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RESEARCH PAPER

Assessing Local Community's Perception Towards the Development of Smart City in Small Island Developing States (SIDS): Evidence from Mauritius

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ABSTRACT

PURPOSE: As local communities are embedded into the development of smart cities, their perceptions and attitudes towards these projects are crucial to ensure sustainable socio-economic development. This paper aims at assessing local community's perception towards the development of smart cities in Mauritius.

DESIGN/METHODOLOGY/APPROACH: A quantitative survey-based research was employed to achieve the aim of the study. Using a stratified random sampling technique, the questionnaire was administered among 413 respondents residing in the vicinity of 6 smart cities in Mauritius. The data were processed using the IBM SPSS Statistics V20.0. Exploratory Factor Analysis (EFA) was conducted to extract the new factor structure and to examine the construct validity.

FINDINGS: Findings of the study revealed that smart cities are well perceived by local residents based on the economic, social and technological perceived benefits that are associated with these projects. This paper also stresses the importance of adopting an holistic approach in the development of smart cities by articulating technology and local citizens' engagement.

ORIGINALITY/VALUE: This paper contributes to the current understanding of the factors affecting local residents' perceptions towards the development of smart cities. Findings are relevant to planners, policy-makers and smart city developers in shaping residents' attitudes towards smart city development. The present research also attempts to fill in an apparent gap in the literature on smart city development in a SIDS context.

KEY WORDS: *Smart City; SIDS Economies; Urbanisation; Perceptions; Sustainable Development; Mauritius*

INTRODUCTION

Cities pose many challenges, including over-population, diminished resources, and continuous climate changes (Georgiadis *et al*., 2021:1). Emerging at the beginning of the 21st century, smart cities that represent the precursor of sustainable development aim to tackle environmental, economic and social challenges (Venkatachalam, 2020). The United Nations Department of Economic and Social Affairs (DESA) 2030 Agenda for Sustainable Development, contends that cities have an important role in ensuring sustainable development by "*making cities and human settlements inclusive, safe, resilient, and sustainable*" (Goal 11). In a similar vein, Georgiadis *et al*. (2021:1) affirm that an inclusive smart city development should focus on the citizens who are the primary beneficiaries of the things and services a smart city can offer.

A community's perceptions towards the development of smart cities have emerged as an important field of study in the literature on sustainable urbanisation. According to Borsekova *et al*. (2016:51), the existing literature widely acknowledges the community as an integral part of sustainable socio-economic urban development. Since smart city projects imply both positive and negative spillover effects on the community at large, urbanists and policy-makers are increasingly faced with the challenge of balancing economic, social and ecological sustainability to the community, now and in the medium and long term. Arguing that the impact of rapid urbanisation on local communities should not be overlooked, Schelings and Elsen (2017:1) suggest that the study of citizens' perception towards smart cities should be a prerequisite for assessing any smart city sustainability scheme. Moreover, Stratigea (2012:375) notes that the construction of smart cities should be an inclusive community development without undermining the livelihood of local residents.

Mauritius, an island situated approximately 2,400 kilometres off the south east coast of Africa and covering an area of 1,865 square kilometres, is one of the Small Island Developing States (SIDS) that initiated smart city projects in 2015. The Smart City Scheme launched by the government aimed to develop innovative and sustainable futuristic cities that are expected to contribute extensively to the socio-economic development of the island through the creation of jobs and an increase in economic activities (EDB, 2019). However, the country should ensure that smart city projects balance economic, environmental, social and governance sustainability while upholding an inclusive community development. Although existing literature presents strategies for an integral development of smart city projects without jeopardising the livelihood of local residents, it is unclear if these measures can be applied in a SIDS context such as Mauritius since the conceptualisation of these projects remains highly heterogeneous (Tan and Taeihagh, 2020:1). A review of the extant literature reveals that the local community's perception towards the impact of the smart city development in a SIDS context has been largely overlooked.

Therefore, this study attempts to fill the research gap related knowledge on rapid urbanisation and smart cities in the context of a SIDS. New empirical insights and the deeper understanding obtained from the study will help urbanists, real estate developers, investors and policy-makers to make informed decisions regarding the planning and management of existing and new smart cities that balance ecological, social and economic objectives. The study also enables the community to provide inputs to government policies through shared insights or from a community-based perspective.

