Information & Communication Technology: A stranger in the Urban Planning Practice - Findings and Reflections on Osogbo.

Dele Oyeniyi Ajala
Department of Urban and Regional Planning
Wesley University of Science and Technology,Ondo.
Email -oye2ajala@yahoo.com
Phone: +2348033982949

Julius Olubunmi Fasakin
School of Environmental Technology
Department of Urban and Regional Planning,
Federal University of Technology
Akure, Ondo State, Nigeria
Phone: +2348068495302

Olufunmilayo Adekemi Ajala
Department of Banking and Finance,
The Polytechnic, Ibadan
Ibadan, Nigeria
Email- adekemiajala@gmail.com
Phone: +2348033752838

ABSTRACT

Mobile telecommunications have become a key lifestyle and technological trend of the twenty first century. The paper explore reasons for the lack of enthusiasm in the use of information and communication technologies by urban planning professionals in Osogbo and sets out to explain the existence of impediments in information technology acceptance and use in urban planning practice. The total sample size of 75 survey instruments (questionnaire) were administered to Town Planners in government planning agencies and planning consultants in Osogbo. Out of the 75 questionnaires given out, 73 persons responded which puts the response rate at 95 percent which is adjudged satisfactory by various authors. The study revealed a significantly poor level of technical application of computers to both public and private sectors in the planning department and offices. The paper therefore concludes by suggesting inclusion of ICT in the education curriculum of Town Planners and computer re-training to equip the professional planners with technical knowledge of ICT and majorly CAD and GIS usage

Keywords: Urban Planning, Information and Communication Technology, Geographic Information Systems,

1.   INTRODUCTION

Urban planners have a long traditional involvement in the management and development of urban form, the essence of urban planning is the focus on internal order of cities and place-making (Adamson & Bunnett, 2002). However, the world today is witnessing the most stimulating, inspiring and fascinating inventions called Information and Communication Technology which has become a key lifestyle and technological trend of the twenty first century. The use of ICT in the planning profession started in the 70s. It took less than twenty years to move from the initial use whose function was to facilitate different statistical operations, computation, or map drawing, to the major support for planning and management purposes.

In the year 2000, Nigeria developed its national Information Technology (IT) policy with the vision of making IT an engine for enabling and sustainable development in Nigeria whereby the country can be a key player in the global information society. The Internet was introduced to the public after 1994 and related digital technologies have affected almost every important sphere of urban life in modern societies. Information and communication technologies (ICTs) have become pervasive in developed countries and increasingly present in cities of developing world, while each year thousands of new digital devices and applications are brought into the market and into the hands of millions of people. Digital technologies have changed the way we inform, entertain and educate ourselves, as well as our ways of working, carrying out research, doing business, and keeping in contact with each other.

Despite significant research on ICT and their general association with urban form and economy, which has focused on agglomeration of economies, there has been little attention to the interactions between ICT and urban planning in Nigeria. There may be several reasons, including a relatively short history of ICT, their rapid change, and the invisibility and complexity of ICT infrastructure. The incorporation of the spatial impact of ICT into planning practices will not however occur without the purposeful actions of those who are responsible for practical planning or those who regulate and support planning.

The passage of harmonized Telecommunications Act of 2003 allowed market-driven development and management of ICT infrastructure in Nigeria. That has prevented involvement of the public sector and attention to how ICT infrastructure will affect future development of communities (Bradbury and Becker, 1995). The lack of guiding conceptual frameworks is also a challenge for study of ICT and urban planning. Graham and Marvin (1996; 1997) argue that many urban planning professionals and scholars still see urban environments in a traditional framework instead of recognizing the dynamics of ICT and urban environments. Nowadays we are confronted by many buzzwords, such as the ICT city, the electronic city, the associative city, the smart city, the information city etc. which offer an appealing image to the city concerned. As an urban planner, we should recognize and take advantage of the capacity of information and communication technologies (ICT) to enhance management systems. The phrase that has been coined, "ICT for smart cities," is particularly apt. Town Planners must recognize that things are changing and if we must excel, we must adapt to those changes. Professionalism and technology work hand-in-hand.

