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SMART CITY: EFFICIENCY – EQUITY – SUSTAINABILITY FRAMEWORK

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ABSTRACT

The objective of this paper is to identify interpretative variables of smart city which as a phenomenon, is a result of the paradigm change in the business transaction of the commodity and services which has entered in the genesis of the stakeholders who require a change in the awareness, acceptance and perceived usefulness of the smart city. The smart city is the need of the current generation which is merging the colonial way of living to technology oriented infrastructure which is the need of the hour and has also made an impression in the amendment in the government policy .The upgradation in the infrastructure of the city can enable efficiency, equity , well-being and sustainability . This paper has focused on systematic literature review to develop a theoretical framework of smart city which can be a model for implementing basic policies to adapt the guidelines of the smart city mission to emerge as a sustainable city

Points for Practitioner: The study provides that smart city can be utilized and customized according to the strengths of the city as each city has its geographical advantage. City managers have to realize that smart city objective can be achieved with socio-cultural, urban and technological infrastructure binding with the thread of information and to preserve it for enhancement of amenities for the communities that support desired activity patterns, safety, lifestyles and aesthetic values.

 Keywords: Smart city, Sustainable, Stakeholder, awareness, acceptance and perceived Usefulness.

1. Introduction

The phenomenon of transmutation and metamorphosis of the society has emerged with rapid urbanization in last three decades and now those accumulated with the pressure has raised the question on water, alternate source of energy and sustainable urban living. Smart city definition

can be seen from various perspectives from various parts of the world adopting to make general audience understand the utility of that product and services provided under this gamut of smart city. The era of urbanization came from urban sprawl which developed critical issues of water, energy and green-clean living (Burchell et al., 1999). Today's stakeholders with potential knowledge base in the cities are focusing on by enrooting infrastructure for knowledge exchange and learning between all these actors and offshoot in sustainable energy solutions, innovative inclusive health facilities and digital citizen participation (Meijer et al., 2016).

The smart city is not only about collaboration but also to develop, facilitate and nurture the latent potential into synergies for the benefit for the people at large. The infrastructure of the smart city can be upgraded with the symbiosis of awareness, acceptance and perceived usefulness; these are the variables which can trigger a sense of a city equipped with smart, ubiquitous, wired, intelligent, green or smart city. These adjectives are customized on the basis of requirements of the city to develop its forte for sustainable environment. This paper aims to analyze appropriate definition of smart city then focus on various variables impacting the smart city like awareness, acceptance and perceived usefulness to gather appropriate momentum for the benefit of the city and then develop a theoretical model to find the impact to aid in developing policies for the variables identified for the impact on smart city.

2. Systematic Literature Review

The literature review about smart city definition and the variables effecting the implementation of the same have been carried out following the model proposed by (Vom Brocke et al.,2009). This methodological model is based on 1) Definition, 2) Conceptualization of topic,3) Literature search, 4) Literature analysis and synthesis and 5) research Agenda after discussions and managerial implications. The literature review provides main concepts and variables from previous studies, while the analysis of the practical tools help to operationalize some of the concepts and provides more detail on each component.

2.1 *Definition of Smart City*

There are various types of definition labeled and it is a fuzzy concept utilized by various cities in different ways. There is no single template to frame the meaning of neither smart city nor a single mold that takes into account all the parameters of the smart city (O'Grady and O'Hare, 2012).According to (Nam and Pardo, 2011) also has a connotation if a city is smart and intelligently adapts the users or stakeholders need then that city is smart and sustainable for long term .Intelligent implies the ability to support learning, technological development, and innovation in cities it emerges at the crossing of knowledge society with digitization of the amenities to add value to city per se. Smart cities are incubation area for smart urban policies for quality in living for all residents including poor can live well and attraction of the city is preserved. Smart city

should initiate social economic development by investing in human skill development so that entrepreneur spirit for self -sustainability of the city is not jeopardized Meijer et al., 2012).

Smart city should also be able to manage natural resources to manage green to mitigate the impact of CO_2 emissions and focus on alternate source of energy (Thuzar, 2011).

Smart city manifests itself by proactive actions and interaction internally as well as with citizens, businesses and other government entities .It also provides 'smart grids' for traffic, power and communication which ultimately suffices the objective of smart mobility, efficiency and infrastructure integration (AlAwadhi et al., 2013).Pertaining to smart city after analyzing various works on smart city it is undeniable that government policies play a catalyst role in fostering smart cities (Yigitcanlar et al., 2008). This perspective also fits well within the framework that it not only develops effective policies but more on managerial question on organizing a defining fraternization between government and stakeholders (Torfing et al., 2012).