LITERATURE REVIEW

The Smart City Concept

Although sustainable development of urban settlements has been the major preoccupation of both architects and administrators since ancient times, the term smart city first appeared in the 1990s (Deakin and Mora, 2019:x; Monfaredzadeh and Krueger, 2015:1112). According to Tan and Taeihagh (2020:1), smart cities have been mainly driven by technology displaying new levels of innovation capabilities, and the need to address problems related to efficiency and sustainability. Defined as intelligent and hi-tech cities with problem-solving capabilities (Sharma and Rajput, 2017:v), smart cities represent the reflection of development and opportunities in a nation. According to Benna and Benna (2018:222), advantages associated with the development of smart cities through the deployment of modernised infrastructure include the promotion of economic opportunity, improvement in governance and better quality of life for the local community. Realising the socio-economic and ecological importance of smart cities, many developed and developing countries, including India, China, South Africa, USA, UK, France and Brazil, have embarked on smart city initiatives. According to a report from the International Data Corporation (IDC), smart city technology spending reached US$80 billion in 2016, and is expected to grow to US$135 billion by 2021 across the globe.

Smart Cities' Attributes

According to Appio *et al*. (2019:3), smart cities are based on three main attributes, Physical Infrastructure (PI), Quality of Life (QL), and Innovation Ecosystems (IE). Considered as the backbone to any effective smart city strategy, PI includes large-scale physical facilities associated with the development of cities and regions. Da Silva and Flauzino (2016:59) categorise these infrastructures into three, physical infrastructure (building, roads, transportation and power plants), digital infrastructure (Information & Communication Technology—ICT) and Service Infrastructure (education and health care). Within the smart city context, citizens' QL is also enhanced through the intelligent dynamic infrastructure, new services, economic activity, and improved mobility, as well as the attainment of the efficiency energy criteria. However, the impact of smart cities on citizens' QL is still insufficiently investigated (Wolfram, 2018:20). The third element (IE) allows city services to be supported by the deployment of a large-scale Internet of Things (IoT) infrastructure and Augmented Reality (AR). These services include environmental management, parking management, traffic management, automated irrigation systems for parks and gardens, and tourist and cultural information.

Perception

The word "perception" comes from the Latin words *perceptio, percipio*, and means "receiving, collecting, action of taking possession, and apprehension with the mind or senses" (Qiong, 2017:18). It is defined as the interpretation of the sensory stimuli received from the environment (Cabıoğlu and Iseri, 2015:1). In simple terms, perception relates to:

a. the way someone thinks about something and their idea of what it is like;
b. the way that someone notices things with their senses of sight and hearing;
c. their natural ability to understand or notice things quickly (Longman, 2021).

According to Qiong (2017:18), the perception process consists of three stages:

1. selection (converting the environment stimuli into meaningful experience);
2. organisation (organising the selected information in some way by finding certain meaningful patterns); and
3. interpretation (attaching meaning to the selected stimuli).

The theories of cognitive appraisal stipulate that, faced with an external environmental stimulus, individuals will respond positively or negatively through a complex, cognition-involving evaluation process (Lazarus, 1991). Cognitive appraisal refers to the personal interpretation of a situation that ultimately influences the extent to which the situation is perceived as stressful.

The theories of cognitive appraisal further suggest that the evaluation process involves two key dimensions, individual relevance and individual coping abilities (Scherer and Moors, 2019). According to Li and Tsai (2014), individual relevance refers to the degree to which an external stimulus is perceived as being related to an individual's life, while individual coping ability refers to whether an individual is capable of coping with the external stimuli in question. With respect to the development of smart cities, these two dimensions of the evaluation process, potentially generate perceptions of convenience as well as stress (with stress referring to negative feelings) (Scherer and Moors, 2019). According to Yu *et al*. (2020), a sense of stress is likely to be developed when local residents perceive that they might not adapt to the development of smart cities. On the other hand, positive feelings are developed towards smart cities when they perceive that such projects will have a positive impact on their livelihood and their region as a whole.

PERCEIVED BENEFITS OF SMART CITY DEVELOPMENT

Perceived benefits refer to the perception of the positive consequences that are caused by a specific action (Leung, 2013). According to Yu *et al*. (2020), the perceived benefits of smart city development (i.e., namely the economic benefits, sustainable development and smart infrastructure) positively influence the local community's support towards such projects.

