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Investigating the Factors Influencing on the Development of Leaders for Smart City in Duqm: A Special Economic Zone in Oman

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Abstract: The main objective of this study is to examine the factors influencing the development of leaders for Smart city at Duqm in Oman. Clearly, smart city is a municipality that uses ICT to increase operational efficiency, share information with the public and improve both the quality of government services and citizen welfare. Generally, more than half of the global population lives in urban environments. We formulated four objectives in this study. In doing so, a sample of 220 respondents who were all managers and senior lever employees of SEZAD leading the development are employed in this study. A well-structured questionnaire was employed as research instrument. The SPSS V25 was used to analyse the data following quantitative method where cross sectional data were employed. We hypothesized that there is a positive and significant relationship between budget, technological skill, academic skill and infrastructure with development of leadership. Our data confirmed that a positive and significant relationship is found between budget, technological skill, academic skill and infrastructure with development of leadership. This study also claims that leadership development produces higher performing organizations through improving leader effectiveness at all levels of management. In order to maximize the full economic, social and environmental potential of a smart urban development agenda, we suggest that smart leadership about understands the close interdependence of businesses and communities in cities where success involves creating and maintaining balanced and mutually beneficial relationships across business and community needs in the digital era.

Keywords: *smart city, budget, technological skill, academic skill, infrastructure, development of leadership, Oman*

I. INTRODUCTION

A smart city is a framework**,** predominantly composed of Information and Communication Technologies (ICT), to develop, deploy, and promote sustainable development practices to address growing urbanization challenges (Chourabi et al., 2012; Albino, Berardi and Dangelico, 2015). Smart city is a municipality that uses ICT to increase operational efficiency,

share information with the public and improve both the quality of government services and citizen welfare. With populations growing in urban areas, cities are today forced to adapt to this growth in a thoughtful way by adopting long-term policies. It is this obligation that was born the status of City Smart, also called Smart City in English. It has been chosen to work alongside cities and municipalities to help them transform into the status of Smart Cities. The interaction of humans and machines is now surely a central and defining characteristic of the territory and architecture of security in the cities of the digital age (Edwards 2016, 2017; Neirotti, De Marco, Cagliano, Mangano and Scorrano, 2014). But what does it encompass? An Intelligent City is a city that favours information and communication technologies (ICT) to promote better interaction with its citizens and guarantee its inhabitants the improvement of their quality and living environment despite the increasing development of the city. Three aspects are central to the Smart City concept: the economy**,** the social and the environment. All three are working towards the same goal of ensuring a favourable context for development. Today, the 100% Smart City does not exist. The world is becoming more urbanized, and by 2050, more than 68% of the world's population is expected to live in cities. Making these cities better places to live is essential to quality of life (Hossain et al., 2018)by making them more sustainable and efficient with streamlined services (The Revision of World Urbanization Prospects UN, 2018).However, many cities focus on one or more important issues in the city's intelligence process. Some will build on improving mobility, others on building sustainable infrastructure, and others on improving interaction with their citizens and the use of digital services. There is special importance to these last two issues (Perera, Zaslavsky, Christen and Georgakopoulos, 2014; Cocchia, 2014).

Technology**,** the application of scientific knowledge to the practical aims of human life (Khaled et al., (2019)or, as it is sometimes phrased, to the change and manipulation of the human environment (Meijer and Bolívar, 2016). On the other hand, data is distinct pieces of information, usually formatted in a special way (Mughairi et al., 2019). Opening data vault with the help of advanced technology is a key enabler of sustainable smart cities is that all participants in the complex ecosystem share information and combine it with contextual data that is analysed in real-time. This is how informed decisions are made in real-time. The smart city is based on high-performance telecommunications infrastructure (Angelidou, 2014; Lee, Hancock and Hu, 2014). The use of data is perceived as a lever of steering and action. In addition to telecommunications network, the production of data requires the upstream implementation of technical devices, sensors, databases and networks of telecommunications. To this end, most cities have opened a management center for data to create, collect, store, analyze or disseminate information via an open data policy. A city's willingness to open up its data in a workable format is aimed at development of internal and external services through the creation of platforms or applications broadcasting these new services. The idea is that smart initiatives develop information and communication infrastructures so that, in turn, these infrastructures reinforce these initiatives by developing an ecosystem of creation of data and services. Smart cities need smart foundations. The ICT infrastructure plays a critical role as the central nerve of the smart city (Alshamsi, et al., 2019), by connecting and coordinating all the different interactions between the pillars and the infrastructure elements (Smart City

Technologies, 2016; Hashem et al., 2016; Al Nuaimi, Al Neyadi, Mohamed and Al-Jaroodi, 2015).

1.1Research Objectives

- To investigate the effect of budget to enhance leadership development to facilitate smart city management in DUQM
- To ascertain if there is any relationship between technological skills and development of Smart city leaders in DUQM
- To ascertain if there is any relationship between academic skills and development of Smart city leaders in DUQM
- To determine if there is any relationship between the infrastructure and the development of leadership for Smart city in DUQM, Oman

1.3 Research Hypotheses

H1:There is a significant relationship betweenBudget and Development of leaders of Smart City in DUQM, A Special Economic Zone in Oman.

H2: There is a significant relationship between Technological Skill and Development of leaders of Smart City in DUQM, A Special Economic Zone in Oman.

H3: There is a significant relationship between Academic Skill and Development of leaders of Smart City in DUQM, A Special Economic Zone in Oman.

H4: There is a significant relationship between Infrastructure and Development of leaders of Smart City in DUQM, A Special Economic Zone in Oman.

II. LITERATURE REVIEW

2.1 Smart cities need smart government

Using technology to transform urban environments in a more meaningful way will require new thinking about governance. Technology is only as effective as the entity that puts it to work(Hossain et al., 2020). Combine smart planning with asset development to get the most out of the system (Anthopoulos, 2017). Smart city technologies help cities get more out of their assets, whether they have extensive legacy systems or are building from scratch. There is no getting around the need to invest in physical assets and maintenance, but smart technologies can add new capabilities as core components are upgraded. Infrastructure investment once locked cities into capital-intensive and extremely long-term plans based on a static snapshot of how they expected demand to evolve (Huovila, Bosch and Airaksinen, 2019). Now, using the right combination of traditional construction and smart solutions, they can respond more dynamically to how demand is changing. Governments can make more flexible, data driven investments with shorter planning cycles. If population growth surges in a far-flung neighborhood, adding a new subway or bus line with the accompanying fleet expansion may take years. By contrast, a privately operated on-demand minibus service could be up and running much faster. Smart city applications become more effective when paired with low-tech measures and complementary policy moves. For example, reducing private car use is a priority in Seoul. In addition to implementing smart mobility solutions, the city is

reallocating street lanes to pedestrians and bicycles, and strictly limiting parking spots in new public buildings (Bibri, 2019; Moustaka, Vakali and Anthopoulos, 2018).