As more people move into the cities, the onus is on the urban planners to be more equipped in order to address the challenges arising from perennial urbanization process. We need to acquire more skills, develop more planning tools if we are to be relevant in the emerging global city management process. Therefore there is an urgent need to sharpen urban planners understanding of the relationship between ICT and urban form, and of how practitioners in Nigeria respond to both the spatial and the economic consequences of ICT. This paper set out to explain the existence of impediments in ICT acceptance in urban planning practice using Osogbo as a case study.

1.1 Justification for the Research

In urban planning studies researchers are retiring conventional paper-and-pencil research methods and embracing an expanded array of online methodological options. New digital tools, data accessibility, and online applications are changing how urban planning research is conducted. Urban planning does not only concern the physical environment of places or localities, but it is deeply embedded in the social, cultural, economic, and political context. Manuel Castells (1992) asked urban planners "The world has changed: can planning change?" Indeed, before 1992 technological changes imposed by ICTs were basically occurring in the work sphere, space, time and cities. The dramatic advances in the field of telecommunications after that period have made computers and electronic devices widely present at both home and work spheres and this in turn affects notions about region, nation state, place, boundary, distance, concentration, decentralization, physicality, virtuality, and territoriality, to mention a few (Firmino, et al, .2006).

However, for Physical Planners, the ICT related changes pose huge challenges, in the first place because the spatial reach of daily home and work activities and contacts has expanded from the local to the global scale. The discomforts of Urban Planners regarding the technicalities of ICT infrastructures have played a role in the present disregard. The avalanche of information supply, however, has also, not kept pace with the use of information by urban planning decision-making bodies especially in the public domain, we often observe an intractable gap. According to Cohen, et, al. (2001) the actual use of opportunities offered by the ICT sector to the public domain is low especially in areas that relate to Urban Planning. Accordingly, rapid increase in the availability of information technologies and information systems within Planning Agencies have brought important questions about the possible impact of these technologies on the nature and outcome of Planning Practice and debate (Campbell, 1996).

Hence, the relevance and application of Information and Communication needs to be fully understood by planners so that their attitudes and methods can be attuned accordingly.

1.2 Study area

The study area is Osogbo Township. History had it that Olutimehin (a renowned hunter), Oba Larooye and many of his chiefs and subjects founded Osogbo in the 18th century (Falade, 2000). It is a typical indigenous Yoruba town and one of the largest towns in Nigeria. It is located between latitude 7^0 47' north of the equator and longitude $4^0$33' east of the Greenwich Meridian as reflected in (Fig.1.0). The present site of Osobo is the third settlement in succession, the other two sites being Ontoto and Ita Ontoto.

As a result of its central location, Osogbo is easily accessible from many towns within and outside the area. The city and its environs presently cover an area of about $30km^2$. Osogbo as the capital of Osun state is about 220km to Lagos, the popular seaport in Nigeria, about 820km to Abuja, the Federal Capital Territory, and about 96km to Ibadan, the capital of Oyo state. Also the city is about 30km to Ile-Ife, 32km to Ilesa, 5km to Ikirun, 5km to Ilobu and about 4km to Ede. These road systems complement the railway line which passes through the town. For many years, Osogbo was the northern terminus of what is now the Lagos – Kano Railway line. Locational advantages and infrastructural opportunities combine with the historical importance of the city to enhance its socioeconomic importance and also determine the nature and tempo of governmental patronage.

2. MATERIALS AND METHODS

This study used two types of data obtained from primary and secondary sources. Primary data was obtained through personal observation and questionnaire administration. Professional Town Planners in both public and private urban planning agencies were given questionnaires The questionnaire contained Information such as; age, sex and educational qualification, years of professional experience. The respondents were asked to provide brief details of the technical environment in terms of hardware level of computer knowledge, duration of ICT training, expenditure on ICT, frequency of ICT usage and future recommendation of how ICT can be incorporated into Urban and Regional Planning Education. The questionnaire used a five-point Likert-type scale to measure a range of opinions on the obstacles of application of ICT in the state, from "Strongly agreed", Agreed, Neutral to "strongly disagreed", and "disagreed"etc. to collect information about ICT constraints i.e., the types, and level of ICT application complexity.

