer on boarding process to selling, getting feedback loops, build media and go back to incubate sales strategies. Dan Kim from Red Mango, Yogurt Company from America, applying new solutions form citizens need and requirement¹⁷. They used

innovation which help to apply interesting ideas into viable enterprises in the form of product introduction, new partnerships, advertisement in social media, creative marketing campaigns, developing web and mobile solutions for business services. Some of the most impactful actions they took included designing flexible real estate models, that allowed red mango to open in non-traditional venues like airports and colleges, and, most recently, developing a menu of lighter, ready-to-eat meals that pair well with juice and smoothies.

2.6. Sustainable Innovation

Sustainable innovation involves bringing into common usage of ideas, concepts, practices and products that contribute to the ecological environment, social cohesion and economic viability¹⁸. An organisation must innovate from the social, environmental, technology and economic viewpoint to create a sustainable environment. It helps them to bring change in the processes, operating procedures and practices, say industry leaders¹⁹.

In case of UK, sustainability innovations emerging from offshore wind and electric cars to the recycling of waste materials²⁰. Hartlepool's JDR Cables produced a new inter array cables and exported it successfully. The energy sector includes the design and installation of anaerobic digestion plants for the treatment of agricultural waste to produce a biogas which is used in the factory. A coordinated programme of competitions that aims to boost research and development of battery technology. Electric car production is another area of innovation. Similarly in the automotive sector, Jaguar Land Rover has also turned its attention to sustainability, focused on creating ultra-efficient, advanced vehicles.

Based on the above literature review, following hypotheses are designed to understand how UAE implements best practices and strategies of innovation management.

- H₁: There is a clear line of innovation management strategies in UAE.
 H₂: Business firms in Fujairah Emirates response to concerns by integrating innovation management into business structure and systems.
 H₃: Digital revolution is an important driver for UAE to engage in innovation management.

3. OBJECTIVES OF THE RESEARCH PROJECT

Broad objectives conceptualized at this point are:

- To explore the framework of "the balancing act" within innovative firms
- To explore how innovative firms manage exploration and/or exploitation over time
- To explore how these efforts are experienced, negotiated and

13 Innovation in digital business. Downloaded on 4 March 2018 <https://www.morningfuture.com/en/article/2018/02/19/innovation-digital-business-mariano-corso/231/>

14 IBM 2015 Annual Report: A Letter from the Chairman. Downloaded on 5 March 2018 <https://www.ibm.com/annualreport/2015/bin/assets/IBM-Annual-Report-2015.pdf>

15 Four innovation strategies from big companies. Downloaded on 5 March 2018. <http://www.innovation-point.com/wp-content/uploads/2017/02/Four-Innovation-Strategies-from-big-companies.pdf>

16 Startup brings innovation to sales strategies. Downloaded on 5 March 2018 <https://www.salesforce.com/ca/blog/2017/07/startups-bring-innovation-to-sales-strategies.html>

17 Three principles of innovation for start-ups and small business. Downloaded on 5 March 2018. <https://www.inc.com/young-entrepreneur-council/3-principles-of-innovation-for-startups-and-small-businesses.html>

18 Sustainable innovation, Downloaded on 6 March 2018, <http://www.ru.nl/nsm/imr/our-research/research-centres/centre-innovation/sustainable>

19 International meets on sustainable innovation. Downloaded on 6 March 2018. <https://www.thehindubusinessline.com/news/international-meet-on-sustainable-innovations/article9926449.ece>

20 UK leading world sustainable innovation. Downloaded on 6 March 2018. <http://www.responsiblebusiness.com/news/europe-news/uk-leading-world-sustainable-innovation>

- managed across different levels in the firm
- To explore innovative firms' efforts to build and sustain a reputation for their innovation

4. DATA AND METHODOLOGY

The sample taken to examine the hypotheses of this paper consists of 80 participants from the companies work and operate in Fujairah Emirates. Survey questionnaires reflecting all research areas have been used as an instrument for collecting data using a five-point Likert scale, ranging from strongly agree, agree, neutral, disagree, to strongly disagree to determine the response of the participant.

The first part of the questionnaire covers personal information, which includes three questions about gender, nationality, highest qualification, and present position in organization. While the second part includes 16 questions regarding the opinion of the participant on Innovation Management, grouped into three categories: The first category is designed to measure the attitudes towards the managing innovation best-practice and Strategies in UAE; the second category of this part concerns about the what factors would be important to participant as driver for UAE to engage in innovation management; the third category are the what factors would be important to participants as best practice in innovation management;

The third part of the questionnaire is opened for the participant's suggestion on Innovation Management implementation.

Table 1: The descriptive statistics for the demographic variables

Gender	Frequency	Percentage
Female	43	53.8
Male	37	46.3
Highest qualification		
Secondary school	24	30.0
Bachelor's degree	41	51.3
Master degree	11	13.8
Ph.D.	4	5.0
Present position in organization		
General manager	5	6.3
Head department	9	11.3
Supervisor	15	18.8
Officer	24	30.0
Other	27	33.8

5. DATA ANALYSIS AND RESULTS

A descriptive statistical method, such as SPSS, was used to analyze the data collected. To test the hypothesis Chi-square test was performed.