Perceived economic benefits refer to the perception that smart cities will bring economic benefits to the region, such as creation of jobs, decrease in poverty, fall in crime rate and an increased income; in turn, these may lead to a strong economy, better quality of life and prosperity (Musa, 2017:6; Turečková and Nevima, 2020:1). Moreover, Lytras and Visvizi (2018:107) consider that smart cities have high potential to create jobs for disadvantaged groups in order to facilitate their social integration, while Mboup and Oyelaran-Oyeyinka (2019:141) note that the increase in municipal tax collection from smart city projects can be invested to increase the quality of life of the local community. Likewise, in Mauritius the establishment of the smart city is expected to contribute to economic prosperity by creating thousands of jobs.

Perceived sustainable development refers to the perception that smart cities will promote sustainability and realise better efficiency, as well as achieving reuse and combatting scarcity. Sustainability is inevitably one of the key attributes in the design and development of smart cities. Sustainable use of resources is achieved through artificial intelligence, big data and the Internet of Things (IoT), among other smart technologies. Moreover, social sustainability in smart cities is achieved through the creation of social equity, cohesion and inclusion (Mappiasse, 2015:4). The perception of sustainable development can therefore involve the sense of having a better living environment that, in turn, contributes to a positive attitude towards smart cities (Yu *et al*., 2020).

Perceived smart infrastructure refers to the perception of the smartness of urban infrastructure, including the intelligence of transportation systems and logistic systems (Yu *et al*., 2020). These infrastructure systems form part of the local residents' daily lives. For example, Tan *et al*. (2014:392) found that smart cities lead to an improved and secured transportation system within the region. In addition, the development of smart cities calls for the establishment of schools, colleges and universities to develop human resources. This infrastructure opens access to quality education to the people living within the vicinity of smart cities.

The local community will develop a favourable perception towards smart city projects if their quality of life is improved through the application of smart solutions, access to better infrastructure and the creation of job among the poor (Mohan, 2017).

PERCEIVED COSTS OF SMART CITY DEVELOPMENT

The perceived negative impact/costs of smart city development directly influence the support from the local community. Drawing from the cognitive appraisal theory, negative impacts perceived from smart cities will have a negative influence on the community's support towards such developments. For example, Chugh (2019:1) identified several drawbacks associated with the development of smart cities. These include:

(i) a rise in crime rates due to an increase in migration rate;
(ii) road congestion leading to more transportation vows;
(iii) depriving the poor and uneducated people to have access technology-based services; and
(iv) social segregation in the society.

METHODOLOGY

To quantitatively analyse local residents' perceptions towards the development of smart cities, a structured questionnaire was used as the main instrument for data collection. According to Ramchander (2004:111), questionnaires have been widely used by researchers to measure perceptions in different contexts. For example, Allen *et al*. (1993) and Vidal Rua (2020) used questionnaires to measure residents' perceptions towards tourism. The questionnaire items were constructed and adapted from existing literature.

The research instrument comprised of several parts each covering different aspects such as (i) the demographic profile of the respondents, (ii) the comfortability, willingness and readiness of the local community to accept the construction of smart cities, and (iii) the perception of the local community on the development of the smart city. Local residents' perceptions towards the development of smart cities were assessed on five-point Likert scale (1: Strongly Disagree, 5: Strongly Agree) and nominal scale (1: Yes, 2: No). The research instrument was pilot tested among 15 randomly selected participants to assess validity issues. As no ambiguity or inconsistency were noted in the way the questions were structured and presented, the researchers proceeded with data collection from the inhabitants residing near to smart cites using the survey method.

Unit of Analysis and Study Population

In this study, the unit of analysis has been defined as a person residing within the vicinity of the six identified smart cities: St Felix Smart City, Highlands Smart City, Moka Smart City, Medine Smart City, Mon Tresor Smart City, and Jin Fei Smart city. These registered smart cities in Mauritius have reached an advanced developmental stage compared to the other smart cities that have been issued a letter of intent by the Economic Development Board (EDB). Based on the location information provided by GoogleMaps, the villages within the proximity of each smart city were identified. The number of people residing within the vicinity of the respective smart cities was computed from data retrieved from Electoral Supervisory Commission's website and Statistics Mauritius. According to the statistics compiled by Statistics Mauritius (2017) and the Electoral Supervisory Commission, there were around 242,743 people who reside near to these 6 smart cities.

