International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor (2018): 7.426

Application of ICT in Raising Standards of Learning in Higher Education Institutions: A Case Study of Udaipur City

Joshua Gisemba Okemwa

Research Scholar, Department of Computer Science, Bhupal Nobles' University, Udaipur, Rajasthan, India

Abstract: ***Smart cities have the ability to incorporate information and information communication and technology in ensuring effective delivery of services. Basically they aim at ensuring high living standardizes for its citizens. Transformation to smart city ideology has been encouraged by a number of governments globally. The government of India in 2015 started an initiative named smart cities mission (SCM) aimed to upgrade urban cities to smart cities. Udaipur is among the 100 cities selected in this initiative by the national government. Udaipur smart city implementation will focus in areas including transport and safety measures, installation of Wi-Fi and other modern facilities. Smart city includes collection of data that is processed and analyzed to enhance service delivery within the city that include schools, hospital, and transportation among others. In this paper we discuss how the analogy of the frame work used in raising living standards in smart city can be directly applied in higher education institutions in Udaipur to raise standards of learning. In our framework we identify ICT as the base of operation in both instances.***

1. Introduction

Cities that use information and communication technologies (ICT) in ensuring effective delivery of services are designated to be smart. In fact the twentieth first century has seen many cities evolve to modernization and application of technology [1, 11]

Digitization has become part of our daily life. It enables collection of large amounts of data used for effective processing and analysis that makes it effective for utilization in making decisions in smart cities. [2]

This concept has been in discussion for a while, among governments globally because of the development associated with it. Smart city ideology can be traced back smart growth movements in 1990. [3] For instance the Government of India (GOI) in 2015 announced the policy of smart city mission (SCM) that set to develop a hundred smart cities. [4]

Udaipur is one of the cities intended to become for 100 cities selected in this initiative by the national government. [5] Udaipur development as smart city will focus on areas like transport and safety measures, installation of Wi-Fi and other modern facilities. [4]

This implies that there will be more use of internet by the citizens of Udaipur city. This is intended to ensure more application of Internet Of things. [4, 5] More importantly if we understand the framework used by smart cities to improve living standards of its citizen we can apply it directly to enable development of learning standards in institutions of higher learning.

Smart cities improve standards of live based on make informed decisions. Decisions are reached after analysis of big data to identify patterns and use the result to improve on challenges that arise. [15]

After surveying most of the higher institutions of learning in Udaipur, we propose a model which is stepwise solution that can improve the education standards in Udaipur city based on analogy framework used in improving the standards of living in smart cities.

The rest of the paper contains the following sections: II Overview Udaipur city. Section: III Learning in higher education institutions Section: IV Application of ICT. Section: V Conclusion Section: VI Concluding remarks Section: VII: References.

2. Overview Udaipur City

Udaipur city is also known as the city of lakes, with administrative headquarters at Udaipur city. [6] Udaipur is a tourist city with a number of economically activities Mabel business and other retail business. Higher education learning is effectively present within the city by establishment of both government and private institutions. They include:

- **Bhupal Nobles University** a private university charted by the government of Rajasthan in 2015 as a private university. With a vision to develop into a global educational Centre maintaining high standards in both teaching and research with focus on quantitative and qualitative progress.
- **Sir Padampat Singhania University** a private University that was established by a group of companies and later approved by the government. Was ranked as one of the young institutions in India in 2016 in ranking conducted by MHRD involved NBA, UGC, AICTE, Thomson Reuters, Elsevier and INFLIBNET.
- **Pacific university.** Is a private institution recognized by university grant commission well known as pacific academic of Higher Education and Research University. The society as continued to make rapid strides in different fields as a multidisciplinary conglomeration providing high education twenty years since it was started.
- **Vidya Bhawan Rural Institute** Is a reputed educational institute, established in 1956 to impart quality education

in rural areas. The facilities and quality of education offered as attracted students from sections of the society in India and also from aboard.

- **Mohsnlal Sukhadhia University** A state University established by an act in the year 1962 to cater for the needs of education in southern Rajasthan. It is accredited A grade state university. Since inception it has been serving to maintain excellence in teaching, research and community service.
- **Aishwarya College** has been a pioneer of quality education in information and technology along with management disciplines. Aishwarya college of education has been accredited with grade D form Naac which assures the quality of learning and research.
- **Jansrdan Rai Nagar Rajasthan Vidyapeeth University** was formed in 1937 to uplift the common man in the state of Mewar, stated as a study Centre it has grown over the year's to a university. It has spread its wings across the country and hosts a number of foreign students who come to pursue their studies there.