2.1.1 Integrated management for cities smart and sustainable

2.1.1.1 Economic development and growth

Rapid demographics have created many challenges for the sustainability of the societies and economies (Polas et al., 2019). Now cities are affected by an increase in pollution and traffic jams. The evolution of the infrastructure hardly follows the rhythm urbanization and the difficulties resulting from the pressure urbanization will be amplified by the multiplication of extreme weather events the cities will have to resist as people move into the 21st century (Kumar and Dahiya, 2017; Aletà, Alonso and Ruiz, 2017). The transition to smart and sustainable cities is a socio-economic imperative and these cities of tomorrow will be based on technical innovation and new methods of urban management. However, the rapid proliferation of solutions technical and management skills for sustainable and smart cities has caused a lack of uniformity in the application of these solutions. These are not the cause of the problem. Each of them has the potential to contribute to better management but their uncoordinated implementation often leads to contrary results, increasing the complexity of the urban management and thereby reducing efficiency. Municipal governments have a wide choice of smart and sustainable cities solutions (WU, and YANG, 2010; Neirotti et al., 2014). Nevertheless, effective organization and management of these solutions is paramount importance if people intend to carry out the project of smart and sustainable cities as a "system of systems" whose benefits will be greater than the sum of its parts (Bakıcı, Almirall and Wareham, 2013; Mwaniki, 2017). Integrated management of urban infrastructure, diverse operations and citizen interaction will be one of the defining characteristics of a smart and sustainable city. The importance of smart and sustainable city is reinforced by the power of management process to ensure the success of all elements of a smart and sustainable city. Framework for the integrated management of smart and sustainable cities that aims to register or create a set of meta models, merge processing flows, and service interface specifications to facilitate the development of smart and sustainable cities (Shelton, Zook, and Wiig, 2015). The report includes: technical specifications for meta models of resources like meta models for nodes, events, models, sensors and observations; technical specifications for the processing flow of the merging resources with relevant specifications for the fusion of nodes, events, models, sensors and sources of observation with place names and maps; technical specifications for service interfaces, as service interfaces for data, templates and events; use cases of integrated management for smart and sustainable cities, describing typical applications of meta models, merge processing flows, and service for smart and sustainable cities (Albino, Berardi and Dangelico, 2015; Kitchin, 2015).

2.1.1.2 Effective Smart Leadership Development Strategy: Features and Barriers

It is essential that leadership development departments work with business leaders to define the ambitions and objectives of their leadership development initiatives (Bhattacharjee et al., 2019). At the same time, to optimize their blended learning programs and ensure the scalability of their leadership development plan, leadership development trainers need to be

aware of the characteristics of an effective strategy and the obstacles that could compromise it (Matthews, Moorman, and Nusche, 2007). Unlike current leadership development programs, a redefined leadership development framework is articulated around four parallel axes, corresponding to different levels of leadership. It is essential that these areas are closely linked to evaluations and organizational performance cycles to provide real added value at the individual level. These four specific areas are identified through an annual need's analysis process and research reports on future leadership skills (Lee, Hancock, and Hu, 2014).

- *Leadership development: taking ownership of a new blended learning framework*

This new framework offers many opportunities, but in order to seize them leadership development departments need to be aware of the obstacles to diversifying leadership development**.** It is important to find out in which extent the leaders at all levels are involved in their personal development (Choi, 2009; Tang, Hou, Fay and Annis, 2019). Leaders need to be ready to enter a new era of training. Leadership development needs to rely on senior management support to support this transition and investments in associated training technologies. The smart city must have the skills and vision to design, implement and manage a blended smart leadership learning solution. There should be scopes to encourage leaders at all levels to adopt new learning methods to train and train their citizens in a user-friendly smart learning environment. There should be smart method to promote the new smart leadership approach to all leaders (Morrison and Milliken, 2000).

These scopes emphasize the need to implement structured smart leadership development governance is supported by senior leaders, for the new leadership development strategy, and the need to invest to support the skills and functions of the leadership department (manage communities and provide training, marketing and communication and data analysis). In addition, organizations that have adopted best practices demonstrate that the professionalization of communication and marketing for new leadership can enhance learner participation and engagement, while maximizing the impact on performance (Downs, 2005; Rotchanakitumnuai, 2017).

2.2 Leaders policies can facilitate construction smart and sustainable cities

2.2.1Oman steps into the road of Smart Cities

The circle of hope in the Sultanate of Oman is expanding day by day towards the welfare society by ensuring the best way to quality of life through the planning and construction of smart cities. It is no longer impossible or a dream to run a business ending the concerns and meet the needs, or get certain services in a city with the push of a button. It is not a luxury but a necessary prerequisite for the effective and optimal use of information and communication technologies and the use of alternative energy to harness them in the management of public and private services sectors. Since the liberation of the land from the Portuguese by the Al-Ya'arubi Imams in the seventeenth century, most of the strategic cities of Oman consolidated their protective character (Benkari, 2017).

In the same context, the Omani government is interested in smart initiatives and gives special attention and care through the concerted efforts of various authorities, especially the

Scientific Research Council, Municipalities and Information Technology Authority in cooperation with various telecommunications companies (Al Qalhati et al., 2020). This comes in light of the international reports of the Department of Economic and Social Affairs of the United Nations for the years 2012 and 2014, which classified the Gulf countries as good in their implementation of the transformation plans for e-government. The idea of "smart cities" seeks to provide an environmentally friendly digital environment that stimulates learning and creativity that contributes to a sustainable development environment that promotes a sense of happiness and health (Al Qalhati et al., 2020; Akter et al., 2019).

2.3 Approaches: Smart leaders

2.3.1 The level of achieving the Sustainable Development Goals (SDGs) 2030

In pursuing the objectives of sustainable development, the Sultanate has wide community participation at the national and local levels. A change in the mindset and culture of designing development strategies, policies, and plans, and their monitoring and assessment is essential if Arab countries are to achieve SDGs and address climate change concerns. (Saab, Najib and Abdul-Karim, Sadik, 2016). Numerous panel discussions and discussions with various development partners, representatives of the government, the private sector, civil society, youth and bodies, parliamentary, academic and international organizations this is to ensure community ownership(Akter et al., 2020). Development Agenda, one of the most prominent initiatives adopted by the Sultanate is the initiative of the "All Arab States. That take into account the priorities and aspirations of local communities. In preparing the vision document, and providing the opportunity for the various segments of the community to participate Effectiveness in the sustainable development efforts in the Sultanate The first voluntary national report of the Sultanate in an integrated manner reflects Achievement of the Sultanate on the Seven Sustainable Development Goals National strategies and plans developed and challenges and plans for the future.