Sample Size

Although the sample size for this study is estimated at 383 (based on the confidence interval 95%, n=242,743), the questionnaire was administered among 500 respondents who were drawn randomly using a stratified sampling method. The completed questionnaires were then verified and checked to identify any blank or irrelevant answers. After scrutinising the accuracy and completeness in all the questionnaires, 413 questionnaires (82.6%) were retained for further analysis. The data were thereafter coded and entered into the Statistical Package for Social Sciences (SPSS) Version 20.

Internal Consistency of the Questionnaire

The Cronbach's Alpha overall value for the entire questionnaire was 0.667; this infers that the questionnaire was a good indicator of what the researcher wanted to investigate. A coefficient of less than 0.6 indicates marginal to low internal consistency (Hair *et al*., 2006), and a value of 0.60 or more indicates satisfactory internal consistency reliability (Churchill, 1979).

ANALYSIS AND RESULTS

Demographic Profile of Respondents (Table 1)

Of the respondents, 54.7% (n=226) reside close to Highlands, 12.6% (n=52) live near to St Felix, and 9.4% (n=39) stay close to Moka. Region wise, 64.1% (n=265) of the respondents reside in the urban region (Highlands and Moka) while the remaining 35.9% (n=148) reside in the rural region.

Concerning the respondents' monthly income, 27.8% (n=115) drew a salary of Rs20,001-Rs30,000 (US$426-640); 19.1% (n=79) earned between Rs40,001 (US$853) and Rs50,000 (US$1,067); 16.5% (n=68) received a salary below Rs10,000 (US$213); 15.3% (n=63) earned between Rs30,001 (US$640) to Rs40,000 (US$853), 11.1% (n=46) received between Rs10, 001 (US$213) to Rs20,000 (US$426) while the remaining 10.2% (n=42) were paid an income in excess of Rs50,000 (US$1,067).

Regarding the respondents' educational level, the majority of the respondents (79.9%, n=330) were educated, with 17.9% (n=74) holding a post-graduate qualification, 25.9% (n=107) having an undergraduate degree; 21.6% (n=89) having studied up the Highest School Certificate (HSC); 14.5% (n=60) were holders of a School Certificate (SC); 7% (n=29) studied up to the SC level but who are not holder of the certificate, 8% (n=33) completed the primary school (CPE) and the remaining 5.1% (n=21) had no formal education.

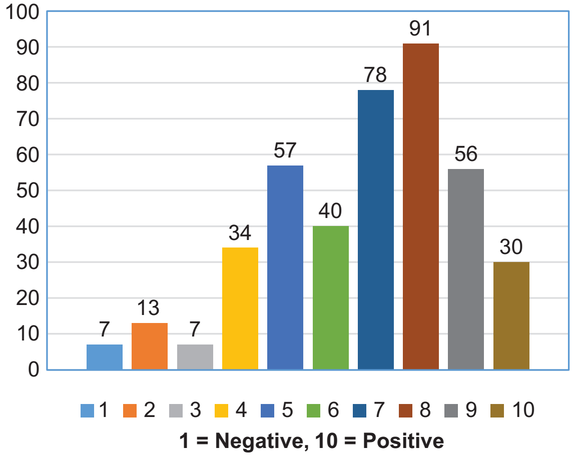
Table 1: Demographic Profile of Respondents

Variables	Attributes	Frequency	Percentage
Gender	Male	157	38.0
	Female	165	40.0
	Prefer not to say	91	22.0
Age group	20 or less	77	18.6
	21-30	107	25.9
	31-40	84	20.3
	41-50	73	17.7
	51-60	42	10.2
	Above 60	30	7.3
Nearest Smart City	Highlands	226	54.7
	Moka	39	9.4
	St Felix	52	12.6
	Medine Bambous	37	9.0
	Mon Tresor	25	6.1
	Jin Fei	34	8.2
Monthly income level (Rs)	10,000 or less	68	16.5
	10,001-20,000	46	11.1
	20,001-30,000	115	27.8
	30,001-40,000	63	15.3
	40,001-50,000	79	19.1
	More than 50,000	42	10.2
Highest level of education	No education	21	5.1
	Certificate of Primary Education (CPE)	33	8.0
	CPE but without School Certificate (SC)	29	7.0
	SC	60	14.5
	HSC (Higher School Certificate)	89	21.6
	Undergraduate	107	25.9
	Postgraduate	74	17.9

