IOSR Journal of Engineering (IOSRJEN) **www.iosrjen.org**
ISSN (e): 2250-3021, ISSN (p): 2278-8719
Vol. 12, Issue 8, August 2022, ||Series -I|| PP 10-18

Smart Happy City

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Received 26 July 2022; Accepted 09 August 2022

ABSTRACT
People will perceive architecture in a variety of ways, yet I firmly believe thatthere are key elements of design that can enrich human experience and facilitate the road towards human happiness and well-being. It's through small changes that we can start making the world a happier place, and architecture is definitely a tool to do so.The environment is essential for all of us, especially since so many of us live in cities, the Egyptian Commission emphasized the value of cities in the lives of so many Alexandrians and has committed to taking action in this area. Environments have a direct impact on the lives of millions of Alexandrian citizens and, as a result, have a significant impact on the larger environment. More is required in Alexandria. than ever to be Happy and should offer the kind of quality of life and opportunity that make people want to live in them and make businesses want to invest.Main Goal is to make Alexandria Smart Happy City by providing both a common ground and a common language for better understanding on using smart and happy features effectively o make Alexandria a Smart Happy City within the architecture realm.Results:by explaining and mentioning smart city features, characteristics and happiness factors, Also how happiness can be measured .Inaddition, City Examples with smart and happy features.Moreover, what should be considered to make Alexandria a smart happy city, but smart solutions cannot be copied; therefore, the value for each field should be evaluated differently.
Keywords: Alexandria , old Alexandria ,Smart City, Happy City, Computer aided architectural design (CAAD), Architectural representation, Computational design, Happiness in Communities

I. INTRODUCTION

Alexandria is a four-season destination. In the winter you'll enjoy the breezy mornings and cold nights and you will find a lot of rain if you're a winter lover.

Something you need to know about Alexandria is that while the summer makes the perfect weather, I personally don't like it as much it as the crowds are overwhelming.Downtown Alexandria's wide waterfront road is as much a symbol of the city as any of its monuments. It's here that you get a real feel for the era of cosmopolitan elegance and decadence that marked this city, in the late 19th and early 20th centuries. Much of the architecture from this era still stands along the Corniche, though these days, much of it is heavily dilapidated and falling into disrepair, Alexandria faces problems such aschronic conditions, economic stability, health care access, injury, violence, mental health, neighbourhood, build environment, obesity, nutrition, physical activity, oral health and reproductive health.

The Goal is to make Alexandria Smart happy city and solve all of the problems as mentioned above by following Smart City features which lead to Happy community.

II. ALEXANDRIA BEFORE AND AFTER

Urban Public space function for public encourage activity. As shown in (Fig.1) how the environment influence the people. Issues like public spaces, air quality and greenhouse are actually having a big impact to our levels of happiness and wellbeing in our life[1]

Figure 1: MehatetelRaml area, 1990(Source https://www.planetware.com/tourist-attractions-/alexandria-egy-alex-alex.htm

Direct view to sea were blocked by cafes and concrete blocks which has a very bad effect to users as shown in(Fig. 2). Therefore, quality of life as measured by people self-reported happiness is a primary goal of urban design. A high quality of life tends to be a virtuous cycle that attracts greater economic activity and investment leading to improved quality of life.

Figure 2: MehatetelRaml area, 2021.(Source https://www.planetware.com/tourist-attractions-/alexandria-egy-alex-alex.htm)

The goal of CITYKeys was to develop and validate a performance measurement framework to promote common, transparent, and comparable tracking of smart city solutions across European cities. Indicators are included at two levels in the framework: city or neighbourhood and project. The former compares the before and after results of a smart city project to assess its impact, while the latter compares the expected effect to a reference point. The latter monitors the city's overall progress toward smart city goals and evaluates how the project has contributed to the city's goals [2].The evaluation framework includes considerations for the three Ps (people for social sustainability, planet for environmental sustainability, and prosperity for economic sustainability), as well as governance and scalability/replicability. For each of these five categories, correlating indicators have been identified (Fig.3). A smart city approach to protection of the environment, for example, is evaluated using indicators such as efficiency and climate mitigation performance. Cities and local governments were involved in the project from the start, and indicators were developed in collaboration with them. It necessarily requires a multifaceted approach, devoting to the effort to break down silos in urban project design and implementation [2].

