ICT, youth and urban governance in developing countries: Bangladesh perspective

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ABSTRACT
Youth are the largest cohort in history numbering more than 1.2 billion with an estimated 87% living in developing countries. The majority of young people live in cities with 60% of the urban population in the developing world. In Bangladesh it will become 65% in 2030 (proportion of total population). Many youth live in informal settlements where opportunities for dialogue with governments are scarce. At the same time young people have been at the forefront of the rapid developments in information and communication technology (ICT) particularly the mobile miracle. Mobile platforms offer new opportunities for engaging youth in urban governance. This research addresses these questions through the presentation of data-based canvassing of Bangladesh (especially Chittagong city) followed by personal interviews. The findings are organized around key parameters designed to guide the development of programmes and policies that connect ICT as a tool to improve urban governance and local democracy for youth.

Introduction
The population of the developing world is increasingly young and urban. Today the young (ages 15–24) number more than 1.2 billion and an estimated 87% live in developing countries. They comprise the largest youth unit in history known as the ‘youth bulge’. The majority lives in cities with cities of the developing world accounting for over 90% of urban growth worldwide. An estimated 60% of all urban dwellers will be under the age of 18 by 2030 (Abebe, 2011). Moreover, they are often viewed as part of the problem rather than part of the solution. For example, while young people in the South Asia States comprise approximately half of the region’s population they are often excluded from decision-making on issues that directly affect their lives such as lack of education, high unemployment and poverty. One of the most difficult barriers has been to devise clear strategies and proven mechanisms for effective engagement of youth in governance processes. This fast-moving field is to an important extent in the hands of youth and the development of new applications poses a challenge for local governments unlike any of the major trends in the past 40 years including environment, gender, sustainability and indeed good governance itself. Governments will need to add basic operational aspects of information and communication technology (ICT) to curriculum in training to get up to speed with the growing digital literacy of youthful constituents. Local officials may also need special skills to promote youth...
engagement to keep a level playing field for females and the poor and to safeguard against the moral and ethical downsides of open access societies. For example Government of Bangladesh is providing its young people ICT related training named Leveraging ICT for growth, employment and governance (LICT). In this project ICT Ministry is giving 10,000 university students IT oriented training.

**Objectives of this study**

The primary purpose of this study is:

1. Adopting technology to improve more participation of young.
2. Balancing inclusiveness and responsiveness when using technology.
3. Public openness through technology.
4. Engaging citizens as partners in urban governance.

**Methodology**

The purpose of collecting data was to perform a research on how ICT and social media affect governance process. In this research an anonymous questionnaire was administered to collect data which was the standard survey collection method. We use interview method for collection of primary data which was face to face. Our target population was the public and private university students (University of Chittagong, Chittagong College and Premier University, Chittagong, Bangladesh) and their age range is from 18 to 25 years. The total number of questionnaires administered were 200. According to the respondents males \((n = 114)\) and females \((n = 86)\) were involved in this survey. All the participants were undergraduate students currently studying in various universities in Chittagong city. In the following other relevant questions were developed to carry out the research. Other questions focused on the lives of students and the feeling of students. For example, ‘How long are you using social media?’ and ‘Are you satisfied with the E-Public Service delivery of our Government?’ Also at the end of the questionnaire, we asked one open question about ‘what update do you demand to our ICT Sector?’ The participants were randomly selected regardless of gender or educational level. These questions related to their lives. There were various different perspectives present in the research which included advantage, disadvantage or not sure. However, other independent variables were tried to decrease the impact on the results.

**Literature review and conceptual framework**

Geo-referencing capabilities are increasingly available in mobile platforms and these lead to added dimensions in young people’s relationship with their communities and governments as evidenced in programmes such as community mapping and such programmes draw the attention of authorities and wider constituencies to problems or circumstances that are overlooked or ignored by officials of local government in urban communities. It should be noted that the distinction about youth as a separate category in relation to ICT tools of modern democracy is almost irrelevant in many cities. For example in Bangladesh, India and some special cases in South Asian Countries. In the first place a large fraction of the population falls into the youth definition anyway and these are the people who are driving change by using ICT simply because they are digitally literate and well-practised with mobile platforms. Still the specific consideration of youth needs is an important dimension that can enhance the outcomes of governance not just for the young but for wider populations. Greater attention to this issue is needed in policy, academic literature and in practice.