Source: Constructed by authors

GENERAL PERCEPTION TOWARDS THE DEVELOPMENT OF SMART CITIES (FIGURE 1)

A majority of 70.9% (n=293) respondents stated that they were comfortable with the construction of a smart city within their locality. A total of 74.1% (n=306) of the respondents affirmed that they were keen to accommodate these projects, and a majority of them (64.9%, n=268) asserted that they were ready to adapt to changes that the smart city would bring to their locality. The study findings also revealed that respondents positively perceived the establishment of a smart city within their locality (mean score of 6.76 on a scale of 1 to 10, 1 being negative and 10 being positive).



Statistics

Rating the impact of Smart City Project on the local community

N	Valid	413
	Missing	0
Mean		6.76
Std. Deviation		2.105

Figure 1: Impact of Smart City Project on the Local Community

Source: Constructed by authors

CROSS-SECTIONAL ANALYSIS

A cross-sectional analysis was conducted to verify whether there was any association between respondents' perception of the impact the smart city project on the local community and residential areas, the latter being recoded as either urban or rural, based on the proximity of the nearest smart city to residential areas of respondents. Highlands and Moka were categorised as urban, while the remaining four smart cities were classified as rural. A Shapiro-Wilk test revealed that the test variable (rating of impact) did not follow the normal distribution (W (413) = 0.941, $p < 0.01$), thus favouring non-parametric testing. A Mann-Whitney U test was used to determine the significance of the association between perception of the impact the smart city project on the local community and residential areas. The results are given in Table 2.

Table 2: Association between Perception of the Impact the Smart City Project on the Local Community and Residential Area

Variable	Operational Measures	Statistic	*p*-value
Residential area	Nominal (urban, rural)	0.552	0.581

Source: Constructed by authors

Results showed that respondents' residential area ($z = 0.552$, $p = 0.581$) was not significantly associated with their perception of the impact the smart city project on the local community.

EXPLORATORY FACTOR ANALYSIS

Exploratory factor analyses (EFAs) were conducted to statistically reduce the number of factors from the larger number of measured variables (Zikmund *et al*., 2013:593). The criteria that favoured the possible factorability of the 26 items were assessed as follows (Table 3):

1. the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.671, above the recommended value of 0.5 (Field, 2005);
2. Bartlett's test of sphericity was significant (χ^2 (325) = 780.385, $p < 0.01$);
3. the diagonals of the anti-image correlation matrix were all over 0.5, supporting the inclusion of each item in the factor analysis;
4. communalities above 0.17 showed that each item shared at least some common variance with other items.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.671
Bartlett's Test of Sphericity	Approx. Chi-Square	780.385
	df	325
	Sig.	0.000

Source: Constructed by authors

The above results confirm that the data were suitable to be evaluated with factor analyses. Principal Components Analysis (PCA) was used to extract the underlying factors, based on the Kaiser method (eigenvalues exceeding 1). Initially, nine factors were extracted, but results were cross-checked by way of the elbow of the SPSS-generated scree plot (Figure 2); this showed that a four-factor solution was more plausible (a clear break was revealed after the fifth factor). Moreover, similar results were obtained when parallel analysis was conducted through the Monte Carlo simulation (Table 4).