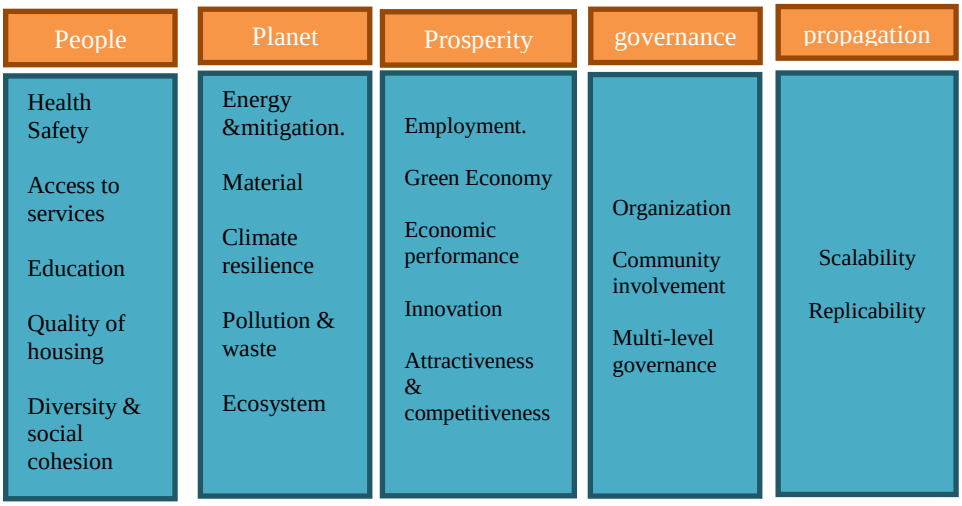

Figure 3: Five evaluation indicators categories of CITYKeys(Source: Authors, 2021)

III. CHARACTERISTICS OF A SMART CITY WHICH LEADS TO HAPPY CITY

"Smart city" concept can be reviewed within 3 dimensions: Technology, Human and Institutional (see Fig.4.). [3]

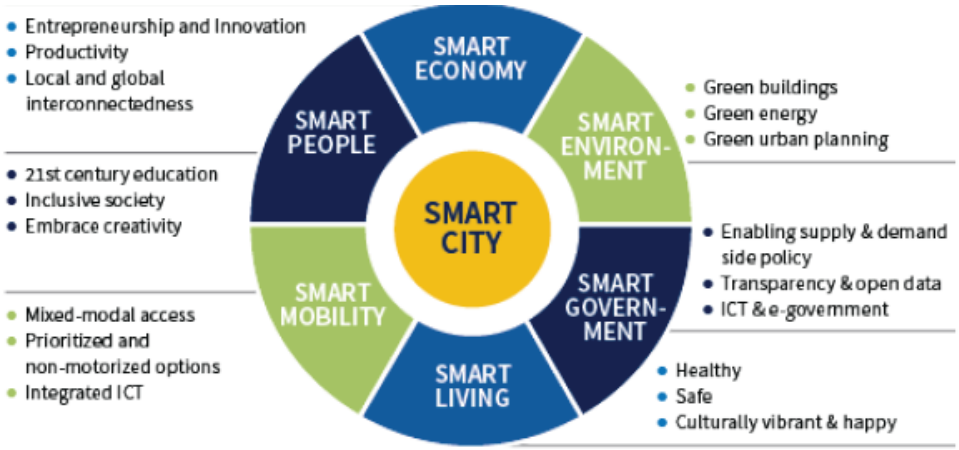

Figure 4: Characteristics of a smart City (Source: Authors, 2021)

IV. HAPPINESS-RELEVANT CIRCUMSTANTIAL FACTORS

A lot of research studies on the how people affect the environment, but none of it are researching on the how the environment influence the people. Issues like waste management, air quality and greenhouse gas emissions are actually having a big impact to our levels of happiness and wellbeing in our life.