**ICT defined**

ICT can be broadly defined as a set of activities that facilitate by electronic means the capturing, storage, processing, transmission and display of information (Hewitt De Alcántara, 2001). The term ICT
encompasses the production of both computer hardware and software as well as the means of transferring the information in digital form. Another term commonly used to describe the changes produced by information technology is the digital economy. This expression emphasizes the new opportunities created by transforming information into a binary digital code. The digital economy refers to more than the boom and bust cycle of many new ventures aiming to tap the potential of the Internet for commercial purposes. The more profound effect of ICT is likely to be in improving the efficiency and reach of the mainstream production of goods and services, in both the public and private sectors of the economy.

Youth: citizens later or citizens now

One important way in which the conceptualization of the child as innocent and outside of politics surfaces in research on Governance, civic participation and use of ICT and citizenship is evidenced in two distinctive approaches to youth in this regard (Philo & Smith, 2003). One approach views children and youth as citizens in the future and focuses on discovering how to develop the appropriate skills for their future roles as citizens. While the other approach views children and youth as citizens now and focuses on the ways in which they understand and incorporate the elements of citizenship into their lives as children and youth (Weller, 2003). Children and youth are citizens in development younger children are often not of concern since they remain distant from their future roles as adult citizens. In this case, adolescents and young adults are more often the focus and activities such as voting behaviour and other forms of involvement in formal political processes are often considered the most important elements of civic engagement (Bucy, 2003). When children are included their actions or opinions are studied with a desire to understand how they affect the children's future as citizens (Iyengar & Jackman, 2003). For example (Smith, 1999) analysed longitudinal data on social capital and political participation in order to develop an understanding of the important socializing forces early in one's life in the hopes that it may be possible to identify ways to reverse these downward trends and to prepare young people for active and engaged citizenship. Children are considered important only in their roles as future citizens. The other approach to citizenship research views children and youth as citizens in their own right acknowledging the ways in which they understand and participate in political and civic activities by ICT in their everyday lives (Skelton & Valentine, 2003). This more often incorporates a youth-centred approach to understanding ICT, Mobile Technology, civic engagement and often focuses specifically on the experiences and opinions of children and youth (Bonder, 2000).

Youth: champions of ICT

Young people are the majority of those online in both developed and developing countries. Statistics from the International Telecommunications Union show that 45% of the world's Internet users are below the age of 25, suggesting both an early surge by the young to access the Internet as well as a large potential group of users still to be connected (Abebe, 2011). Young people are the core of a nation's future yet this significant stakeholder is rarely involved in poverty reduction strategies, environmental planning and sustainable urban development. Despite the momentum in the rhetoric on youth activism for positive social change, little regard is given to the views, opinions, needs and perspectives of young people (UN-HABITAT, 2011).

Today's generation of young people is poised to change the world in fundamental ways. Governments would be better served to cultivate and harness their potential rather than miss out on opportunities they offer for development (Figure 1).

- Young people Young people tend to be more online than other people in both developed and developing countries.
- In developing countries 30% of those under the age of 25 use the Internet compared to 23% of those 25 years and above.
- At the same time 70% of the under 25-year-old – a total of 1.9 billion are not online.
National ICT and broadband strategies should reflect these dynamics with regards to young people to realize the full potential of the digital revolution. Ongoing ITU research suggests that at present around 43% of national strategies reference youth. Figure 2 also showing the percentage of youth on national strategies.

**Young people in the Asia-Pacific region using ICT**

**Hardware**

In terms of ICT hardware a number of Asian countries are world leaders. Asian countries in 1999 accounted for the top five positions in the world’s production. These are Japan, Taiwan Province of China, Singapore, China and Republic of Korea. Together they produced $110 billion worth of computer hardware compared with the $95 billion produced by the USA. Also Asia growth in output of computer hardware is growing at a faster rate than that of the USA 8% vs. 5% between 1998 and 1999 (Rohwer, 2001). The Philippines is also a significant producer of computer hardware. In 1999 electronics exports accounted for more than 60% of total exports from the Philippines. This was a marked increase from 20% of total exports in 1988. South Korea’s Samsung Electronics for example is at the forefront of developments in relation to computer memory chips, digital appliances such as mini computers and the latest generation of mobile phones.

**Software**

The outstanding success story in the Asia-Pacific region in relation to computer software is India. In the five years to 2000 Indian software exports grew from US$ 50 million to US$ 4 billion. Market
capitalization of listed software companies in India was estimated to stand at US$55 billion on June 2000. More than 90% of India’s top 300 software firms have achieved internationally recognized quality standards. However, as lower cost options from countries in the Caribbean, Philippines, Thailand and others emerged Indian companies withdrew from this work. The remaining companies obtain their revenues from consultancy, systems integration and the supply of specialized software systems such as software tools, communications software and software for dedicated hardware devices (Sundaram, 1998) (Table 1).