2.4 Smart leaders: Prerequisite for smart cities in Oman

The concept of smart leadership in an organizational sense is relatively new in Oman. The lack of a developed market sector, in addition to the dominance of the private sector by expatriates, inhibits young Omanis from developing smart leadership skills in a business and administrative context. Politics, culture, and institutional factors continue to inhibit the scope for smart leadership (Al Harthy and Al Harthy, 2019). This may change in the near future for a number of reasons, including pressure for economic diversification, which includes encouraging a market-led economy, and cultural changes to reduce the reliance on public sector employment. Politically, the succession of the present Sultan is still unresolved, which may force a constitutional review or even political instability in years to come. It is clear that considerable barriers remain to smart leadership development in countries such as Oman. Although leading international leadership studies do not include Oman in their range of societies, other findings from the Arab Middle East in some study are largely consistent with the findings of smart cities. Some researchers referred to the heroic status accorded to leadership in Arab countries and support the importance of other traditional influences in smart cities. The sum total of these influences on the leadership style is characterized as

"sheikocracy," which is consistent with hierarchical authority, an emphasis on interpersonal relations, and low observance of formal rules and regulations. Thus, the conceptualization of smart leadership in countries such as Oman appears to reveal some awkward contradictions (Asmyatullin, Tyrkba and Ruzina, 2020; Ibrahim, Adams and El-Zaart, 2015).

2.5 Budget strategy

Budget is one of the more important financial plans, needed to be created from year to year(Alkaabi et al., 2019; Alshamsi, et al., 2019). Without a comprehensive budget, smart leadership development will not be able to monitor spending and develop a growth plan for smart city. A smart budgeting strategy is a systematic process that gathers pertinent information and develops a budget that leaders can use to maintain profitability and plan for future expansion (Strielkowski, Veinbender, Tvaronavičienė, and Lace, 2020). Oman launched the 2016-2020 budget to diversify its sources of income, with the aim of reducing dependence on oil revenues by half, and the decline in crude prices is putting pressure on the country's public finances. The oil industry contributes 44 percent of GDP, while the Sultanate aims to reduce it to only 22 percent by 2020 by investing $ 106 billion over five years. A number of factors have contributed to the two-digit GDP growth rate in the Sultanate. In addition, higher oil prices have also provided more funding for Oman to invest in key economic development plans, which are expected to play an important role in the country's future (Maksoodand Achuthan, 2017).

2.6 Technological and education skills

Skills relate to the ability to employ different techniques and technologies and ideas developed and used in the educational process, whether in the technical aspect "skills to deal with techniques of hardware, materials and software", or personal side "personal skills such as the ability to display, clarify, analysis, perception and interpretation", or the employment side " Skills of employing technology in education (Al Qalhati et al., 2020), choosing the device and material and the new idea that is suitable for the educational situation. The management, ending with the evaluation and follow-up skills and development of its main and sub-skills, making it enable the leader, the citizens to deal with the positions of the 21st century to achieve more creative goals, they are skills are not limited to the technology itself, but includes the development of the concept of basic education (Lam and Ma, 2019; Elamir, Mousa and Desoky, 2020; Hossain et al., 2018).

2.7 Current situation of leadership in Oman

A close picture of the situation of Oman currently would show even more its leadership, despite its shortage in many tangible areas. By taking a quick look at the country profile of the Sultanate, it is seen that it enjoys its very humble sources of power, especially in comparison with some bigger countries in the region. According to the latest information from the CIA World Factbook, Oman has a population of around 3.3 million, has a public-private partnership per capita of about $44,000, an area of 309,500 km² and around an 86% oil-dependent economy (CIA World Factbook). Oman borders the Arabian Sea, the Gulf of Oman, and the Persian Gulf between UAE and Yemen. It lies just beneath Iran, separated by

the Strait of Hormuz. The Strait of Hormuz is of great importance to the world as it is the only gateway from the Persian Gulf to the high seas, which depicts its strategic importance (Kraska, 2013; Mujtaba, Khanfar and Khanfar, 2010).

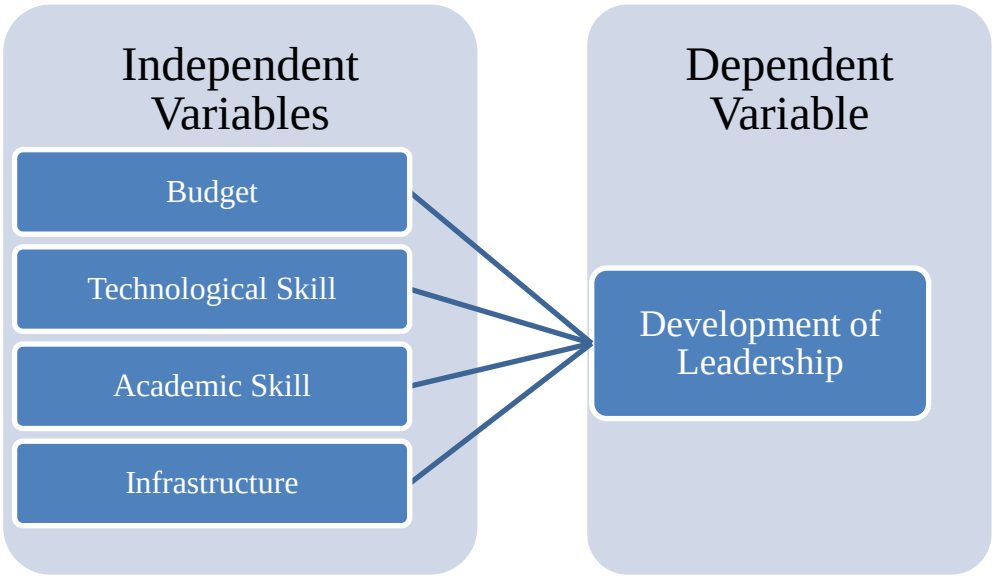


Figure 1: The Framework of the study

III. METHODOLOGY OF THE STUDY

A sample of 220 respondents who were all managers and senior lever employees of SEZAD leading the development are employed in this study. A well-structured questionnaire was employed as research instrument. The SPSS V25 was used to analyse the data following quantitative method where cross sectional data were employed. The questionnaire was translated from English to local language by an expert. We distributed 450 questionnaires among respondents. We received 250 complete and usable questionnaires. We randomly used 220 samples for this study. We provided two sets of questionnaires, one is used for managers and another one is for senior level employees. They all are ensured by providing statement in the cover page of questionnaire that their provided data would be kept confidential and would not be used other than research purpose. Before conducting the main study, a pilot study was done among 18 respondents to know the credibility of the questionnaire and excluded them in the final survey who participated in the pilot study.