3. Learning in Higher Education Institutions

The government is making steps of developing Udaipur to become a smart city. Smart city will compose of need to have smart learning in the institutions highlighted above. Though there has not been a clear definition of smart learning, researchers continuously discuss the concept this can be noticed in most of the articles discussing same topic. [7]

Carmen 2017 a year later tried to define it has integration of smart technologies and tools, smart educational software and hardware systems, advanced teaching strategies and learning and approaches tightly connected with flexibility, accessibility, openness, assessment, security, communication through modern services of social networks.[8]

The use of intelligent technologies and tools e.g. big data analytics focuses on how data can be captured analyzed and directed towards improving learning and teaching and overall development and management thus further raising the standards of education in higher learning institutions. [9, 10]

Quality of service is positively impacted by the internet of things art. More data is collected and analyzed which in turn helps to make informed decision thus improving the existing situations. [4]

For the institutions in Udaipur to be part of making the city smart they must adopt use of technology in their daily activities of learning and managing of institutions.

3.1 Smart city analogy

Smart cities use information and communication technologies (ICT). To provide improved standards of living by providing efficient services to its citizens in all sectors. [1]

Understanding the framework of operation in the smart city can be applied as analogy to predict how we can use the same framework to develop the levels of education in higher institutions of higher learning in Udaipur city.

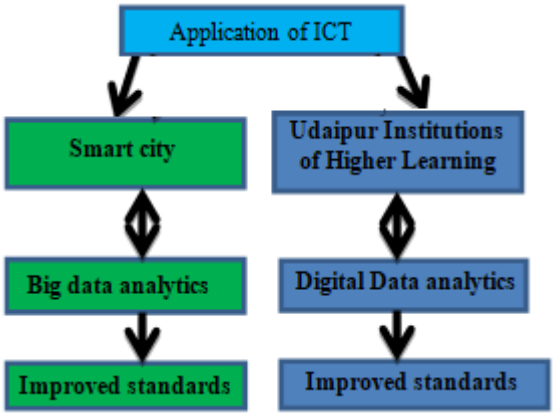
Internet of Things (IOT) is the source of big data that played an active role in development of smart cities. The data from most of the sensors and smart devices is collected processed analyzed. [15] The big data growth due to different enabling technologies, infrastructures techniques and process are being set as part of our daily life.

This data advocated analysis of city life in real time, thus new modes of urban governance that are more efficient, sustainable, competitive, productive, sprung up. [11] Connecting up, integrating and analyzing information provides a better approach of understanding city and enhance efficiency and sustainability.

Big data analytics involves a process of evaluation of big data to uncover information and hidden patterns. In smart cities it carried out using most of latest technology with a sole intention of using the information to make informed decisions in real time to improve the living standards of citizens. [13]

Smart city understand the need big data analytics based on data that is received from various sources in order to make any informed decisions. [14]

3.2 Analysis and discussion



Explanation: Figure 1 displaces the application of the application of ICT in enhancing both the smart city and Udaipur institution of higher learning standards. It involves application of different analytical technology on data. Big data analytics process data and outcome is used to improve the standards.

Improving of standards as discussed in this paper can be achieved through following steps:

- Application of ICT in institutions of higher learning institutions operations.
- Collection and storage of data in the cloud.
- Processing analyze and prediction of new operation
- Informed decision making
- Improve the standards

Application of ICT in institutions of higher learning institutions operations enables improved service delivery it also enables collection of electronic data that is much needed. Collected data can be either structured or unstructured. Formats vary ranging from png, word, pdf, jpeg, dng, bmp, among others. The volumes of data grow continuously referred to as big data.

Big data analytics involves modern technology including hadoop that are used to analyze the big data to extract meaningful patterns used to identify relationships enabling informed decision making thus improving the standards of operation. Based on this analogy we argue that if institutions of higher learning in Udaipur will adopt this model they will be able to raise the standards of education and also fasten the central government initiative of smart city mission (SCM) of making Udaipur smart in all sectors.

A smart education environment goal is to enable learners to obtain new knowledge in a better way. Teachers and coaches can over knowledge to learners in a more easy way as compared to the traditional competitive techniques. [10] This paradoxical shift in education will provide a lot benefits. Researcher's educators and learners will develop new thoughts and theories of providing education and thus widen their studies by interacting and learning with others across the globe. [16]

4. Application of ICT

In this section we discuss how universities in Udaipur operate and areas where ICT need to be applied diversely. Achieving smart city states of the city will need cooperation from all stakeholders. By application of technology they will improve their service greatly, improving the standard of education and also being part of the team that will transform Udaipur into a smart city.

4.1 Areas of Application

Registration
Most of universities in the city advertise admission in each academic year, on the respective websites. Websites are collection of related web pages along with their common domain name. Most of the websites do not offer options of full registration online. This facilities have to be online so that more students will start being conversant to them and apply them. Periodically the traditional way of registration will be faced out. Digital registration will enable easy tracking of records and enable colleges' governments and other mandated bodies like UGC to get real-time data and make recommendation that are geared to improving the standards 9of education.

Electronic fee payment
The government gave a directive to have all universities and higher educational institutions is done I digitally mode. The human resource development Ministry asked university grants commission to ensure educational institutions that allow monetary transactions should be done using digital modes of payment. When all money will be paid electronic will make the process simple, reduced corruption and misappropriation of funds, government can easily account for its tax remittances etc. currently this is a missing like among many institutions of higher learning in Udaipur city.

