Chapter 19
Digital Transformation for Sustainability in Bengaluru: Is It Happening in a Smarter Way?

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Abstract Tier one cities are naturally assumed to be the hubs of digitalization. A closer look at rankings proves otherwise. In such a case, it is worthwhile to understand the problems faced by a city like Bengaluru. The study found that the nature of problems is systemic. It calls for action from the concerned seats of power. The study is an eye opener for the government and calls for imminent attention on a city that has potential to flourish leaps and bounds. This study specifically focuses on digitalization or digital transformation. Digitalization of daily use services leads to mass usage of such services. Therefore, it is totally a government centered initiative when it comes to the source of implementation of digital transformation in smart cities.

Keywords Digitalization · Bengaluru · Smart city · Ranking · National smart cities mission

19.1 Introduction

Bengaluru was the base for the Britishers before Independence. Later, it became a pensioner's paradise. The Information Technology boom has led to its present shape after 1999. The mere presence of information technology based companies does not make a city into a smart and digitalized one. This was proven true when Bengaluru was ranked 17th in India in terms of being Smart City as per National Smart Cities Mission in 2022. There are a wide variety of problems plaguing Bengaluru. This has made the city stoop so low in ranking despite being a state capital, Silicon Valley and start-up friendly city in the country.

National Smart Cities Mission defines a smart city as one which has infra and services that cater to the ease of living in a city. Among the different services

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and infra, this study specifically focuses on digitalization or digital transformation. Digitalization of daily use services leads to mass usage of such services.

Digital transformation is a slow but planned process. It does not occur naturally but it is affected by causes like natural calamities or the pandemic.

The stakeholder of a smart city with digitalization is cut across various demographic factors and is not restricted to a particular group. Therefore, its benefits are widespread. A major factor that plays a crucial role for this digital transformation is capital. This capital investment can only be done by a behemoth like a government. Therefore, it is totally a government centered initiative when it comes to the source of implementation of digital transformation in smart cities.

The article contains literature review section that contains past literature that had stressed on the topic. The discussion part delves on the possible solution to the problem. The conclusion part stresses on the need to digitalize Bengaluru. Additionally it comprises of limitations and the future scope of research.

19.2 Literature Review

Vallicelli (2018) confirmed that it is the need of the hour for every city to be smart since the concept of workplace had changed. In the knowledge economy, it is not restricted to a building. It is rather much beyond that. A public place can also turn into a workplace. In such a context, it is imperative that smart cities must embrace digitalization.

Hämäläinen (2020) studied the digitalization aspect in terms of developing a smart city in Helenski. He found that the city lacked a strategy to reach this goal. He suggested a framework for the same. However, he admitted that there was a priority set by Helenski city in reaching this goal in all the projects initiated.

Krishnan et al. (2020) pointed at the lack of policies as the reason for not realizing the smart cities into digitalized ones. Elberzhager et al. questioned the digitalization of smart cities. They raised a concern on several fronts viz., bringing digitalization based on the needs of users, the solutions pertaining to achieving these needs, bringing the residents into the loop of developing a digitalized smart city, testing the strategy amongst the residents before implementing the same on a large scale.

Adedeji et al. (2022) noted that to bring digitization several challenges must be solved. It is not a one shot investment without any problems. In terms of cost, it is a herculean task to primarily solve all these challenges and then achieve a digitalized smart city. Smart city funds are usually released for such missions without taking the challenges into consideration.

Ylipulli and Luusua (2020) confirmed the need to be a data rich region in order for the implementation of digitalization of smart cities. They credited the public authorities in Helsinki and Espoo for making it data rich before digitalization of these smart cities.

Marcu et al. (2020) opined that digitalization of smart cities was not accelerated since Internet of Things (IoT) was not used in homes and agricultural fields. Rivera

et al. (2017) appreciated the use of blockchain to counter cyber fraud. The central reason that perpetrators escape punishment is because of the lack of identity. The authors have stressed the need to introduce blockchain so that data theft and loss privacy can be prevented. This will ultimately lead to establishment of digitalization in smart cities in a safer manner. Wiig (2016) alleged that the words 'smart city' and 'digitalization' were misused. In the names of these words, propaganda was carried out to brand a city that it is 'sophisticated'. Moreover, the residents of the region never got benefited out of it.

Pozdniakova (2017) observed that smart city and digitalization were closely connected with the political and bureaucratic class. It was never a part and parcel of the common man. This kept away people from actively engaging in these activities. Ruohomaa et al. (2019) argued that digitalization and urbanization are not positively correlated. Even smaller cities are capable of achieving digitalization and smart city tag if they intend to.