3.1 Measurement Scale

The five-point Likert-type scales were used for most of the questions. Section A of the questionnaire titled, "Demographic Profile", contained eleven select demographic questions. It consists of a mixture of open-ended questions, multiple choice questions and close-ended questions.Section B questions are employed for independent and dependent variables. Five items was used to measure budget adopted from Day and Sin (2011). The Cronbach's alpha was0.749. Four items were used to measure technological skills adopted from Richard Bolden (2005).The Cronbach's alpha was 0.901. Seven items were used to measure academic skills adopted from John Gibney et al. (2014). The Cronbach's alpha was 0.790. Four items

were used to measure infrastructure adopted from John Gibney et al. (2014). The Cronbach's alpha was 0.792. Eight items were used to measure development of leadership adopted from researcher himself. The Cronbach's alpha was 0.753.

IV. RESULTS/FINDINGS

4.1 Correlation

Prior to hypothesis testing, Pearson correlation coefficient (r) test was performed to examine the association of two metric variables. Table 1 presents the summary of two tailed Pearson's correlation for independent variables.

Table 1: Correlations

		b	ts	As	dl
b	Pearson Correlation	1	.739**	.706**	.825**
	Sig. (2-tailed)		.000	.000	.000
	N	220	220	220	220
ts	Pearson Correlation	.739**	1	.932**	.646**
	Sig. (2-tailed)	.000		.000	.000
	N	220	220	220	220
as	Pearson Correlation	.706**	.932**	1	.615**
	Sig. (2-tailed)	.000	.000		.000
	N	220	220	220	220
i	Pearson Correlation	.825**	.646**	.615**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	220	220	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Following Cohen's (1988) approach, there was a statistically significant high positive correlation between Budget and development of leaders (r = 1.0, p <.001), technological skill (r = 0.739, p < .001), Academic skills (r = 0.706, p < 0.001) and infrastructure (r = 0.825, p < .001).Results of the correlation test imply association between variables but do not necessarily indicate a causation relationship (Zikmund, 1991).

Table 2: Correlations

		b1	b2	b3	b4	b5	b6
b1	Pearson Correlation	1	.143*	.137*	.065	.138*	.105
	Sig. (2-tailed)		.034	.042	.335	.041	.121
	N	220	220	220	220	220	220
b2	Pearson Correlation	.143*	1	.709**	.772**	.918**	.853**
	Sig. (2-tailed)	.034		.000	.000	.000	.000
	N	220	220	220	220	220	220
b3	Pearson Correlation	.137*	.709**	1	.512**	.688**	.571**
	Sig. (2-tailed)	.042	.000		.000	.000	.000
	N	220	220	220	220	220	220
b4	Pearson Correlation	.065	.772**	.512**	1	.693**	.637**
	Sig. (2-tailed)	.335	.000	.000		.000	.000
	N	220	220	220	220	220	220
b5	Pearson Correlation	.138*	.918**	.688**	.693**	1	.773**
	Sig. (2-tailed)	.041	.000	.000	.000		.000
	N	220	220	220	220	220	220
b6	Pearson Correlation	.105	.853**	.571**	.637**	.773**	1
	Sig. (2-tailed)	.121	.000	.000	.000	.000	
	N	220	220	220	220	220	220

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3: Correlations

		ts1	ts2	ts3	ts4
ts1	Pearson Correlation	1	.416**	.603**	.459**
	Sig. (2-tailed)		.000	.000	.000
	N	220	220	220	220
ts2	Pearson Correlation	.416**	1	.716**	.563**
	Sig. (2-tailed)	.000		.000	.000
	N	220	220	220	220
ts3	Pearson Correlation	.603**	.716**	1	.665**

	Sig. (2-tailed)	.000	.000		.000
	N	220	220	220	220
ts4	Pearson Correlation	.459**	.563**	.665**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	220	220	220	220

Table 4: Correlations

		as1	as2	as3	as4	as5	as6	as7
as1	Pearson Correlation	1	.143*	.137*	.065	.138*	.105	.232**
	Sig. (2-tailed)		.034	.042	.335	.041	.121	.001
	N	220	220	220	220	220	220	220
as2	Pearson Correlation	.143*	1	.709**	.772**	.918**	.853**	.613**
	Sig. (2-tailed)	.034		.000	.000	.000	.000	.000
	N	220	220	220	220	220	220	220
as3	Pearson Correlation	.137*	.709**	1	.512**	.688**	.571**	.886**
	Sig. (2-tailed)	.042	.000		.000	.000	.000	.000
	N	220	220	220	220	220	220	220
as4	Pearson Correlation	.065	.772**	.512**	1	.693**	.637**	.414**
	Sig. (2-tailed)	.335	.000	.000		.000	.000	.000
	N	220	220	220	220	220	220	220
as5	Pearson Correlation	.138*	.918**	.688**	.693**	1	.773**	.602**
	Sig. (2-tailed)	.041	.000	.000	.000		.000	.000
	N	220	220	220	220	220	220	220
as6	Pearson Correlation	.105	.853**	.571**	.637**	.773**	1	.482**
	Sig. (2-tailed)	.121	.000	.000	.000	.000		.000
	N	220	220	220	220	220	220	220
as7	Pearson Correlation	.232**	.613**	.886**	.414**	.602**	.482**	1
	Sig. (2-tailed)	.001	.000	.000	.000	.000	.000	
	N	220	220	220	220	220	220	220