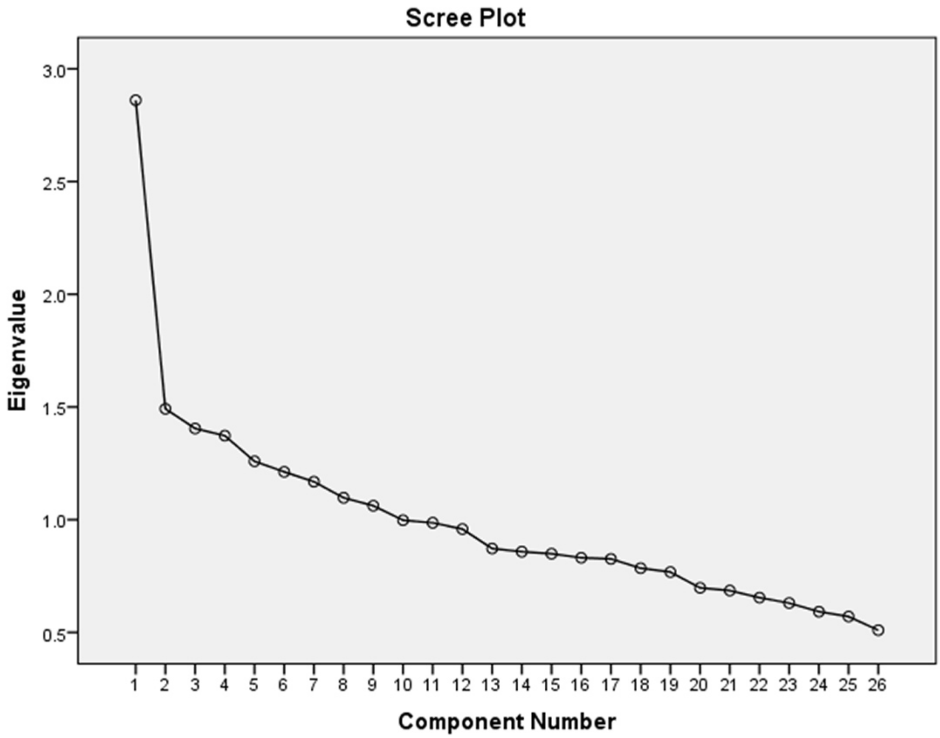


Figure 2: Scree Plot
Source: Constructed by authors

Table 4: Eigenvalues (Monte Carlo Simulation)

Eigenvalue #	Eigenvalue (PCA)	Eigenvalue (Monte Carlo)
1	**2.861**	1.4827
2	**1.492**	1.4110
3	**1.404**	1.3577
4	**1.373**	1.3064
5	1.259	**1.2662**
6	1.212	1.2273

Note: Number of variables—26; Number of subjects—413; Number of replications—100
Source: Constructed by authors

Table 5 shows that the first simulated eigenvalue to exceed the PCA eigenvalues obtained in SPSS is the fifth one, implying that four factors had to be extracted. Thereafter, PCA was run once more, with Varimax rotation, in SPSS to extract exactly four factors. These four factors explained a total variance of 27.4% (Table 5).

Table 5: Exploratory Factor Analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.861	11.003	11.003	2.861	11.003	11.003	1.893	7.282	7.282
2	1.492	5.738	16.741	1.492	5.738	16.741	1.787	6.871	14.153
3	1.404	5.402	22.143	1.404	5.402	22.143	1.742	6.700	20.853
4	1.373	5.280	**27.423**	1.373	5.280	27.423	1.708	6.570	27.423
5	1.259	4.843	32.266						
6	1.212	4.663	36.928						
7	1.168	4.494	41.422						
8	1.097	4.221	45.643						
9	1.062	4.084	49.727						
10	.998	3.837	53.564						

Notes:

The four factors explained a total variance of 27.4%

Factor 1 (*8 items*) explained 11% of the variance with factor loadings from 0.419 to 0.621

Factor 2 (*6 items*) explained 5.7% of the variance with factor loadings from 0.443 to 0.547

Factor 3 (*6 items*) explained 5.4% of the variance with factor loadings from 0.434 to 0.547

Factor 4 (*6 items*) explained 5.2% of the variance with factor loadings from 0.403 to 0.618

Internal consistency for each scale was examined using Cronbach's alpha. The alphas were relatively moderate: 0.708 for Factor 1, 0.650 for Factor 2, 0.603 for Factor 3 and 0.597 for Factor 4

Source: Constructed by authors

FACTOR 1: ECONOMIC, SOCIAL AND INFRASTRUCTURAL DEVELOPMENT (TABLE 6)

The first factor was labelled as "Economic, Social and Infrastructural Development" since respondents perceive that smart cities entail several benefits to the economy and the society as whole, such as (i) an increased in economic activities, (ii) improvement in the transport system, (iii) better infrastructure, and (iv) improved quality of life. These findings are consistent with Mora and Bolici's (2017:256) study that concluded that smart cities contribute significantly to a country's economic growth. Respondents also consider that smart cities have the potential of making Mauritius attractive to foreign investors. The economic and infrastructural development positively contributes to the well-being of the community.

