

## **Dubai Smart City And Residence Happiness: A Conceptual Study**

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**Abstract**—Ever since a few decades ago, the concept of smart city has resuscitated back to the academic field, making scholars examine the factors, timeline, policy, and human behavioral change. Deviating from that available literature, this study conceptually examines the influence of smart city features on human happiness concerning their natural habitat. To achieve this, the authors engage the use of the available public documents, academic journals, and government portals to examine the perceptions of Dubai residence concerning the perceived happiness level (psychology artifact) on the smart city project aimed at making the residence in Dubai, the happiest people on earth. The conceptual findings reveal that although Dubai's residence was known to be happy people, the country's prestige using some of the sophisticated technologies had enhanced and sustained the level of happiness. However, more needs to be achieved as the current smart city features in the study context are skewed only towards technology. Simultaneously, less attention was given to other features of the smart city, namely, environment and social functions. This paper thus reveals that sustaining happiness, in the long run, requires a balance between a smart city's elements.

**Keywords**- smart city, happiness, technology, Dubai

### **1. BACKGROUND**

Technology adoption and usage during the past few decades have increased exponentially. The adoption and usage of technology have virtually taken over most human activities ranging from geographical location identification, communication, education, transportation, food, and fashion, to name a few (Jessup & Robey, 2002; Licoppe & Smoreda, 2005; Pereira & Romero, 2017).

Technology in recent times has redefined the way humans communicate with their environment. For example, with the help of technology, humans can predict near accurate if it will rain so that they can go out with a temporary shelter 'umbrella,' or decide to stay indoors. Thus, technology benefits in our environment daily cannot be underestimated. Tapping into the benefits and significance technology presents to us, governments of several states are mounting several technological apparatus in their environment to assist in decision making and give

detailed information about what is happening or what is about to happen. These lead to the concept of smart city agenda initiation and implementation (Brown, King & Goh, 2020; Glasmeier & Nebiolo, 2016; Yarime & Karlsson, 2017). Examples of these governments are the United Kingdom government (UK), the United States of America (USA), Canada, Dubai, and the Chinese government, to name a few (Brown *et al.*, 2020; Johnson, Acedo & Robinson, 2020).

By definition, a smart city has no agreed description, definition, or features. However, smart cities are defined based on subjective features, which others might not regard as a smart city feature. Despite not having an agreed definition, individual scholars define the concept in a manner that fits their study objectives.

This study defines smart cities as cities built on technologies that automatically collect data and analyze them to provide a wide range of services in a low cost, efficient and effective manner with a lesser impact on the environment (Technopedia, 2020). Robinson (2015) described a smart city as a city that encourages business innovation via the available technology that alters and enhances the relationship between social values and economic activities that are supported by active collaboration among stakeholders. Meanwhile, Zygiaris (2012) defines a smart city as a city built based on innovation to reduce carbon dioxide. Colding and Barthel (2017) give the definition centers on resource readiness, social suitability of health care, security, and governance autonomy.

Following the definition giving by Technopedia (2020), governments across the globe are willing to make their citizens have better lives by giving them seamless services via constructions of smart cities. Examples of countries with these agendas are the likes of Canada, Dubai, Brazil, the USA, the UK, and India.

Considering the smart city around the world, the attention of this study is geared towards the smart city in Dubai. The logic behind these centers on the unique characteristics of the smart city exhibit. These characteristics include the smart city's age, rate of performance, and particularly the objectives of making the residence of Dubai the happiest people on earth (Fourtané, 2018).

In the study context, Dubai governing body decides in the year 2013 that before the year 2021 runs out, they intend to turn the entire city of Dubai into a smart city. A smart city that offers both the residence and visitors first-hand happiness experience, therefore making the residents the happiest people in the world. The smartness in this regard means the residence of Dubai will continue to enjoy productive, efficient, impactful, and seamless services, making them the happiest people in the world (Fourtané, 2018). Considering the said objectives of Dubai's smart city, this study conceptually examines the view of Dubai's residence about the smart city idea concerning being the happiest people on earth.