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5: Correlations

		as1	as2	as3	as4	as5	as6	as7
as1	Pearson Correlation	1	.143*	.137*	.065	.138*	.105	.232**
	Sig. (2-tailed)		.034	.042	.335	.041	.121	.001
	N	220	220	220	220	220	220	220

as2	Pearson Correlation	.143*	1	.709**	.772**	.918**	.853**	.613**
	Sig. (2-tailed)	.034		.000	.000	.000	.000	.000
	N	220	220	220	220	220	220	220
as3	Pearson Correlation	.137*	.709**	1	.512**	.688**	.571**	.886**
	Sig. (2-tailed)	.042	.000		.000	.000	.000	.000
	N	220	220	220	220	220	220	220
as4	Pearson Correlation	.065	.772**	.512**	1	.693**	.637**	.414**
	Sig. (2-tailed)	.335	.000	.000		.000	.000	.000
	N	220	220	220	220	220	220	220
as5	Pearson Correlation	.138*	.918**	.688**	.693**	1	.773**	.602**
	Sig. (2-tailed)	.041	.000	.000	.000		.000	.000
	N	220	220	220	220	220	220	220
as6	Pearson Correlation	.105	.853**	.571**	.637**	.773**	1	.482**
	Sig. (2-tailed)	.121	.000	.000	.000	.000		.000
	N	220	220	220	220	220	220	220
as7	Pearson Correlation	.232**	.613**	.886**	.414**	.602**	.482**	1
	Sig. (2-tailed)	.001	.000	.000	.000	.000	.000	
	N	220	220	220	220	220	220	220

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6: Correlations

			i1	i2	i3	I4
Kendall's tau_b	i1	Correlation Coefficient	1.000	.087	.722**	.475**
		Sig. (2-tailed)	.	.115	.000	.000
		N	220	220	220	220
	i2	Correlation Coefficient	.087	1.000	.089	.097
		Sig. (2-tailed)	.115	.	.108	.077
		N	220	220	220	220
	i3	Correlation Coefficient	.722**	.089	1.000	.692**
		Sig. (2-tailed)	.000	.108	.	.000
		N	220	220	220	220
	I4	Correlation Coefficient	.475**	.097	.692**	1.000
		Sig. (2-tailed)	.000	.077	.000	.
		N	220	220	220	220

Spearman's rho	i1	Correlation Coefficient	1.000	.107	.765**	.532**
		Sig. (2-tailed)	.	.112	.000	.000
		N	220	220	220	220
	i2	Correlation Coefficient	.107	1.000	.114	.125
		Sig. (2-tailed)	.112	.	.090	.064
		N	220	220	220	220
	i3	Correlation Coefficient	.765**	.114	1.000	.741**
		Sig. (2-tailed)	.000	.090	.	.000
		N	220	220	220	220
	I4	Correlation Coefficient	.532**	.125	.741**	1.000
		Sig. (2-tailed)	.000	.064	.000	.
		N	220	220	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7: Correlations

			dl1	dl2	dl3	dl4	dl5	dl6	dl7	dl8
Kendall's tau_b	dl1	Correlation Coefficient	1.000	.084	.725**	.481**	.511**	.640**	.881**	.427**
		Sig. (2-tailed)	.	.130	.000	.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl2	Correlation Coefficient	.084	1.000	.099	.102	.054	.091	.074	.180**
		Sig. (2-tailed)	.130	.	.074	.063	.325	.100	.178	.001
		N	220	220	220	220	220	220	220	220
	dl3	Correlation Coefficient	.725**	.099	1.000	.685**	.704**	.895**	.816**	.602**
		Sig. (2-tailed)	.000	.074	.	.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl4	Correlation Coefficient	.481**	.102	.685**	1.000	.478**	.663**	.537**	.862**
		Sig. (2-tailed)	.000	.063	.000	.	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl5	Correlation Coefficient	.511**	.054	.704**	.478**	1.000	.660**	.574**	.392**
		Sig. (2-tailed)	.000	.325	.000	.000	.	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl6	Correlation Coefficient	.640**	.091	.895**	.663**	.660**	1.000	.719**	.565**
		Sig. (2-tailed)	.000	.100	.000	.000	.000	.	.000	.000

		N	220	220	220	220	220	220	220	220
	dl7	Correlation Coefficient	.881**	.074	.816**	.537**	.574**	.719**	1.000	.460**
		Sig. (2-tailed)	.000	.178	.000	.000	.000	.000	.	.000
		N	220	220	220	220	220	220	220	220
	dl8	Correlation Coefficient	.427**	.180**	.602**	.862**	.392**	.565**	.460**	1.000
		Sig. (2-tailed)	.000	.001	.000	.000	.000	.000	.000	.
		N	220	220	220	220	220	220	220	220
Spearman's rho	dl1	Correlation Coefficient	1.000	.104	.768**	.537**	.574**	.687**	.900**	.482**
		Sig. (2-tailed)	.	.126	.000	.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl2	Correlation Coefficient	.104	1.000	.127	.131	.068	.114	.094	.230**
		Sig. (2-tailed)	.126	.	.060	.053	.313	.092	.167	.001
		N	220	220	220	220	220	220	220	220
	dl3	Correlation Coefficient	.768**	.127	1.000	.735**	.758**	.912**	.848**	.657**
		Sig. (2-tailed)	.000	.060	.	.000	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl4	Correlation Coefficient	.537**	.131	.735**	1.000	.537**	.722**	.593**	.885**
		Sig. (2-tailed)	.000	.053	.000	.	.000	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl5	Correlation Coefficient	.574**	.068	.758**	.537**	1.000	.716**	.634**	.443**
		Sig. (2-tailed)	.000	.313	.000	.000	.	.000	.000	.000
		N	220	220	220	220	220	220	220	220
	dl6	Correlation Coefficient	.687**	.114	.912**	.722**	.716**	1.000	.758**	.629**
		Sig. (2-tailed)	.000	.092	.000	.000	.000	.	.000	.000
		N	220	220	220	220	220	220	220	220
	dl7	Correlation Coefficient	.900**	.094	.848**	.593**	.634**	.758**	1.000	.516**
		Sig. (2-tailed)	.000	.167	.000	.000	.000	.000	.	.000
		N	220	220	220	220	220	220	220	220
	dl8	Correlation Coefficient	.482**	.230**	.657**	.885**	.443**	.629**	.516**	1.000

	Sig. (2-tailed)	.000	.001	.000	.000	.000	.000	.000	.
	N	220	220	220	220	220	220	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

4.2 Correlation between demographics and Dependent variable

Table 8: Correlations

		Gender	Meandl
Gender	Pearson Correlation	1	-.083
	Sig. (2-tailed)		.223
	N	220	219
Meandl	Pearson Correlation	-.083	1
	Sig. (2-tailed)	.223	
	N	220	220

This analysis is for the question about the possible relationship between the variables gender and development of leaders. Here, Pearson's r is -0.083. This number is negative. This means that there is a negative relationship between your two variables. This means that changes in one variable are not correlated with changes in the second variable. For this reason, we can conclude that there is a negative relationship between gender and development of leaders. However, we cannot make any other conclusions about this relationship, based on this number.