Table 6: Economic, Social and Infrastructural Development

Factor Items	Factor Loading	Eigen Values	% of Variance Explained	α
Factor 1: Economic, Social and Infrastructural Development		**2.861**	**11**	**0.708**
Smart cities will strengthen the foundations for economic growth.	0.621			
Smart cities will increase the commercial activities within the local community.	0.609			
Smart cities will improve the quality of life of local inhabitants.	0.478			
Smart cities will improve the governance in the city by making it citizen-friendly and cost-effective.	0.449			
The economic activities around smart cities will lead to traffic congestion in the locality.	0.439			
The local community will benefit from the improved infrastructure surrounding smart cities.	0.424			
Smart cities will promote a variety of transport options.	0.422			
Smart cities will make Mauritius economically attractive to foreign countries.	0.419			

Source: Constructed by authors

FACTOR 2: SUSTAINABLE DEVELOPMENT

The second factor has been labelled as "sustainable development" since respondents perceive that smart city is based on the principles of sustainability principles including the use of renewable sources of energy and a proper management of waste. Sustainable development is defined as "*a development that meets the needs of the present generation without compromising the ability of* *future generations to meet their own needs in which the economy, environment and social equity become the priority*". (WCED, 1987). Sustainable development has been the major preoccupation of governments, corporates and citizens (Jasrotia, 2018:42). Respondents also consider smart cities can ensure social sustainability by reducing the gap between the rich and the poor (Table 7).

Table 7: Sustainable Development

Factor Items	Factor Loading	Eigen Values	% of Variance Explained	α
Factor 2: Sustainable development		**1.492**	**5.7**	**0.650**
Smart cities discourage deforestation among the local community.	0.547			
Smart cities will reduce the gap between the rich and the poor.	0.538			
Smart cities will make efficient use of natural resources.	0.494			
Smart cities will not affect the quality of the air as it will primarily use renewable sources of energy.	0.469			
Smart cities will make economic activity more environmental-friendly.	0.489			
Smart cities will not affect the environment as there will be proper management of waste.	0.443			

Source: Constructed by authors

FACTOR 3: SOCIAL INNOVATION AND TECHNOLOGY DIFFUSION

The third factor influencing the community's perception towards smart cities development was categorised as "Social Innovation & Technology Diffusion" since respondents consider that (i) their life styles will change positively, and (ii) they will benefit from the innovative clusters, modern and sustainable infrastructure as well as smart technologies. Respondents perceived that their social lives would improve considerably through the interactions and cultural exchanges with the residents of the smart city. These findings correspond to the study by Khatoun and Zeadally (2016). The implementation of socially innovative solutions also ensures that social needs are met in a better way than existing solutions (i.e., social innovation). Furthermore, the local community will benefit from improved service delivery due to the use of technology throughout the different stages of the operations (Harmon *et al*., 2015:1). The increasing use of technology may also change the community's behaviour and attitude towards the use of ICT, that is crucial in driving the country and the region towards a higher level of development (Table 8).

Table 8: Social and Technology Innovation

Factor Items	Factor Loading	Eigen Values	% of Variance Explained	α
Factor 3: Social Innovation & Technology Diffusion		**1.404**	**5.4**	**0.603**
The local community will benefit from the innovative clusters, modern and sustainable infrastructure and smart technologies of smart cities.	0.569			
Smart cities will create jobs in my neighbourhood.	0.471			
Smart cities will positively change the lifestyle of local inhabitants.	0.451			
Smart cities will reduce poverty among the local community.	0.441			
The implementation of a smart city within my locality will affect the supply of water and food within the locality.	0.438			
The local inhabitants will be more conscious of the sustainable use of resources.	0.434			

Source: Constructed by authors

FACTOR 4: BETTER QUALITY OF LIFE

The fourth factor was categorised as "Better quality of life" since the residents living within the region believed that smart cities would considerably improve their quality of life through economic independence, increased security, better social interactions, improved transport system and modernised physical infrastructure. These findings are consistent with Mohan's (2017) study that concluded that the quality of life of citizens was improved through the application of smart solutions and the creation of jobs among the poor, leading to inclusive cities (Table 9).