V. HAPPINESS-RELEVANT USER'S ACTIVITIES

Urban Public park function as theatre for public encourage activity. As Shown in (Fig. 5) in the top Al khaledeen public 1990 and there is happiness in its design. The architect chooses to respect the nature by without remove any trees from the park,This design makes a gently transition between the park, square and the historic neighbourhood in Alexandria. And in the bottom in this (Fig.6)for Alkhaledeen public park after developments we can notice that there is no green areas like before , it transformed to a concrete building with cafes. (Fig.6).

Figure 5: Al khaledeen public park (before on the top 1990 and after on the bottom 2021 (Source: https://www.facebook.com/AlexandriaCitizens/posts/3608311959296086/)

Figure 6: Al khaledeen public park elevation to the sea side 2021. (Source: https://ar-ar.facebook.com/alexhabebti/posts/3280973638608074/)

VI. HAPPINESS IN THE CITY

Plato's statement that "the city is what it is because our citizens are what they are" serves as a good reminder of how important people are in any consideration of a city, and thus the well-being of people in the city is essential. This is especially important because cities are expected to house 75% of the world's population by 2050. Such perspectives contrast with definitions that lack the spirit of a city, such as "an urban geographical area with one (or more) local government and planning authorities." (International Telecommunications Union, 2016) [4].

Gehl believes that city planners should strive to create cities that are liveable, safe, sustainable, and healthy, emphasising four characteristics. A walk should be useful, safe, comfortable, and interesting to him. Walking is thus encouraged, increasing the likelihood of social interactions as people pass each other at walking pace rather than at speed with the physical barrier of cars[5].

The difference now is that, as digital technology becomes more widely available, it provides even more opportunities to improve one's quality of life. The world is currently experiencing the fourth industrial revolution (4IR), in which technology is fusing the physical, digital, and biological worlds, promising people even more value City planning (physical, organisational, informational, and so on) must therefore support the aforementioned benefits of the city, and technology may be used to enhance such support, potentially leading to a happier city. [6].

1.1 Feedback Loop: Measures, Tools, & Interventions

At various levels of sophistication, any organisation operates a feedback loop in which actions are based on some reasoning and insight extracted from data. This is the classic feedback loop, and data for a smart city (or otherwise) can be obtained from a variety of sources, including observation, surveys, and digital sources such as IoT (Internet of Things), database systems, and even general knowledge. Processing and insight collection can be carried out manually, using rudimentary algorithms, or using artificial intelligence.The solution could take several forms, including the immediate provision of personalised services or the modification of general service settings to improve efficiency. A smart city with advanced feedback loops is also known as a conscientious and responsive city ,or data-driven urbanism, which describes how cities are becoming increasingly instrumented and networked, their systems interconnected and merged, and vast troves of data generated used to manage urban life , Data-driven cities are becoming more common in the Fourth Industrial Revolution. (4IR) Formalized paraphrase .This part describes the many analogue and digital factors, and also feedback loop examples, that civic leaders may use to realise the promise of hugely complex ways to interact with residents, not just asking, but providing direct rebuttals to behavioural data, and creating an efficient city that works to deliver happiness[7].

1.2 Digital and analogue of the feedback loop (Fig.7)

1. Measure: Gathering behavioural data (e.g. telecommunications, retail data), and reported data (e.g. satisfaction scores).
2. Process: Analysing data and input and converting them into insights and recommendations (e.g. modelling and evaluation tools).
3. Respond: Acting in response to insights, automatically or manually, based on set criteria (e.g. activities, interventions, and policies).