## **2.0 CONCEPT AND BENEFITS OF IMPLEMENTING SMART CITY AGENDA**

The idea of smart cities has long been in existence and are often called utopia (Mora & Deakin, 2019). The history predates historical era. Despite this, evidence points to the notion of why smart city initiative came into existence. According to Eremia, Toma, and Sanduleac (2017), the sole purpose of a smart city is to create and enhance the quality of life through smart infrastructure and facilities, information sharing, city management, rendering city services and promoting healthy life experiences for the citizens (Bibri & Krogstie, 2017; Miranda, Porciuncula & Cunha, 2019).

Over the last three decades, the concept of a smart city has once again been brought into the limelight (Mora & Deakin, 2019). The idea that smart city should be city governed with technological orientation (Angelidou, 2015; Mora & Deakin, 2019), yet, the technological anchor of the smart city should center on social cohesion and environmental friendliness (Bibri & Krogstie, 2017; Kandpal, 2019). Despite this, the success of smart city initiatives lies in the political will, government, or city leadership (Kandpal, 2019).

Kandpal (2019) argues that smart city faces setbacks due to a lack of proper policies from the governing agencies. While Yigitcanlar, Han, Kamruzzaman, Ioppolo, and Sabatini-Marques (2019) argues, although, several cities are called smart cities, yet, their governments have no proper framework for their sustainability. As such, most earlier smart cities are met with failures.

The notion of creating a self-sustaining city predates the historical era. However, not until a few decades ago that this notion or agenda resurfaced after several failures of the earlier self-sustaining cities known as smart cities. The primary objective of implementing smart city agenda is to create and enhance the quality of life through smart infrastructure and facilities, information sharing, city management, rendering city services, and promoting healthy life experiences for the citizens (Bibri & Krogstie, 2017; Miranda, Porciuncula & Cunha, 2019).

Other benefits of infusing technologies into the environment are to create effective and efficient solutions to environmental issues such as traffic, weather predictions, carbon dioxide reduction, crime watch, and response services, among other solutions for stakeholders (Brown, 1998; Cervero, 1998). Also, the technologies in the cities connected isolated areas, thus allowing seamless business flow (Zakzak & Salem, 2019).

### 3.0 CRITICISMS OF SMART CITIES

The smart cities, also known as utopian cities in the past, are characterized by their failures. History has it that several smart cities failed to take off from the drawing board or at most their foundations. Examples of these include the Eko-Atlantic, Levittown, Celebration Songdo, Brasilia, and side-walk in Toronto (Albert, 2019; Ryan, 2019). Another critic of smart cities is the lack of proper policies that captures the objectives and the needs of these technologies in our environment (Kandpal, 2019).

Likewise, the argument of Yigitcanlar, Han, Kamruzzaman, Ioppolo, and Sabatini-Marques (2019) is that the governments implementing the smart city idea has no predetermined proper framework for smart city sustainability. Therefore, the smart city failed to achieve its objective. Other criticism of the smart city is concerned with residence privacies (Ryan, 2019). According to the study of Ryan (2019), people's information is among the most valuable and world's most precious commodities. Exposing that in the name of a smart city is therefore unwarranted. Data is used in fueling economic activities ranging from buying, selling, and forecasting (Applegate, Holsapple, Kalakota, Radermacher & Whinston, 1996; Sharma & Strezov, 2017).

On the other hand, smart cities are built on technologies' sensors capable of collecting most private information without the consent of the city's residents. Thus, critics are concerned about the fundamental human rights to privacy. The issues of privacy in the smart city has over the years be a source of concern to the extent that some Canadian professors suggesting data encryption to avoid unauthorized access (Albert, 2019; Ryan, 2019).

#### **4.0 DUBAI SMART CITY AGENDA**

The city of Dubai was once famous for its sandy and desert nature. Recently, the city has experienced a complete turnaround and it is rated among the most performing smart city in the world (Fourtunate, 2018). Thanks to the transformative idea initiated by the His Highness Sheikh Mohammed bin Rashid Al Maktoum who is the Ruler of Dubai. The ruling council of Dubai foresees Dubai's future similar to that of those congested urban centers as such took a proactive approach in solving the issues before they emerge. These issues are not limited to overpopulation, and other social vices associated with urban congestion (Al-Saad & Ababneh, 2017; Hvidt, 2009).