Table 9: Better Quality of Life

Factor Items	Factor Loading	Eigen Values	% of Variance Explained	α
Factor 4: Better Quality of Life		**1.373**	**5.3**	**0.597**
Smart cities will promote interactions among people in the local community.	0.618			
The implementation of smart cities will improve the transportation system.	0.475			
The cost of land around the smart cities will increase.	0.420			
In general, smart cities will modernise the physical fabric of Mauritius.	0.408			
Smart cities will provide better jobs to the local community.	0.408			
Smart cities will ensure security among the local community.	0.403			

Source: Constructed by authors

Composite scores were computed for four factors, based on the mean of the items that had their primary loadings on each factor. Factor 4—**Better Quality of Life** (M = 2.74, SD = 0.61) was considered to be the most beneficial aspect, followed by Factor 3—**Social innovation & Technology Diffusion** (M = 2.68, SD = 0.70), Factor 1—**Economic, Social and Infrastructural Development** (M = 2.67, SD = 0.61), and Factor 2—**Sustainable development** (M = 2.49, SD = 0.63). Overall, these analyses indicated that four factors underpinned the effects of implementing smart cities among local communities, and that these factors were moderately internally consistent.

PRACTICAL IMPLICATIONS

This study has several interesting practical implications to several policy-makers, including the government, construction and transport players and health authorities. In fact, the findings of this research are aligned with the national priorities of the government for attaining greater economic growth in the country through an increase in economic activities, improvement in the transport systems with better infrastructure, and enhancement of the quality of life of citizens. The government should consider smart city development in the context of Mauritius to promote greater economic, social and infrastructural development in specific regions such the Southern and Eastern part of the Island. By focusing on smart city projects on the Island, there will be greater potential to attract foreign investors in order to ensure the sustainability of our small island developing state.

This research also sheds light on interesting findings focusing on greater sustainable development that can be promoted through smart city projects in Mauritius. Smart city projects will enable the positioning of Mauritius as a sustainable island economy that will be pivoted on sustainability principles such as reduction in air pollution, prevention of deforestation, eco-friendly and green image of our island and use of renewable energy sources. The sustainable positioning of Mauritius will also enable attracting investors to Mauritius to uphold the country's economic growth.

This study also offers several benefits associated with smart city development to the local community. The local community is regarded as an important stakeholder in any country, irrespective of the country's economic growth. The first and foremost consideration of government is to cater for the citizens. The findings have shown that the local community has favourable attitudes on smart cities, and that the local community will benefit from innovative clusters, modern and sustainable infrastructure and smart technologies, job creation and better lifestyle of inhabitants. Therefore, these smart city projects can be promoted in specific parts of the island to cater for the social needs of the inhabitants. The findings can be equally cascaded to housing and construction players so that they take into consideration these aspects when developing smart city projects in Mauritius.

Another important practical implication of this research is centred around better quality of life associated with smart city projects. There have been several changes with the upheavals caused by COVID-19 around the world. The main priority of government and health authorities is to provide a better quality of life to citizens. Indeed, smart city projects will improve social interactions, better security, improved transport system, employment opportunities and modern infrastructure in Mauritius. These perceptions of the local community are in line with the priorities of any government body. In this respect, this research provides a firm stance for the development of smart cities in the context of Mauritius for improving inhabitants' quality of life.

LIMITATIONS OF THE STUDY AND SCOPE FOR FUTURE RESEARCH

As with all studies, this study also has limitations that can narrow down the scope of the conclusions. The first limitation pertains to the context in which the study has been conducted. The conclusions drawn from the study are primarily based on the respondents' current knowledge and perceptions of the smart city, which is a relatively new concept in Mauritius (most of the projects being in the early development stage). It is, therefore, recommended that future studies be undertaken to evaluate any change in the local community's perceptions at future developmental stages of the smart city. Generalisation of the findings may also be limited due to the unique study context (i.e., the geographical location and the socio-economic development of the country). Therefore, it is recommended that studies are conducted in other countries similar to Mauritius so as to strengthen and validate the findings of this study. Furthermore, since the sample size could have influenced the study outcome, it is recommended that future studies employ a larger sample size and include units from other smart cities that were not considered in the study. Since the quantitative research design might not have captured all the social and contextual factors influencing perceptions (such as people's personal circumstances, values, habits, social norms and lifestyle choices), it is recommended that future studies employ a mixed mode approach (QUAL/QUAN) to assess the community's perceptions towards smart city development. Context specific insights obtained from the qualitative study can thereafter be confirmed through the quantitative study. Finally, as smart cities become fully operational, further research can assess the achievement of the sustainable goals as well as the effectiveness of the systems and structure set in place to make the city "smart".

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