2.2 *Conceptualization of smart city*

 The smart city is product and a service which has to be bombarded on the minds of the users of stakeholders to create utility of the variables which are offered under the umbrella of the smart city by the government to attain sustainability, efficiency and equity. Smart city mission in India is in nascent stage which requires awareness, acceptance and perceived- usefulness by the dynamic, intelligent and flamboyant stakeholders to realize the outcome of the same. Smart cities are facing ever increasing complex infrastructure and technical oriented problems. These problems make us face the loss of basic functionality in disposal of waste, energy distribution, air pollution, human health concerns, traffic congestion and depleting infrastructure (Denhardt, 2011). There are various connotations to represent smart city but the basic functionality is to describe, develop and design an integrative and comprehensive image of city development for long term sustainability (Hollands, 2008). Smart city is a new product or service in India which has various components which has to be fulfilled so that it can be sustainable for the benefit for the society at large. The Innovation cities^{TM} has brought various segments under which a smart city can innovate and provide sustainability capture a complete view of the modern innovation economy, across economy, cultures and countries (Gil-Garcia, 2015). This can be introduced to the population by the method of awareness, acceptance and perceived usefulness. Through the support of literature review conceptual framework will be able to give face to smart city mission.

2.3 *Awareness- impact- Smart city*

Awareness is such a component which actually aids in working locally and reaching globally. Innovation has a local locus and awareness has geographical stickiness which is effective in developing smart cities (Nam et al., 2011a), (Townsend, et al 2009). Awareness among city

dwellers about advancement in social capital, social sustainability and digital inclusion has led to mobilization of certain policies which enriches the lives of the local by creating earning opportunities (Batty et al., 2012). Economic sector based awareness for transforming economic sectors of the city. It is a mainstream approach so that broader landscape of economic sustainability can be achieved (Angelidou, 2014). In this framework cities aiming to become smart focus on enhancing the intelligence of governance, business, commerce, housing, education and health without focusing on geographical location but on the effectiveness and utility perceived by the population (Wolfram, 2012).

2.4 Acceptance – Impacts- Smart city

Cities are the key agents of transformation in which energy, technology and water as resources are utilized .Smart cities are envisioned to collaborate mobility, energy production, distribution and consumption. The stakeholder's acceptance for the transformation from conventional to technology oriented generation of services to magnify the quality of life and save energy (Moser, et al., 2014). Smart city is understood to be a city which provides the maximum available quality of life with minimal use of resources. The process of socio –technical embedding or participatory decision making inculcates acceptance (Riggins, 2015). Smart city mission for the infrastructure aspect to make understand the quality of life which will be available after the implementation of urban, social, administrative and technical infrastructure upgradation. Under the auspices of government policy can generate faith in the system and can mobilize the momentum gained through awareness programme Experimenting and evaluating the implemented policies matching with stakeholders expectations is not a trivial issue. Acceptance can be popularized only when experiments are conducted at "civic laboratories" (Institute for the Future 2010] where investments in human, social and traditional and modern information communication technology infrastructure is fueled by the sustainable economic growth with a high quality of life in making decision to use natural resources wisely through participatory governance (Schaffers et al., 2011).

2.5 Perceived usefulness- Impacts- Smart city

Perceived Usefulness can be incubated as a service provided and utilized by different stakeholder who creates utility by attaining business and income sustainability for the city. The lesser dependence of the city on various alternate sources of energy more well- being, equity and sustainability will be achieved. The innovation ecosystem provides offer environmental and social potential for entrepreneurships in parking spaces, e-vehicles (public transportation system), environmental monitoring and management public, parks and gardens (irrigation) management. These deployed facilities will provide wide range of experiments supporting various user groups to innovate or improvise the facility to increase perceived usefulness (Ajzen et al., 1977)

2.6 Discussion – Framework Building

This framework is working model which is going to be tested on Visual PLS to find collinearity between the constructs which confirms them as an independent variables of the study (Lionberger,1968) suggested that awareness impacts the adoption of the products that leads to acceptance . In another research (Islam and Gronlund, 2011) a person's degree of attentiveness is the level of awareness and ability to depict the perceived usefulness of that product or service in that certain time and space. According to (Davis, 1989) the perceived-usefulness and acceptance of certain product or service has potentially high relativity proposed by TAM model

3. Practical Implications

Based on the systematic literature review the research could define and conclude on three impactful independent variables like Awareness, Acceptance and Perceived- Usefulness which can measure and mobilize the stakeholder's policies of government, aspirations of institutions and business and economic goals of the community creating sustainable opportunities for the society at large.

4. Conclusion

This research will be a basis for a study on smart city mission in which awareness , acceptance and perceived –usefulness will defining variables to investigate the preparedness of stakeholders for smart city mission in India

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