Between the year 2013 and 2020, the smart city agenda was initiated and implemented the smart city agenda. The objectives of this smart city agenda include creating a safe, secure, paperless, innovative, and creative society. Likewise, Saeed Al Dhaheri the Chairman of Smartworld and a source from the Dubai government says that one of the paramount agenda of Dubai smart city is that, the government of Dubai wants it to be home for citizens and foreigners residing the city, therefore, the city is dubbed happy city (Fourtane, 2018),

As evidence from the study of Mohammed (2016), for the Dubai smart city to be a reality, the government partners with private bodies, encourage inclusive society that is customer oriented. As of 2017, more than 100 smart initiatives were commissioned and they are fully functional while many were to be implemented before the year 2021 runs out (Amin & Giacomoni, 2012; Neirotti, De Marco et al., 2014).

One of the aspects of the smart city agenda that champion any other place on earth found in Dubai is the policing services. Ever since the implementation of the smart city agenda, the police in Dubai have enjoyed several technologies adoption and usages. For example, the policemen in Dubai are known for their luxurious cars with high speed and balance capable of high road chase.

Also, the Dubai police services are the first to introduce and use Artificial Intelligence (AI) to collect and manage the community's data, which the police use to build an extensive Knowledge Management Database (KMD). This helps the police in Dubai identify, monitor, install, respond to emergencies, and reach the crime scene on time (Busanad, 2016; Shouk, 2017).

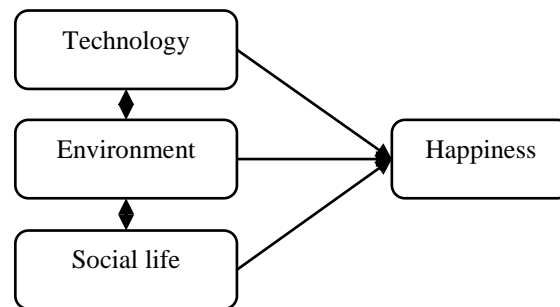
Meanwhile, Buhumaid, Constantin, and Schubert (2016) argue that the foundation of the high innovativeness in the Dubai police service centers on the notion that the services are built for its customers' benefits customer-centric. Furthermore, Buhumaid et al. (2016) report that the Dubai government agenda on smart city led by Sheikh Mohammed bin Rashid Al Maktoum, the Vice President and Prime Minister of the United Arab Emirates and the Ruler of Dubai was to provide high-quality services at a reduced cost and relocate Dubai's citizen to an era in which they could easily access their desired government service at their fingertip.

#### **5.0 CONCEPT AND MEASURES OF HAPPINESS**

Happiness, on its own, is multifaceted and multi-dimensional constructs. Furthermore, these constructs are highly subjective (Abdel-Khalek, 2006; Linley, Maltby, Wood, Osborne & Hurling, 2009; Stone & Mackie, 2013). Happiness can be a temporal or fluctuating state or permanent psychological wellbeing (Dambrun, Després & Lac, 2012). As such, what amazed individual A and caused him or her happiness might be a regular phenomenon to others.

In an attempt to define and measure happiness, Dambrum et al. (2012) argue the state happiness as self-centeredness placing pleasure over displeasure. While an earlier study by Linley et al. (2009) categorizes happiness factors into six categories, namely, positive relationship with one another, environmental mastery, self-acceptance, autonomy, personal growth, and life purpose, all these six factors are sub-set of human psychological wellbeing.

Meanwhile, community citizens might not only derive happiness from the stated factors. They tend to derive happiness when they have seamless access to goods and services, easy mobility, fast and reliable medical assistance, and sometimes human-nature interaction (Brown, & Baker, 2012). Therefore, these literature pieces explain the interconnectedness between technology, the environment, and humans' social lives. Therefore, it is reasonable to say that human access to these three factors creates happiness for a man at the right time. As such, Figure 1 below presents this relationship.



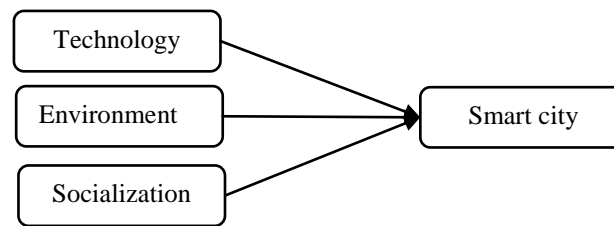
**Figure 1. Conceptualized factors influencing human happiness**

Although the objective of this section is not to create a happiness model because there are several models in this regard, however, to understand better the applicability of smart city in Dubai's context concerning making Dubai's residence the happiest people on earth, furthermore, this model is conceptually developed based on deductions from studies stated above. As such, robust empirical investigations are needed to ascertain the model fit and reliability in predicting human happiness.