Inventory of planning organization revealed that there are currently a total of twenty eight planning agencies in both the public and private sector. Private Planning firms in Osogbo were put at twenty (21) while the government agencies surveyed were six (6). The Sample of town planners obtained in all agencies were summed up to 75 which comprises 45 from private Planning agencies and 28 from the government agencies. Hence, total sampling technique was used in the administration of questionnaire. Out of the 75 questionnaires given out 73 persons responded which puts the response rate at 97 percent which is adjudged satisfactory by Elhag and Boussanaine, (1999). Table 1 and 2 shows the breakdown of respondents according to agencies (both public and private).

The secondary sources include; location and infrastructural maps from the State Ministry of Lands and Physical Planning, and the Local Government. Population composition and distribution of professional Town planners in both public and private agencies were obtained both from the Register of Town Planners collated by the Town Planners" Registration Council of Nigeria (TOPREC&ATOPCON) booklets. In addition published materials were obtained from journals, textbooks, government publications, unpublished papers, weekly reports, magazines and gazettes were also relevant for providing theoretical framework and historical perspective to the research work.

Table 1 Registered Private Town Planning Firms in Osogbo

S/No	Planning Agency	Reg,No	No of staff	Sample size	Percentage
1	Al-Hassan&Ass Nig Ltd	0087	3	3	100
2	S.O.GbadamosiEnviron Planners	0142	2	2	100
3	Ideas & Associates	0143	2	2	100
4	Environ Design Consultant		3	3	100
5	Bidatos Consultant	0193	2	2	100
6	Dik leke & Associates		2	2	100
7	Moses Alabi & Associates	0228	2	2	100
8	Dele Babatola &Co	0230	2	2	100
9	Biodun Adeyeye & Co	0236	1	1	100
10	E Townscape consultants		1	1	100
11	Oye Development Services		2	2	100
12	Ayo Olatunji Consultants Ltd.	0257	8	8	100
13	Joyflo unban	0264	2	2	100
14	Landmark Environ Planning Ass	0267	3	3	100
15	Primus Devt Ass Nig Ltd		2	2	100
16	Olatunji Adeleke &Ass		2	2	100
17	Raajib Planning Consultants		1	1	100
18	Ayanlad &Associates	0313	1	1	100
19	Timtec Consultant		2	2	100
20	Ifetobi Environ Planning Consult		2	2	100
21	Ibidun & Associates		2	2	100
22	Schindler Associates Ltd		2	2	100
	Total		**45**	**45**	

Source: Field survey, 2018

Table 2: Public Planning Agencies in Osun state

S/No	Planning agency	No Of Professional town Planner	Sample size	Percentage
1	Olorunda Local Government	2	2	100
2	Olorunda North LCDA	1	1	100
	Ilie Town Planning admin office	1	1	100
2	Osogbo Local Government	3	3	100
	Osogbo south LCDA	1	1	100
	Osogbo west LCDA	1	1	100
3	Ministry of Lands and Physical Planning	12	12	100
4	Capital Territory Devt Authority	4	4	100
5	Osun state Prop devt. Corporation.	2	5	100
6	Osun Emergency Management	1	1	100
	Total	**28**	**28**	

Source Field survey, 2018

3. RESEARCH RESULT

Descriptive statistics was used to analyze the data. Data are presented on the existing obstacles to deploying Information and Communication Technology in Urban and Regional Planning Practice. The items discussed were availability and functionality of Computer systems, training and duration of ICT training.

ICT Hardware and Components

Table 3: Availability of Computer systems

Computer Availability	No of Respondents	Percentage
The organization have computer systems/Laptops	71	97.3
The organization do not have computer systems	2	2.7
Total	**73**	**100**

Source: Computed from primary data 2018.

With regard to computer availability, the result of survey revealed that 71(97.3%) of the agencies and consultants have computer systems for their operations while only 2(2.7.%) do not have computer systems nor laptops in their offices.

Table 4: Functionality of Computer Systems

Computer functionality	No of respondents	Percentage
Functioning	62	84.9
Not functioning	8	11.0
No response	3	4.1
Total	**27**	**100**

Source: Computed from primary data 2018.

Table 4 revealed the state of functionality of the computer systems in the agencies surveyed 84.9% says their computer systems are still performing, while 11% of respondents says their computer systems are not functioning at all due to fault, virus attack and epileptic power supply and some said they do not have computer operator to operate the computer systems. Also 4.1% of respondents gave no response.