Table 9: Correlations

		Age	Meandl
Age	Pearson Correlation	1	-.347**
	Sig. (2-tailed)		.000
	N	220	220
Meandl	Pearson Correlation	-.347**	1
	Sig. (2-tailed)	.000	
	N	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

This analysis is for the question about the possible relationship between the variables age and development of leaders. Here, Pearson's r is -0.347. This number is negative. This means that there is a negative relationship between your two variables. This means that changes in one variable are not correlated with changes in the second variable. For this reason, we can conclude that there is a negative relationship between age and development of leaders. However, we cannot make any other conclusions about this relationship, based on this number.

Table 10: Correlations

		AQ	Meandl
AQ	Pearson Correlation	1	-.254**
	Sig. (2-tailed)		.000
	N	219	219
Meandl	Pearson Correlation	-.254**	1
	Sig. (2-tailed)	.000	
	N	219	220

**. Correlation is significant at the 0.01 level (2-tailed).

This analysis is for the question about the possible relationship between the variable's academic qualification and development of leaders. Here, Pearson's r is -0.254. This number is negative. This means that there is a negative relationship between your two variables. This means that changes in one variable are not correlated with changes in the second variable. For this reason, we can conclude that there is a negative relationship between academic qualification and development of leaders. However, we cannot make any other conclusions about this relationship, based on this number.

Table 11: Correlations

		Designation	Meandl
Designation	Pearson Correlation	1	.017
	Sig. (2-tailed)		.798
	N	219	219
Meandl	Pearson Correlation	.017	1
	Sig. (2-tailed)	.798	
	N	219	220

This analysis is for the question about the possible relationship between the variable's designation and development of leaders. Here, Pearson's r is 0.017. This number is positive. This means that there is a positive relationship between your two variables. This means that changes in one variable are correlated with changes in the second variable. For this reason, we can conclude that there is a positive relationship between designation and development of leaders. However, we cannot make any other conclusions about this relationship, based on this number.

Table 12: Correlations			
		Total employee	Meandl
Totalemployee	Pearson Correlation	1	.006
	Sig. (2-tailed)		.931
	N	219	219
Meandl	Pearson Correlation	.006	1
	Sig. (2-tailed)	.931	
	N	220	220

This analysis is for the question about the possible relationship between the variables total employee and development of leaders. Here, Pearson's r is -0.006. This number is negative. This means that there is a negative relationship between your two variables. This means that changes in one variable are not correlated with changes in the second variable. For this reason, we can conclude that there is a negative relationship between total employee and development of leaders. However, we cannot make any other conclusions about this relationship, based on this number.

Table 13: Linear Regression Analysis (Dependent Variable: Development of leaders)

Hypothesis		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	176.092	16.716		10.535	0
H1	b	-0.586	9.249	-0.011	-0.063	0.95
H2	ts	-29.948	8.594	-0.521	-3.485	0.001
H3	as	-2.398	3.011	-0.053	-0.796	0.427
H4	i	-11.843	18.205	-0.217	-0.651	0.516

a. Dependent Variable: dl

4.2 Hypothesis testing

Based on the modified research framework, four hypotheses for testing the antecedents

and outcome of development of leaders are listed as follows:

Table 14: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.402[a]	.162	.126	59.5116

a. Predictors: (Constant), budget
b. Dependent Variable: development of leaders

Table 15: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	143572.177	9	15952.464	4.504	.000[b]
	Residual	743742.823	210	3541.632		
	Total	887315.000	219			

a. Dependent Variable: development of leaders
b. Predictors: (Constant), budget

Table 16: ANOVA[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.018	.686		5.860	.000
	Budget	.392	.032	.610	12.351	.000

Table 17: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	13.619	220.000	110.500	25.6043	220
Residual	-141.2198	110.6483	.0000	58.2759	220
Std. Predicted Value	-3.784	4.277	.000	1.000	220
Std. Residual	-2.373	1.859	.000	.979	220

a. Dependent Variable: dl

Table 18: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
B	220	100.0%	0	0.0%	220	100.0%
Ts	220	100.0%	0	0.0%	220	100.0%
as	220	100.0%	0	0.0%	220	100.0%
dl	220	100.0%	0	0.0%	220	100.0%

Table 19: Correlations

			b	ts	as	dl
Kendall's tau_b	b	Correlation Coefficient	1.000	.688**	.646**	.790**
		Sig. (2-tailed)	.	.000	.000	.000
		N	220	220	220	220
	ts	Correlation Coefficient	.688**	1.000	.924**	.577**
		Sig. (2-tailed)	.000	.	.000	.000
		N	220	220	220	220
	as	Correlation Coefficient	.646**	.924**	1.000	.545**
		Sig. (2-tailed)	.000	.000	.	.000
		N	220	220	220	220
	dl	Correlation Coefficient	.790**	.577**	.545**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	220	220	220	220
Spearman's rho	b	Correlation Coefficient	1.000	.743**	.705**	.828**
		Sig. (2-tailed)	.	.000	.000	.000
		N	220	220	220	220
	ts	Correlation Coefficient	.743**	1.000	.935**	.639**
		Sig. (2-tailed)	.000	.	.000	.000
		N	220	220	220	220
	as	Correlation Coefficient	.705**	.935**	1.000	.608**
		Sig. (2-tailed)	.000	.000	.	.000
		N	220	220	220	220
	dl	Correlation Coefficient	.828**	.639**	.608**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	220	220	220	220

**. Correlation is significant at the 0.01 level (2-tailed).

Table 20: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.267[a]	.071	.054	61.9164	.071	4.114	4	215	.003

a. Predictors: (Constant), dl, as, b, ts
b. Dependent Variable: dl

Table 21: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63083.080	4	15770.770	4.114	.003[b]
	Residual	824231.920	215	3833.637		
	Total	887315.000	219			

a. Dependent Variable: dl
b. Predictors: (Constant), dl, as, b, ts

Table 22: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1(Constant)	158.128	13.826		11.437	.000	130.876	185.380					
B	-13.152	7.117	-.245	-1.848	.066	-27.180	.875		-.257	-.125	-.121	.245 4.077
Ts	-6.874	9.867	-.133	-.697	.487	-26.323	12.574		-.230	-.047	-.046	.118 8.447
As	2.226	9.275	.044	.240	.811	-16.057	20.508		-.212	.016	.016	.131 7.617

L	3.792	6.493	.068	.584	.560	-9.007	16.590	-.193	.040	.038	.316	3.165

a. Dependent Variable: dl

Table 23: CollinearityDiagnostics[a]