However, there are lots to be achieved in the sense that, at this stage, the available literature pointed out only to the technological feature of the smart city to achieve the stated objective in the context of Dubai. Whereas, Albino *et al.* (2015) note that before a city can be regarded as a smart city, there is a need to balance the technological, environmental, and social features so as to create social and economic cohesion (Mori & Christodoulou, 2012). Currently, literature evidence points to the fact that the smart city agenda

in Dubai is skewed towards technology, while less attention is given to the social and environmental features of the smart city agenda.

Considering the observed pitfalls that might, in the long run, jeopardize the smart city technological achievement, we, therefore, recommend empirical investigations on the features of a smart city, that is, technology, environment, and social life. In light of this, the framework below was developed.



**Figure 2: Proposed conceptual model**

## **6.0 RELATIONSHIP BETWEEN DUBAI SMART CITIES AND RESIDENCE HAPPINESS**

Recalling the objectives of smart cities, which is to balance the relationship between technology usage and adoption, social life, and the environment (Chourabi et al., 2012; Wolfram, 2012). That is, the separated places are integrated into a single city using technologies via the internet of things (IoT) or information communication technologies (ICT). The purpose of these technologies is to collect data from both humans and the environment, automatically analyze such data, and present it in a way that is useful in the decision making process.

There is a clear fact that one of the significant objectives of implementing the smart city agenda in Dubai is to create happy people and enhance their quality of life (Al-Azzawi, 2019; Salem, 2016). However, there is a question on the features of smart cities, and that relates to maintaining balance among environment, technology, and the social environment and Dubai's smart city fulfilling its objectives (Al-Azzawi, 2019).

Previous studies reveal that the smart city project in Dubai has drastically triggered cross-government transformations, improve governance and connect the isolated societies with the districts of Dubai, therefore, making people be happier (Al-Ali, Ameen, Ameen, Al-Ali, Alshibami & Isaac, 2018; Al-Azzawi, 2019; Salem, 2016). People in Dubai became arguably happier than most other people based on the significant improvement in the quality of life via technological innovativeness, which enhance seamless government service to the residence and visitors, gave them impactful and safe city experience (Zakzak & Salem, 2019).

Insights to previous studies on smart cities in Dubai context reveals that the smart city in this regard, although it somehow creates happiness in the mind of residents and visitors in Dubai, nevertheless, the agenda is somehow skewed towards technology. Therefore, there are definite conceptual indications that presently, there is no balance between the environment, people's socialization, and the adopted technologies in creating the so-called happiness in Dubai.

## **8.0 OBSERVATIONS, CHALLENGES OF DUBAI SMART CITY AND CITIZEN'S HAPPINESS**

It is observed that the Dubai government, through the implementation of the smart city agenda, is making the residence happy. Happiness is a result of seamless services enjoyed, an enhanced security system that makes them feel safe and secure, and effective governance via a transformed system of government using technology. On the one hand, Dubai residence benefitted from these technological diffusions into their city.

However, there seem to be limited studies examining the other smart city features as per social life and environment. These other two smart city features concerned with the human psychological connection that has the potential to enhance happiness. For example, studies reveal that human connections with the green environment naturally reduces stress and maintain mental balance (Wallace & Shapiro, 2006). Human nature is known for socialization and is among the fundamental rights of human beings (Risse & Sikkink, 1999). Therefore, exercising this right contributes to human happiness (Risse & Sikkink, 1999). Any form of regress to the human socialization process tends to triggers unwanted behavior (Whiting & Mowrer, 1943).

## 9.0 RECOMMENDATIONS AND CONCLUSIONS

Recalling the study objective, which was to conceptually examine the significance of Dubai smart city in making their residence to be the happiest people on earth. Conceptual evidence reveals, indeed, the implementation of the smart city agenda is making Dubai residence happier people. As such, the implementation of the smart city agenda is a welcomed idea and is having a significant effect.

Furthermore, the smart city agenda is a fantastic innovative idea that brings people together, connects isolated areas, and allows seamless business activities. The conceptual evidence also reveals that with the implementation of the smart city agenda in Dubai, the residents and visitors are happier than their former self because they enjoy faster services with high quality.

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