ICT Training

Table 5: ICT Training

ICT Training	No of Respondents	Percentage
ICT Trained	33	45.2
Non ICT Trained	35	47.9
No Response	5	6.8
Total	**73**	**100**

Source: Computed from primary data 2018.

Survey was carried out to determine whether Town Planners (respondents) are trained in Information and Communication Technology. As shown in Table 5, 33(45.2%) of respondents have undergone one form of ICT training while, 35(47.9%) of respondents have no form of ICT training at all. There was no response from 6.8% of the respondents. Generally, in the aspect of ICT usage, results show that some respondents even though they have a good information of ICT they have no formal training and a low percentage of respondents tend to have ICT training of less duration.

Table 6: Duration of ICT Training

ICT Training	No of Respondents	Percentage
A month	14	19.2
Three months	17	23.3
Six months	2	2.7
One year	-	-
More than one year	-	-
No Response	40	54.8
Total	**73**	**100**

Source: Computed from primary data 2018.

Table 6 is the duration spent by respondents who undergone training in ICT. 19.2 percent of respondents have ICT training of just a month, 23.3 percent of respondents have ICT training of three months, 2.7 percent of respondents have ICT training of six months, and 54.8 percent of respondents have no formal ICT training, though they have a good information of ICT, but no formal training.

Table 7: Familiarity with ICT Tools

Familiarity with ICT tools	Nos of Respondents	Percentage
Familiar with ICT tools	27	48
Not Familiar with ICT tools	25	45
No Response	4	7
Total	**73**	**100**

Source: Computed from primary data 2018.

In terms of how familiar respondents are with ICT tools such as AutoCAD, GIS, Arch-view and others, it was discovered that 89.1 percent of the respondents were familiar with ICT tools for Physical Planning practice while, 10.3 percent of respondents are not familiar with ICT tools for Physical Planning Practice. Table 5.4 below shows how familiar respondents are with ICT tools. Coming to the specifics of the common ICT tools used in Planning Practice, the use of AutoCAD seems to be very common as 73 percent of respondents use AutoCAD for achieving Physical Planning goals, 8.7 percent use GIS (Geographic Information Systems) and 7. percent use Arch-View in Table 8. But some respondents were quick to add during interview that they normally get their project done through private professionals who are knowledgeable in ICT

Table 8. Common ICT Tools used in Physical Planning Practice

ICT Tools	Nos of Respondents	Percentage
AutoCAD	41	73
ArcGIS	6	11
ArcView	5	9
ArcInfo		
WinGIS	4	7
Total	**73**	**100**

Source: Computed from primary data 2018.

The popularity of various software packages especially Computer Aided Design (CAD) software, has been on the rise in recent years with the advent of ICT generally. Table 8 shows the most common ICT tools used in Physical Planning Practice
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Table 9 Use of ICT Tools in Physical Planning Practice

Use of ICT Tools	Nos of Respondents	Percentage
Layout Design & urban Renewal	6	8.2
Plan Preparation & data Analysis	12	16.5
Data base Creation and Presentation	13	17.8
Word Processing	49	54.7
No Response	2	27
Total	**73**	**100**

Source: Computed from primary data 2018.

In terms of what the ICT tools are used for in Physical Planning Practice, 8.2 percent of respondents use ICT for layout design, urban renewal design, upgrading and master plan for cities and building drawing and design, 16.5 percent use ICT for plan preparation and data analysis, 17.8 percent use ICT for creating database spatial analysis and presentation. The table shows that sizable percentage of the agencies and consultancy outfits have developed word processing packages, spreadsheet and presentation packages. The import of this is that majority of those who had computers are primarily concerned with word processing in preference for real technical application like GIS and AutoCAD. The implication here is that majority of Town Planners use ICT to carry out their traditional functions of preparation of reports on activities like Environmental Impact Analysis Report for various projects like commercial agricultural, industrial complexes. However, observations showed that some of the officers in the agencies and consultancies were aware of the potentialities of ICT in Urban Planning practice, but were incapacitated to act due to some impediments.