**Access to ICT services**

Access to ICT in the form of computers the Internet and telephones is much easier in high income countries. However, for middle and even low-income countries in the Asia-Pacific region, ICT access is improving rapidly. Table 2 shows the percentage of Internet users.

It has been predicted that by 2003 Asia-Pacific will have more Internet users than either the United States or Western Europe. Dataquest forecasts that the Asia-Pacific region including Japan will have 183.3 million subscribers in 2004 while the US will have 162.8 million and Western Europe 162.2 million. In mid-2000 one estimate puts the number of Internet users at about 95 million in the region. Japan (38.6 million), South Korea (16.4 million), China (16.9 million), Australia (8.4 m) and India (4.5 million) have the largest concentration of Internet users. In terms of computers per 100 inhabitants, the countries with the most access to computers based on 1999 data are Singapore and Australia (44 and 42 per 100 respectively), New Zealand (33 per 100), Japan (29 per 100) and South Korea (18 per 100).

**Narrowband social networking for mobile participation**

Mobile platforms by far the most important ICT tool affecting youth are used primarily by and for youth to enhance participatory engagement in local government affairs and also to foster inclusiveness and

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**Table 1.** Estimated number of Internet and PC users in ILO Asia-Pacific member Countries and specified dates.

| Country    | Date  | Number of Internet users | Per 100 inhabitants | Estimated total PCs (000), 1999 | PCs per 100 inhabitants 1999 |
|------------|-------|--------------------------|---------------------|---------------------------------|-------------------------------|
| Australia  | NOV-00| 8.42 million             | 43.9                | 7900                            | 41.72                         |
| Bangladesh | JUL-00| 30,000                   | 0.0                 | 130                             | 0.1                           |
| Cambodia   | JUL-00| 4000                     | 0.0                 | 13                              | 0.11                          |
| China      | JUL-00| 16.9 million             | 1.3                 | 15,500                          | 1.22                          |
| Fiji       | MAR-00| 7500                     | 0.9                 | 40                              | 4.96                          |
| India      | JUL-00| 4.5 million              | 0.5                 | 3300                            | 0.33                          |
| Indonesia  | JUL-00| 400,000                  | 0.2                 | 1900                            | 0.91                          |
| Iran       | NOV-00| 100,000                  | 30.5                | 3500                            | 5.58                          |
| Japan      | JUL-00| 38.64 million            | 1.1                 | 36,300                          | 28.66                         |
| Kiribati   | JUL-00| 1000                     | 0.0                 | 1                               | 1.22                          |
| Lao PDR    | JUL-00| 2000                     | 6.9                 | 12                              | 0.23                          |
| Malaysia   | JUL-00| 1.5 million              | 0.1                 | 1500                            | 6.87                          |
| Mongolia   | JUL-00| 3000                     | 0.0                 | 24                              | 0.92                          |

Source: Internet user statistics (Children Youth, and Civic (dis) Engagement: Digital Technology and Citizenship, 2005, June).

**Table 2.** Internet users, estimated (November, 2000).

| Region       | Internet users million | Per cent |
|--------------|------------------------|----------|
| Africa       | 3.11                   | 0.8      |
| Asia         | 104.88                 | 25.8     |
| Europe       | 113.14                 | 27.8     |
| Middle East  | 2.4                    | 0.6      |
| Canada and USA| 167.12                | 41.1     |
| Latin America| 16.45                  | 4.0      |
| World total  | 407.1                  | 100      |

Source: NUA Internet Survey Report.
responsive. Less youth-focused activity has been found in other pillars namely outcomes and public openness. Mobile platforms have a levelling influence in the rural–urban divide many applications are making it easier to engage in communication, education, health care and businesses from rural settings even though these services have not been the focus of youth-related initiatives in urban areas. The limitations of broadband have led to the development of innovative ‘narrowband’ mobile communications applications tailored for users in developing countries. Low-end phone capabilities such as text messaging and simple Internet access is facilitating scaled-down versions of social networking, pay-as-you go mobile data access and searching (World Bank, 2012). In essence mobile phones are now providing new avenues for increasing numbers of citizens in the developing world to access the benefits of broadband Internet. In many ways the development of narrowband functionalities and mobile platforms can be seen as a commercial response to the growing youth mobile market (Measuring the Information Society Report, ITU, Annual Report, 2012). A summary of some of the most popular narrowband applications is provided in Table 3.