E learning
E. learning is an educational that means application of technology in delivering of knowledge to the students. This is a planned learning experience organized and sustained by an institution. The mediation is mostly done by means of internet [8]. Most of institutions in Udaipur city have not set up these facilities to necessitate this kind of learning, e.g. to have a Class of students studying from their home, as long as internet is available in both ends. One of the aim of (SCM) is to install flee Wi-Fi all over Udaipur. Colleges should set up these facilities to improve the standards of education as well as cater for the group of students who are willing to study but not able to attend class on a daily basis.

E library
Electronic library is a service that enables students to gain information on particular area of study from wherever they have chosen to study. It involves professional support and guidance to all students. Some of institutions in Udaipur lack this important facility necessary for learning and research purpose. To improve the depth understanding of technology by most of the students' electronic library should be encouraged. It increases innovation and current research that in turn raise the standards.

Social networking
Internet being the basis of operation of smart environment, social networking has become highly significant in people's lives. College students create identity for themselves and can explore a number of issues ranging from work searching, learning professional skills, making friendship with others from different colleges having the same career path etc. [17]. Institutions of learning do not provide a variety of platform for social networking on the official digital platforms of different colleges. Collaboration should be encouraged among different colleges in Udaipur to provide more opportunities for intercollege interaction electronically. This will shape the nature of the mind of scholar and open unexplored fields. This will improve the standards of learning in institutions.

5. Conclusion

We have analyzed carefully the framework of operations of smart cities. Application of ICT improves services delivery of the cities based on analysis of big data. Electronic data that his collected is processed analyzed and used to make informed decision making. This in return raises the standard of living in smart cities.

Institutions of higher learning can achieve the same result of having improved standards in respective institutions in Udaipur city, by using the same framework which includes: transforming into digital operation, to enhance collection of digital data, analyze in really time to facilitate making of informed decision thus raising the standards of education in Udaipur which is currently being develop to attain the level of smart city status.

References

[1] Margarita Angelidou. (2014). Smart city policies: A spatial approach. http://dx.doi.org/10.1016/j.cities.2014.06.007 0264-2751/
[2] Jung Hoon Lee a, Marguerite Gong Hancock b, Mei-Chih Hu. (2013)Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco. All rights reserved. http://dx.doi.org/10.1016/j.techfore.2013.08.033
[3] Harrison, C., & Donnelly, I. A. (2011). A theory of smart cities. In 55th Annual meeting of the international society for the systems sciences, 17–22 July 2011, The University of Hull, Hull, UK
[4] Sheshadri Chatterjee, Arpan Kumar Kar, M.P. Gupta. (2018) Success of IoT in Smart Cities of India: An empirical analysis. doi.org/10.1016/j.giq.2018.05.002
[5] https://udaipursmartcity.in/about-us/
[6] "Udaipur City Census 2011 data". Census 2011.co.in. Census Population 2015 Data. Retrieved 31 August 2015.
[7] Z.-T. Zhu, M.-H. Yu, P. Riezebos, A research framework of smart education. Smart Learn. Environ. 3(1), 1–17 (2016)
[8] Carmen-Leocadia PESANTEZ POZO. SMART EDUCATION AND SMART E-LEARNING. The 13th International Scientific Conference eLearning and Software for Education Bucharest, April 27-28, 2017 10.12753/2066-026X-17-186
[9] V. Mayer, K. Schönberger, K. Cukier, Big data: A revolution that will transform how we live, work, and think (Houghton Mifflin Harcourt, Boston, 2013)
[10] Begoña Gros. The design of smart educational environments. Gros Smart Learning Environments (2016) 3:15 DOI 10.1186/s40561-016-0039-x
[11] Rob Kitchin. The real-time city? Big data and smart urbanism. GeoJournal (2014) 79:1–14 DOI 10.1007/s10708-013-9516-8
[12] Hancke, G. P., de Carvalho e Silva, B., & Hancke, G. P, Jr. (2013). The role of advanced sensing in smart cities. Sensors, 13(1), 393–425.
[13] Stefan Nastic, Thomas Rausch, Ognjen Scekic, and Schahram Dustdar. A Serverless Real-Time Data Analytics Platform for Edge Computing. IEEE Internet Computing volume 21: Issue 4, 2017 pp 64-71
[14] Chen, M., Mao, S., & Liu, Y. (2014). Big data: a survey. Mobile Networks andApplications, 19(2), 171–209.
[15] Ibrahim Abaker Targio Hashema, Victor Chang b, Nor Badrul Anuar (2016). The role of big data in smart city. International Journal of Information Management 36 (2016) 748–758
[16] B. Gros, The Dialogue Between Emerging Pedagogies and Emerging Technologies, in The Future of Ubiquitous Learning (Springer, Berlin Heidelberg, 2016), pp. 3–23
[17] Rajalakshmi Kanagavel & Chandrasekharan Velayutham. (2010) Impact of social networking on college students:A comparative study in India and the Netherlands. International Journal of Virtual Communities and Social Networking (IJVCSN) 2(3). DOI: 10.4018/jvcsn.2010070105