Obstacles to using ICT in Urban Planning Practice
In an attempt to address the constraints of implementing ICT in Physical Planning Practice in the study area, the Severity Index was used to rank all the factors inhibiting the use of ICT by firms and government town planning agencies in the study area. Severity Index is a classification scale for reporting the severity of issues in an attempt to communicate appropriate actions to follow by town planners on the issue of usage of ICT. The outcome of data analysis obtained from various variables like no overall strategy for ICT, inadequate financial resources, no government patronage in provision of jobs etc were ranked against each other to find out which variable are more problematic to the implementation and use of ICT to Urban and Regional Planning firms and agencies in the study area.

Table: 10: Obstacles to using ICT in Urban Planning Practice

Obstacles to implementation of ICT by firms	Percentage						
	1 SA	2 A	3 N	4 D	5 SD	Severity Index(SI)	Rank
Inadequacy of town planning jobs	80.1	15.6	1.2	1.1	2.0	93.2%	1
Inadequate financial resources	78.3	17.0	1.1	1.9	2.7	91.2%	2
Lack of ICT training	74.4	18.2	3.2	1.5	2.7	89.6%	3
Lack of data bank	69.5	18.0	3.8	6.2	2.5	87.2%	4
Organization lack skill	64.2	24.3	4.5	3.8	3.2	79.4%	5
No top level commitment	76.5	18.7	0.6	2.2	2.0	71.2%	6
No overall ICT strategy	57.5	27.8	11	1.2	2.5	69.3%	7
High cost of hardware and software components	41.4	45.5	7.3	1.8	1.8	63.7%	8
Incessant power outage	33.5	52.1	8.1	3.0	3.0	59.2%	9

Source: Computed from primary data, 2018

4. DISCUSSION OF RESULTS

As much as Information and communication technology is relevant to the enhanced application of physical planning practices, in the study area it is established that attention to the use of ICT is still low. The results on the effects of existing ICT on physical planning indicates that inadequacy of town planning jobs mitigate heavily on the use of ICT in the study area because 80.1% of respondents strongly agreed that town planning jobs to improve their professional ability, competency, expertise which will aid the deployment and usage of ICT are not readily available as at the time of study, while 2.0% strongly disagree. Without core Town Planning jobs they are left with obtaining building permit/approval for clients and writing of Environmental Impact Analysis Report. The provision of these core jobs rest with the government. The inability to muster financial resources is closely related to the above as the respondents are not buoyant. A sizable percentage of respondents 78.3% strongly agreed that inadequate financial resources is a constraint to implementation of ICT by practicing town planners in the study area while 2.7% disagree. Table 10 ranked this constraint as second, Lack of training and re-training of staff on ICT ranks third on the severity index table. Survey revealed that 74.4% of respondents strongly agreed that it is an obstacle. The only computer literate people among the respondents did their training privately for self development. In terms of the hardware and software components in use for Urban Planning Practice, the study revealed that the computer systems in terms of configurations are very costly though the severity index is ranked 8th. However the survey revealed 41.4% respondents strongly agreed while 45.5% agreed respectively. It is a known fact that the software's in use for Urban and Regional Planning Practice are not readily available.

The incessant power outage seems to be the least constraint as there is tendency to switch to generators whenever the power is off. The severity index rank the factor 9th with 33.5 respondents strongly agreed.

5. RECOMMENDATIONS

The first thing that the authorities responsible for practical urban and regional planning should do is to make a clear decision with regard to the incorporation of ICT as a new element of planning, with plans being recognized to take account of this. It is also recommended that there is a clear need for further information, training, knowledge and understanding about the spatial impact of ICT and about its consequences on urban and regional planning, also the programmes of planning education, training, as well as new planning methods and models based on new spatial and urban theories. should be updated. In addition, planning legislation and governmental guidelines should include provisions for the impact of the development of the information society and ICT on planning.

6. CONCLUSION

This article examines the need for urban and regional planning practices to be further developed in the light of both the emergence of the information/knowledge/network society and in particular the impact of information and communications technology, (ICT), on spatial change. The ways in which urban and regional planning practices may best be altered in this regard is also addressed. Therefore ICT, as the main driving force in the development of the information society, should be taken into account in urban and regional planning as an important new aspect in this process. Planners should therefore recognize this new need and challenge. Thus, the ICT age leads to a serious equity problem. This can only be dealt with by paying more attention to the adoption and organization of ICT knowledge, through education and training. This is an important task for the public administration.

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