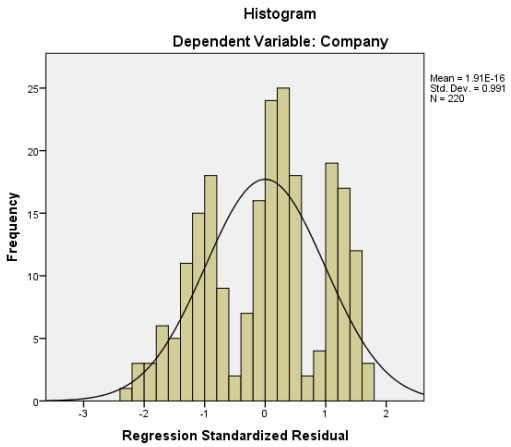
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	b	Ts	as	dl
1	1	4.837	1.000	.00	.00	.00	.00	.00
	2	.080	7.764	.74	.00	.03	.04	.00
	3	.057	9.213	.25	.10	.02	.04	.22
	4	.017	16.696	.01	.88	.00	.01	.77
	5	.008	24.607	.00	.02	.95	.91	.00

a. Dependent Variable: Development of leaders

Table 24: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	75.388	159.286	110.500	16.9721	220
Residual	-140.4055	111.1964	.0000	61.3483	220
Std. Predicted Value	-2.069	2.875	.000	1.000	220
Std. Residual	-2.268	1.796	.000	.991	220

a. Dependent Variable: Company



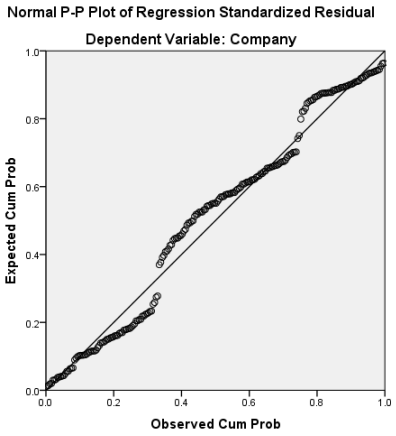


Figure 2

With reference to above tables, hypotheses were calculated to predict development of leaders based on Budget, Technological skills, Academic skills, Infrastructure. A significant regression equation was found with R^2. In addition, it is predicted that development of leaders is equal to unstandardized (B) coefficient when independent variables are measured. Therefore, independent variables are increased each unit of variables and the regression

model exemplifies a positive relationship exists between Budget, Technological skills, Academic skills, Infrastructure and Development of Leaders. Therefore, all hypotheses are accepted.

H_1: Budget has a significant relationship with development of leaders.

H_2: Technological skills have a significant relationship with development of leaders.

H_3: Academic skills have a significant relationship with development of leaders.

H_4: Infrastructure has a significant relationship with development of leaders.

V. DISCUSSION

5.1 Recapitulation of the Study'sFindings

The importance of leadership development has not been given enough attention despite its importance in academia. Furthermore, the growing popularity of learning and development of interpersonal skills emphasizes the importance of leadership development. In time, organization's owners/managers who disengage themselves from leadership development beneficial programs stand to lose to competitors as conscious growing day by day.

Based on the research objectives, the following excerpts provide a brief summary of the findings:

- With reference to the first objective, the empirical result supports the relationship of Budget(consist of Budgetary guidelines, amount of budget, operational plans after budget, leaders engagement in overall process, effect of leadership style on budgeting) towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.
- With reference to the second objective, the empirical results support the relationship of Technological skills (consist of organizational adaptation with leadership developing technologies, use of technology in communicating to leaders, adopted technology to back up data in case of crisis, technology in evaluating leadership) towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman
- With reference to the third objective, the empirical results support the relationship of Academic skills(consist of organizing learning programs and engagement projects, skills of managing the conflict and learning environment, strategic initiatives for developments through research, Ability to communicate effectively, quality assurance processes, developed interpersonal and relational skills, alumni and external stakeholder engagement) towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.
- With reference to the fourth objective, the empirical results support the relationship of Infrastructure (consist of structure for leadership development,infrastructural support the leadership development activities, instructional aids, synergize the leaders with different departments) towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman

5.2 Interpretation of Result

5.2.1 Budget

The first research question is to assess the relationship of Budget towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.

Results of descriptive, correlation and linear regression analyse at the above Table present empirical evidence on the contribution of Budget towards Development of Leaders. Hypothesis 1 is supported and significantly related to Development of Leaders. The findings indicate that Budget hold a strong point of views pertaining to implementation of leadership development. Budgetary guidelines, amount of budget, operational plans after budget, leaders' engagement in overall process, effect of leadership style on budgeting are periodically reviewed.

From descriptive result of b1,b2,b3,b4,b5 it is clear that budgetary guidelines should issue before preparing budget, SEZAD has capability to invest just need mind-set, operational plan should be established for proper implementation of budget, and organizations have to ensure the involvement of all leaders into this process and the style of leadership impact the process.

5.2.2 Technological skills

The second research question is to determine the relationship of technological skills towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman. Digital revolution has also brought an array of tools that hold promise for leadership development. Among them: virtual simulations of real-life work experiences; the use of social media content to assess and predict personality type; and small wearable computers that record and store physiological data such as heart rate to give us an objective assessment of our stress state.

The result from ts1,ts2,ts3,ts4 evidenced that SEZAD should focus on adaptation on technologies to foster the communication within teams, leaders along with evaluating the performance of leaders and know the type of leadership so that organization can able to manage the conflict.

5.2.3 Academic skills

The third objective is to determine the relationship ofacademic skills towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.

The significant impact of academic skills towards leadership performance has already been reported in the literature, and the findings of this study echo the results obtained by previous researchers. The decisions of top management to adopt leadership for their firms are mostly based on rational choices, which are the trade-offs amidst costs, benefits and the risks of diffusing new technology and applying it to the business processes of the organizational leadership development activities (Hossain et al., 2018).

5.2.4 Infrastructure

The fourth objective is to examine the relationship of infrastructure towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.Additionally, many extant studies found that infrastructure positively and significantly affects leadership (Murray, P., Poole, D. and Jones, G., 2006). Researchers such as Barnett, M.L. (2005),

support that organizations' structure also influence the leadership performance (Mughairi et al., 2019). In fact, Chen, Gregoire, Arendt, and Shelley (2011) concluded that leaders' positive or negative attitude could affect their intention to adopt sustainable leadership practices, and Bulkeley, McGuirk, and Dowling (2016) supported that tools of instruction determine people's interaction of leadership program. Therefore, SEZAD should redesign the infrastructure of the organization for facilitating leadership development program.