A hundred questionnaires were distributed, and 80 have been returned with 80% response rate.

Table 1 shows that 43 of the participants (53.8%) are male, while 37 are female (46.3%).

As can be seen in Table 1, the vast majority of participants 41 (51.3%) had a bachelor degree, 24 had secondary school (30%), while the master degree participants were 11 (13.8%), and Ph.D. holders are 4 (5%).

Table 1 also shows that 42 of the participants (30%) held the title of the officer and among others, only 5 (6.3%) were general managers and 15 (18.8%) was a supervisor; the previous information also was illustrated in Figure 1.

Mean and standard deviation was used to measure the relationship between the participant attitudes towards the managing innovation best-practice and strategies in UAE. The results are shown in Table 2.

The majority of the respondents (98.7%) agree that there is a clear line of Innovation Management Strategies in UAE, which proves the hypothesis of that there is a clear line of Innovation Management Strategies in UAE.

Ninety-five percent of participants agreed that there is a clear Governance for Innovation Management in UAE, while 85% of participants agreed that there are shared responsibilities across the stakeholders for innovation management.

Eighty-four percent of participants knew that there are higher coordination and collaboration between federal and local government; 92.5% of them also agreed that there are a clear innovation management tools in UAE such as organized of set activities, actions, process, while 88.8% agreed that there is a general awareness training program provided to UAE communities.

Figure 1: Mean score of each statement of managing innovation questionnaire

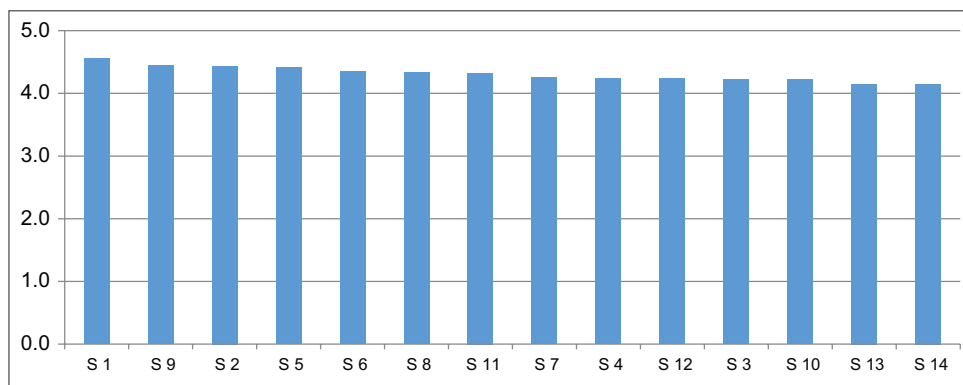


Table 2: Companies response to the managing innovation statements

No.	Statement	SD n (%)	DA n (%)	UN n (%)	AG n (%)	SA n (%)	Mean	SD
S 1	I believe that there is a clear line of innovation management Strategies in UAE	0	0	1	34	45	4.6	0.5
		0.0	0.0	1.3	42.4	56.3		
S 2	I believe that there is a clear governance for innovation management in UAE	0	1	3	36	40	4.4	0.6
		0.0	1.2	3.8	45	50		
S 3	I believe that there are shared responsibilities across the stakeholders for innovation management	0	0	12.0	38	30	4.2	0.7
		0.0	0.0	15.0	47.5	37.5		
S 4	I believe that there are higher coordination and collaboration between federal and local government	0	1	12	34	33	4.2	0.8
		0.0	1.3	15.0	42.5	41.2		
S 5	I believe that there are a clear innovation management tools in uae such as organized of set activities, actions, process	0	0	6	35	39	4.4	0.6
		0.0	0.0	7.5	43.7	48.8		
S 6	I believe that there is a general awareness training program provided to UAE communities	1	0	8.0	32.0	39.0	4.4	0.8
		1.3	0.0	10	40	48.8		
S 7	I believe that there are a clear Public Involvement plans implemented in UAE	0	2	8	38	32	4.3	0.7
		0.0	2.5	10.0	47.5	40.0		
S 8	I believe that there is an advanced technology change to improve the competitive advantage in my organization	0	1	9	32	38	4.3	0.7
		0.0	1.3	11.2	40.0	47.5		
S 9	I believe that the UAE innovation strategy aims to enhance its social and economic status	1	0	3	34	42	4.5	0.7
		1.3	0.0	3.75	42.5	52.5		
S 10	I believe that organizations in Fujairah emirates response to innovation change through creating a corporate culture that recognizes and rewards innovation	0	2	10	36	32	4.2	0.8
		0.0	2.5	12.5	45.0	40.0		
S 11	I believe that organizations in Fujairah emirates response to innovation management through integrated the innovation strategy into its structure and systems	0	0	11	32	37	4.3	0.7
		0.0	0.0	13.7	40.0	46.3		
S 12	I believe that organizations in Fujairah emirates response to innovation management through acquiring, disseminating and sharing knowledge to promote innovation	0	0	10	41	29	4.2	0.7
		0.0	0.0	12.5	51.23	36.2		
S 13	I believe that organizations in Fujairah emirates response to innovation management through launch innovation competitions in organizations	0	3	11	37	29	4.2	0.8
		0.0	3.7	13.7	46.3	36.3		
S 14	I believe that that organization in Fujairah emirates response to innovation management through innovative award people	0	4	12	32	32	4.2	0.9
		0.0	5.0	15.0	40.0	40.0		

Concerning whether the public in UAE is given awareness in the innovation management programs, 88% of the participants agreed that there is a clear public involvement plans implemented in UAE.