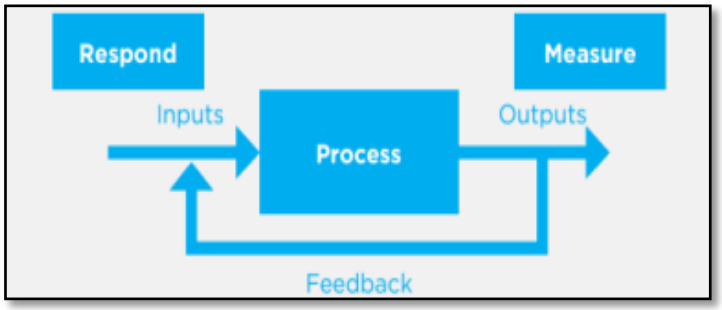

Figure 7: Digital and analogue, of the feedback loop(Source: The World Happiness Report 2020)[7]

1.3 Case: SHAPE Tool (Dubai, UAE)

Dubai's technological journey started in 1998 with the declaration of its first ICT strategy, and has since been followed by the establishment of Dubai Internet City, Dubai e-government, Dubai Smart Government, and, most recently, the Smart Dubai initiative, which was started up in 2014.Dubai's numerous digital transformation initiatives have fuelled public acceptance and adoption of ICTs in all aspects of life over the last two decades. Today, Dubai, a city of 2.5 million people and one of the seven Emirates of the United Arab Emirates, has one of the highest levels of ICT adoption in the region. According to His Highness Sheikh Mohammad Bin Rashid Al Maktoum, vice-president and prime minister of the Emirates and ruler of Dubai, technology, as a framework for solutions, is merely an enabler rather than the primary goal. The Smart Dubai initiative is bringing His Highness' vision of making Dubai "the happiest city on the planet" to fruition.

Dubai unveiled Smart Dubai 2021, a five-year strategy, in 2017. The new strategy explicitly shifts the strategic focus from enabling to having a significant positive impact on the city through digital transformation.

The 'Smart Happiness Index' was developed in partnership with the Gallup Organization (SHI). Happiness is linked to the six elements of the Smart Dubai 2021 Strategy via this compound index derived from quantitative data research: economics, people and society, governance, mobility, environment, and living. The project has since moved on to the next stage, which is the development of a decision tool known as the Smart Happiness

Project Evaluation tool (SHAPEThe tool considers different KPIs within the city plan's six pillars and provides weighting based on the relationship between these KPIs and sample satisfaction, using data from over 4300 Dubai residents as a representative sample (from all segments of society, including resident expats and citizens). When calculating the index for each project, the programme takes into account a number of other factors. One such factor is adaptation, in which the tool takes into account how long the benefits will last as well as how quickly and to what extent people will adapt to new projects or service improvements. Finally, based on the cost of the project under consideration, the tool computes a cost-effectiveness ratio. This ratio denotes the expected increase in happiness for each dirham spent. Users simply respond to a series of structured questions via a simple online interface, and the programme computes the SHAPE score and cost-effectiveness ratio, which they can then compare to other projects.Instead of being overly arbitrary, this gives the user a sense of the relative meaning of the figures. These findings offer data-driven insight into how much their project contributes to the city's happiness vision. This enables project managers to fine-tune and improve their projects, thereby increasing their effectiveness. The use of the tool facilitates planning and decision-making procedures in both the public and private sectors by allowing organisations to tailor projects for maximum durability and impact on happiness [8].

2 ENVIRONMENT

The quality of a city's natural environment has a significant impact on the happiness of its residents. This, on the other hand, has a direct local as well as a global impact., As a result, several environmental issues, including air quality, waste, energy and water use, and sustainability, must be addressed.

Some programmes, such as Quito's carbon and water footprint calculator, contribute to the city's overall environmental KPIs. The goal is to raise public awareness of the city's environmental impact (Source: Authors, 2021)

2.1 Case: Goodwill Waste (Seoul, South Korea)

The city managers in Seoul's 'Sharing City' faced the challenge of finding a workable balance between waste collection and disposal. The method proposed The Volume-based Garbage Collection Fee (VGCF) replaced the previous system, which was a property-based tax. The new system is based on the co-production principle, which is a collaboration between citizen and city and is similar to volunteering, giving residents a sense of civic engagement. Another consideration was the fee, which is determined by the amount of waste collected These two factors provided residents with an indirect incentive to recycle by encouraging them to sort their waste prior to collection, which reduced the fee they paid. From the start of the scheme in 1994 to the end of the scheme in 2000, the scheme was successful in changing behaviour, resulting in a 30% reduction in wasteper capita. The scheme also resulted in an increase in the amount of recyclable material collected, as well as an increase in residents' sense of civic engagement, which is a strong contributor to well-being. which is determined by the amount of waste collected. This is in addition to the fact that people were aware they were helping the environment, as well as the actual physical benefit of a more sustainable city .The roleand responsibility of the various stakeholders are listed in Table 1[9].