5.2.5 Implications

5.2.5.1 Theoretical implications

This study has developed some theoretical and practical implications through the finding of implantation and assessment of the Factors Influencing the Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman. Secondly, this is essential in creating key dimensions of development of leaders where statistical tool is utilized to validate the model statistically. Through using SPSS, the data collected thru the study would be competent to go through further empirical testing and strengthen the reliability of the findings. Thirdly, the result can help learning and development, education, psychology researchers worldwide to further explore and develop effective model in their individual research setting by applying the similar research method like current study. The significant theoretical implication of this study could encourage the effectiveness findings in other country.

5.2.5.1 Practical Implications

This study has made efforts in some practical implications as well. Firstly, the IV of DV implementation shows the proper guidelines the Oman construction industry. Therefore, instead of pursuing all dimensions blindly, they can focus on the findings identified from this research. The discussion on factors influencing the Development of Leaders in this study would benefit both the managers and educators in Oman as they could utilize the finding of this research in their education industry.

The present study adds to research in numerous ways. To start with, many empirical studies on leadership development have been mostly concentrated in developed countries. Few studies have been done in developing countries especially Oman to examine the effect of leadership on employee performance. This empirical study in Oman is therefore unique and will open the chance for researchers most especially of Arabian countries to tap information for more future research.

5.2.5.3 Managerial Implications

As noted, the major types of Leadership Development method and activity used by companies operating in the Oman market include action learning, coaching, feedback, rotation, and networking, which are rooted in two types of Leadership Development intervention: experiential learning and self- and team analysis/exploration. This means that Leadership Development initiatives target middle and top leadership levels. Specifically, there is no high-level training targeting only top leaders, but rather methods and activities rooted in experiential learning and self- and team analysis/exploration also target those who

are at the top leadership level. Additionally, it is found that Leadership development activities adopted by companies operating in the SEZAD are implemented far away from a class.
Additionally, the author recommends that also collecting data from western countries. This might help to compare the results in different institutional and cultural settings. Third, for-profit sector companies only had a part in this study because of the lack of Leadership Development initiatives in both state and non-profit sectors and their lack of interest in this research. The research would be more comprehensive if data are collected also from state and non-profit sectors to understand Leadership Development in these sectors due to the lack of published research on the topic.

VI. CONCLUSION AND RECOMMENDATIONS

Developing leaders is a formidable challenge for today's global business. The deficit of available leadership talent is widely cited as the greatest limiter of growth. Cracking the code on developing effective leadership has the potential of conferring incredible advantages—competitive and organizational increased profitability and organizational development.
It is also noted that leadership development, as a discipline, is increasingly becoming interwoven with other talent management systems, particularly succession planning and performance management. Building leadership bench strength is a ubiquitous challenge that requires that organizations move away from treating leadership development as a standalone endeavour. The more readily leader development can be aligned and integrated with other talent management tools the stronger the capability for business growth.
A primary focus of the research was to investigate the Factors Influencing the Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman. The practices reviewed were varied and through the course of this study it became clear that different organizations have different experiences and preferences with respect to growing their current and future leaders. In analyzing the data, some important central tendencies become readily apparent. In general, leadership development systems are becoming more "real-time" rather than "just-in time". There is an emerging emphasis on "experience" over classroom training. And there is a greater willingness to individualize development for leaders by bringing in the right skill sets at the right time.

6.1 Recommendations regarding objective 1

Budget: Budgetary guidelines should be issued before preparing budgets draft and the action plan should be made ready. The organization should increase the investment in to leadership development programs. SEZAD should ensure the involvement of all leaders in respective department.
Strategic Focus: Business strategy and leadership development are tightly interwoven. This is the reason that executive involvement and sponsorship is so critically important to leadership development success. The best leadership development systems foster an ability to execute business strategy.

6.2 Recommendations regarding objective 2

To determine the relationship of technological skills towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.

Technological literacy: The organization has to adopt latest technological tools in developing leadership. The workshop, industry visit should maintain regularly.

Integrated with Organizational Systems: Leadership development should not be perceived as stand-alone endeavour. Growing leaders works best when the development of leaders is interlocked with other talent management components – recruiting, selecting and succession planning.

6.3 Recommendations regarding objective 3

Multi-Dimensional Learning Designs: The most effective leadership development curriculums tend to incorporate a wide range of learning techniques and delivery mechanisms.

Blending: It is understood that solutions to complex economic, social and technological challenges in Smart Cities require knowledge, expertise and experience to be gathered and combined from across the public, private and third sector.

Academic skills: The management should invite experts to conduct evaluation process without any biasness. SEZAD have to strengthen the recruiting based on the quality education, communication skills and attitude.

Social literacy: leadership that has a good understanding of the implications and impacts that these new smart technologies and processes will have on the working lives, developmental opportunities and general well-being of local people.

Relational worldview: Rather than positional this means leadership approaches and behaviours that are capable of stimulating, exploiting and disseminating learning and that create a positive atmosphere that supports the creation and exchange of knowledge, especially knowledge which is more intuitive, tacit and emergent over time.

Long-range thinking: Thinking beyond the immediate project, a leadership approach that is concerned with securing and improving economic, social and environmental outcomes for local businesses and residents over the long term.

Light-touch: In the context of diverse urban spaces, leadership that encourages ideas and innovation to bubble up from the grassroots and where priorities on smart projects are co-determined by the full range of local agencies and residents.

Ability to tap into and mobilise tacit knowledge: A non-prejudicial approach to gathering knowledge which is embedded in very fluid and transient local networks, organisations of all types and from the everyday experiences of local residents.

6.4 Recommendations regarding objective 4

To examine the relationship of infrastructure towards Development of Leaders for Smart City in DUQM, A Special Economic Zone in Oman.

Expertise: Where those in leadership roles are digitally-literate and have a sound understanding of the specific technologies, technological infrastructure and processes involved and how new digitally-integrated business models and markets are working at the local, national and international scale.

Whole team and including approaches: Where leadership is conceived and enacted as a shared activity appropriate for tasks that are highly interdependent, complex infrastructure and requiring high levels of creativity

Action Orientation: The best tools for leadership development tend to be actionable and leveraged to real business solutions. That is why experiential learning and action learning was so frequently cited as a "best" leadership development practice by the companies in the sample.

To this point the true value of leadership development is difficult to assess due to the gap between desired and actual practice in measuring development effectiveness. Predictably, as leadership development is more integrated with strategic activities, it will become more measurable and its value more readily apparent to the enterprise.

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