Eighty-eight percent of participants agreed that there are advanced technology changes to improve the competitive advantage in my organization.

The majority of the respondents (95%) believe that UAE innovation strategy aims to enhance its social and economic status.

In the section of the organizations in Fujairah emirates response to innovation change through, create a corporate culture that recognizes and rewards innovation. Integrated the Innovation Strategy into its structure and systems, acquiring, disseminating and sharing knowledge to promote innovation, launch innovation competitions in organizations, award innovative people, the majority of participants think that the organizations give high concern to the innovation change with some variation in some issues as follows:

Eighty-five percent agreed that the organizations in Fujairah emirates response to innovation change through creating a corporate culture that recognizes and rewards innovation;

Eighty-six percent agreed that organizations in Fujairah Emirates response to Innovation Management through integrated the Innovation Strategy into its structure and systems;

Eighty-seven percent agreed that organizations in Fujairah emirates response to innovation management through

acquiring, disseminating and sharing knowledge to promote innovation;

Eighty-three percent agreed that organizations in Fujairah emirates response to innovation management through launch innovation competitions in organizations;

Eighty percent agreed that organizations in Fujairah Emirates response to Innovation Management through award innovative people.

Interpretation of managing innovation statements was based on the Likert scale given below.

Response	Score
Strongly disagree	1
Disagree	2
Undecided	3
Agree	4
Strongly agree	5

The mean score of each statement of managing innovation questionnaire is more than four which indicates that there is a clear line of innovation management strategies in UAE as shown in Figure 1 and Table 2.

The third part of the questionnaire is used to know the opinion of the participants on some dimensions of innovation management, such as different factors as the driver for UAE to engage in innovation management. The participants score on a five-point scale with "5" being "very high" and "1" very low.

Table 3: Mean rank score of different factors as driver for UAE to engage in innovation management

No.	UAE drive to engage in innovation management	Mean rank score±SD
1	Managing creativity	2.1±1.3
2	Encouraging a culture of innovation	2.6±1.0
3	Keeping the right leaders	2.6±1.2
4	Sustainable development	3.6±1.2
5	Digital revolution	4.2±1.2

Table 4: Mean rank score of different factors as best practice in innovation management

No.	UAE best practice in innovation management	Mean rank score±SD
1	Communicate the innovation importance	1.7±1.1
2	Having an open-minded culture in the organization	2.3±1.1
3	Gives award for Innovation Management best practice	3.3±1.0
4	Advanced methods and ICT in product development and production	3.6±1.1
5	Create an innovation strategy	4.2±1.3

Analysis of variance test revealed that there is a significant difference in mean rank score among different factors as the driver for UAE to engage in innovation management ($P < 0.001$). Table 3 shows that the mean rank score of the digital revolution and sustainable development were found higher which indicates that these were the most critical factors for companies as the driver for UAE to engage in innovation management.

According to the participants' views, the order of different factors as the driver for UAE to engage in innovation management as follows:

1. First: Digital revolution;
2. Second: Sustainable development;
3. Third: Keeping the right leaders;
4. Fourth: Encouraging a culture of innovation;
5. Fifth: Managing creativity.

The participants' ordering of score of different factors as best practice in innovation management is as follows:

1. First: Create an innovation strategy;
2. Second: Advanced methods and ICT in product development and production;
3. Third: Gives award for innovation management best practice;
4. Fourth: Having an open-minded culture in the organization;
5. Fifth: Communicate the innovation importance.

Analysis of variance test revealed that there is a significant difference in mean rank score among different factors as best practice in innovation management ($P < 0.001$). Table 4 shows that the mean rank score of "create an innovation strategy" were found higher which indicates that this is the best practice followed by the advanced methods and ICT in product development and production in innovation management in UAE.

6. CONCLUSIONS

The main aim of this paper is to examine the way how the organizations in the Fujairah Emirates manage their innovation. All The primary objective of this paper is to investigate the way how the organizations in the Fujairah emirates manage their innovation. All the hypotheses designed were accepted, indicating that there is there is a clear line of innovation management strategies in UAE, when it comes to response innovation management, business firms in Fujairah emirates response to concerns by integrating innovation management into business structure and systems.

The participant perceived that the digital revolution is an essential driver for UAE to engage in innovation management.

Managers of firms in the Fujairah emirates agreed that create an innovation strategy is the best practice in innovation management in UAE.

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