Table 1: Distribution of city waste - diminishing Functions (Source: Authors, 2021)

Entity	Role and responsibility
Ministryof Environment	To e stablish regulatory framework and develop strategies an d policies . To provide technical and financial support to local government.
Ministry of Trade, Industry, and Energy	To foster resource circulation industry . To develop new and renewable energy.
Ministry of Land, Infrastructure and Transport	To promote the use of recycled construction wastes. To introduce quality certification system for recycled aggregate.
Ministry of Oceans and Fisheries	To manage ocean waste including marine plastics.
Ministry of Agriculture, Food and Rural Affairs.	To manage compost and animal feed produced from organic wastes to produce energy from biomass.
Province, Metropolitan city.	To provide financial support to municipalities . To coordinate projects among municipalities.
City, County, District	To collect and dispose of municipal waste To install and operate waste disposal facilities.

Business, Developer	To dispose of industrial waste . To treat waste generating from development project.

3 LIVING ENABLERS

Though life in the city is influenced by many activities, there also exists the location and space itself as the physical substrate and the many other urban structures to enable living in the city. These structures take various forms, concepts and scales, such as green & blue spaces, housing, safety, infrastructure, urban planning, and connectivity[7]

4 HAPPINESS INDICATORS GNH (GROSS NATIONAL HAPPINESS INDEX)

The Global Happiness Index is a research-based indicator for measuring happiness in countries across the world. Happiness is shaped by a range of factors. The United Nations General Assembly adopted a resolution in 2011 imploring states to assess the happiness of their citizens in order to guide policy. The United Nations began its work on happiness and well-being in 2012, with the goal of building a clear economic structure. Dubai formed the world's first Ministry of Happiness in 2016. What elements affect to people's happiness? Individual and national wealth do not entirely define the global happiness standard. Other indicators, however, are highlighted in the classification method. (2015 GNH Survey Report, 2018) [10].See Table2.

Table 2: GNH classification mechanism (Source : Authors, 2021)

Living standards	Ecological diversity and resilience	Psychological wellbeing	Health	Time Use	Community Vitality	Education
Assets	Ecological issues	Life satisfaction	Mental health	Work	Donations(time & money)	Literacy
Housing	Responsibility towardsthe environment	Positive emotions	Self-reported health status		Community relation- ship	Schooling
	Wildlifedamage (Rural)					
Household per capitalincome	Urbanizations issues	Negative emotions spirituality	Healthy days	Sleep	Family	Knowledge
			Disability		Safety	Value

5 THE LONDON SUSTAINABLE DEVELOPMENT COMMISSION(LSDC)

The Commission was set up in 2002 to provide advice to the Mayor of London on ways of making the city more sustainable. It is an independent organisation that reaches policymakers in order to encourage a better lifestyle for all Londoners now and in the future, even while take into consideration London's globalised impacts. The Commission is comprised of individuals with expertise in the economic, social, environmental, and London governance sectors. The LSDC aims that the QoL measures will be useful to other Londoners. This should be indicated that these indicators are supervised by the Mayor, cities, businesses, central government, and other private and public sector stakeholders all through London (Table 3) [11].

Table 3: LSDC indicators(Source : London's Quality of Life Indicators Report, 2017) [11].