From the above studies, it is clear that there have been no studies focused on digitalization of a smart city like Bengaluru.

19.3 Discussion

Karnataka received Rs. 5,604 crores from the state and central governments so far, out of which Bengaluru got Rs. 755 crores. This shows that a city bustling with a population of 1,36,08,000 has got a meager slice of the pie (13.48% of the total allocated funds). It shows the lack of political willingness to take the city to the next level. It also indicates that there is a dearth of funds for investing it in the multifarious arms of Smart City Mission.

Bangalore Electricity Supply Company Limited is another entity that is responsible for providing power supply to the city. However, frequent power cuts are a common feature. In a year, a resident of Bengaluru faces on an average 126 h of power outage. An automation project to cut down the power outages in the city led to cost overruns of Rs. 573 crores. The project is still in the pipeline.

The state of Karnataka is set to face election in the month of May 2023. However, political parties are silent about digitalization. The promises and manifestos highlight only the social service schemes.

Akin to power is the next essential source which is broadband connectivity. Bengaluru's broadband connectivity is mainly based on lines hanging from trees or lofty buildings. These lines are affected by rains, which leads to broadband outage. There are no measures taken so far in terms of preventing this. Underground broadband is not safe since water, sewer and sometimes electricity lines run underground. In such a case, there are chances that power or water companies are prone to dig up the underground and cause further outages.

Bureaucratic challenges also persist in terms of digitalization. Bengaluru Metropolitan Transport Corporation is an example. It tried its own to digitalize its ticketing operations. Finally, it was tendered to an outside organization named

'Tummoc' introduced e-ticketing and e-passes. This reduced the work of the conductors. It also brought a sense of relief for passengers who need not board the bus with the exact change to travel to any destination. A year later, Bengaluru Metropolitan Transport Corporation is axing this project. This is how progress in digitalization is stunted in Bengaluru. A daily use digitalization thus came to a halt.

Bangalore Chamber of Industry and Commerce is an organization which can push the government bodies to strive for a higher ranking. It is a body that has acted as a consultant to the government on several occasions. It also has the best interests of many businesses that is operating out of Bengaluru. It can act as a strong chain link between the government and businesses.

A Public Private Partnership is another strategy to bring in more funds into digitalization. This form of strategy is now seen only in the areas of transport infrastructure. The failure of telecom companies prevents companies to invest more into such avenues.

Ride hailing transport companies, E-commerce, Banking and Air/Railway ticketing are the avenues which have seen a steady rise in digitalization due to more Jan Dhan accounts, linking it with Aadhar and mobile phones, demonetization and lack of smaller denomination currencies in the ATM. This has brought in more digitalization in the daily transaction space. Such a digitization happened on a large scale and not specific to a certain area in the country.

A survey conducted by Annual Status of Education Report (ASER) in 2020 at the start of the COVID 19 pandemic confirmed that 68.60% of the household owned smartphones. Owning one does not ensure that people have accepted digitalization. They might use smart phones only for communication purpose.

19.4 Conclusion

Digital transformation needs inputs to transform and does not happen as a magical spell. It needs proper planning and implementation combined with inputs. When there are not enough inputs, the hopes to see the city reach greater ranking in Smart Cities.

The only thing which attracts people to invest in Bengaluru might be the climate. Apart from that, smart city mission has failed to fuel digitalization in the place where it should have blossomed. The condition has gone to such an extent that any upcoming tier 2 or 3 city can easily overtake Bengaluru in the coming years. This will render Bengaluru to be another Singur. Just as Tatas and other companies left West Bengal, Bengaluru may become unfavorable. In order to stop this there must be an intervention from the political and bureaucratic class. It is time to pause and think as to where Bengaluru is headed towards. Mere labeling as Silicon Valley and start up city is not going to help bring in more investments.

This paper does not intend to tarnish the government. It is rather a plea to the government to look into the nuances surrounding the complete digitalization of Bengaluru. While there are avenues which have transformed digitally for good, there

are other avenues which are left in the lurch. The implication of the paper majorly falls on the government and the bureaucratic class. Apart from them, it is beneficial to the Non-Government Organizations who strive to bring better governance.

The limitation of this paper is that it has not taken into account any other rankings. It pertains to the 2022 National Smart Cities Mission survey alone. It is not an empirical study. The future scope of research can be done focusing on the specific parts of Bengaluru which house the information technology companies.

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