Social Indicators	Economic Indicators	Environmental Indicators
• Education:primary	• Gross ValueAdded	• Trafficvolumes
• Education:secondary	• Incomeinequality	• Airquality
• Childcare	• Employmentrates	• Travel to school
• Crime	• Businesssurvival	• Access tonature
• Decenthousing	• Humancapital	• Birdpopulations
• Lifeexpectancy	• Innovation	• Ecologicalfootprint
• Physicalactivity	• Childpoverty	• Flooding
• Satisfaction withLondon	• Fuelpoverty	• Householdrecycling
• Happiness	• Housingaffordability	• Waterconsumption
• Voting	• London LivingWage	• Waste
• Volunteering	• Carbonefficiency	• Recycling
• Healthy LifeExpectancy	• Low carbon	• NO_xEmissions

• Socialintegration , travel • travel	andenvironmentaljobs • kills	• CO_2Emissions

Hence,thequalityoflifeindicatorsplayanimportantroleinthedevelopmentofurbancommunitiesthrough the following stages a proposal for indicators are illustrated below in Fig.8:

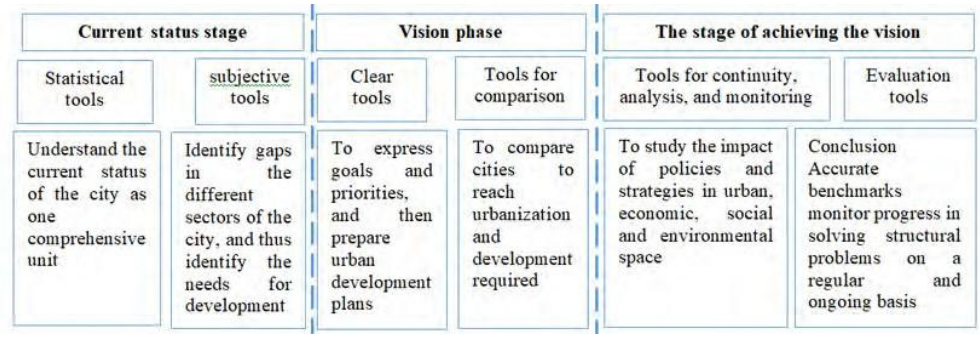

Figure 8: Proposed quality of life indicators(Source: Authors, 2021)

VII. CONCLUSION

When discussing the concept of a "smart happy city," people may consider technology to be a key component. However, in order to avoid an exclusive focus on technology, a broader and more inclusive scope is worth considering in order to redefine smart cities. In this context, smarter means making better use of resources, methods, and techniques(including high technology).The results of the analysis of the definitions and concepts of the smart city suggest that the following three are the key issues:

1. Infrastructures are central to the smart city concept. Technology is an enabling factor for smart cities, but it is not always the most critical factor. It is critical to combine, connect, and maintain the integrity of systems and infrastructures in order to create a smart city. The primary systems are not discrete and separate, but rather are transformed into a multifaceted system of connected multicast systems in a synergistic manner that distributes better performance.
2. Processes (how a smart city arises) play a key role in definitions. A huge change in the way services are delivered is an important factor of the smart city, and the smart city is primarily important to the development of services rather than with technology.
3. Vision for a better future is importantA smart city must forecast the smart economy, smart governance, smart mobility, smart environment, smart people, smart living, and how they will interact. However, having a vision for intelligent is insufficient; actions in the fields of legislation, policy, and organizational change are required. On the other hand, infiltrating intelligence into each subsystem of a city is insufficient to create a smart city; these dimensions must be considered as an organic whole. The key point is that cities must be responsive to the context in which they operate, and what constitutes intelligence is dependent on a variety of contexts (texture and context), such as the political system, geographic conditions, and technology diffusion. Smart solutions, in fact, cannot be copied and must be valued in different fields. Cities cannot easily copy good methods, but must develop approaches that are appropriate to theirconditionsbecausethereareтwocitieswiththesameconditions.For now, I can foresee that these factors and strategies will become reference tools to make Alexandria smart happy city, as it will aim to design positive user experiences and set city shaping happy city policy in the future planning and design.in Alexandria.

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DR / LAMIAA SHAHEEN. "Smart Happy City." *IOSR Journal of Engineering (IOSRJEN),* 12(8), 2022, pp. 10-18.