**Seizing the opportunity of the mobile ICT revolution for youth participation**

- Developing world is now ‘more mobile’ than developed world
- Youth are majority of ICT users
- Low cost mobile devices accelerating the trend
- Falling prices of smart phones, but still out of reach for most
- Innovative applications enabling low-end mobile devices to access benefits of social networking and Internet

**Youth and millennium development goals**

Young people ages 15–24 are 1.2 billion of the world’s human capital. Many of them around the world are already making contributions to the millennium development goals (MDGs) and their work should be further acknowledged and strengthened. Increasingly youth are recognized as key participants in decision-making and development as reflected in the growing presence of non-governmental youth organizations and the upsurge of youth advisory boards and committees to international institutions and programmes.

Goal 8, to develop a Global Partnership for Development discusses the important issues of fairer trade, youth employment and young people and ICTs. It outlines the need to:

- Harness North–South and South–South partnerships between young people and the consumption habits of youth in developed countries to achieve fairer trade and more ethical consumption.

**Table 3. The most popular narrowband applications.**

| Narrowband Technology | Description | Usage |
|-----------------------|-------------|-------|
| Facebook Zero         | Stripped down version of Facebook designed for mobile technologies, works mostly with text, no data charges | Rolled out in 2010 with 50 mobile operators in 45 countries (mostly developing) |
| Mobile Technology     | Africa’s largest mobile text messaging service & social network, instant messenger system available on almost any phone | 750 million text messages sent per day, majority of users 18–25 |
| Opera Mini            | Web browser designed for mobile phones, compresses data for reduced data charges | World’s most popular web browser, particularly developing countries |
| Gmail SMS             | Enables sending emails in form of SMS from most basic mobile phones | Currently launched in 3 African countries |

Source: ITU World Telecommunication.
- Address the issue of youth employment as a fundamental block to poverty reduction and fully support the work of the Youth Employment Network to create decent employment for all youth.
- Use micro-finance and skills development initiatives to reduce barriers for youth entrepreneurship.
- Empower youth as learners, developers, contributors, entrepreneurs and decision-makers in the area of ICTs.

Goal 8 is foreseeably the most important goal because it aims to expand the global economy that currently alienates the majority of today's youth. Goal 8 is the only specific mention of 'youth' in the MDGs. It is perhaps one of the most important targets in achieving the MDGs and in maintaining our achievements throughout the next century and beyond. Young people in the developed world are at the forefront of these movements. Their experiences demonstrate what can be achieved through global North-South partnerships between young people in support of a development agenda. ICTs provide new opportunities for job creation and youth themselves are currently providing entrepreneurial leadership in ICT industries, creating jobs for themselves and for others. Fostering entrepreneurship is vital in every part of the world and should be considered a key mechanism for development. Supporting young entrepreneurs in the developing world with education, financing, mentorship and encouragement is a critical pathway to bridging the digital divide and fostering the creation of sustainable livelihoods.

History of ICT in Bangladesh

Bangladesh has about five decades of experience in using computers. In its early days the ICT sector in Bangladesh mainly focused on hardware operations. The first ‘second generation’ world mainframe computer was installed in 1964 at Dhaka University. Soon after this several large banks and industrial concerns started using computers mainly for accounting and payroll applications. The Bangladeshi gas and electricity companies also began using computer systems for their customer billing. Unfortunately the financial crisis that the country faced after its independence in 1971 hampered the expansion of computer use in the Bangladeshi corporate sector. In 1982 a computer centre was established at the Bangladesh University of Engineering and Technology. This centre later renamed the Department of Computer Science & engineering has played a pivotal role in Bangladeshi IT education since its inception. The innovation of software concerning ‘Bangla writing’ on computers materialized in 1987. An engineer named Mainul Islam managed to write Bangla in an Apple-Macintosh computer using his self-evolved font ‘Mainulipi’. With the possibility of using Bangla on computers the importance of computer use in offices and printing industries in Bangladesh rapidly grew. Soon after the introduction of the Internet in Bangladesh in 1995 the development of exportable software and multimedia systems commenced. Over the years several ICT-related associations have been established. The Bangladesh Computer Society (BCS) association of the IT professionals for instance was formed in 1979. BCC the Bangladesh Computer Council is the consequence of the evolution of the National Computer Committee which the government constituted in 1983. The Bangladesh Computer Samity and the ICT industry association was found in 1987. BASIS established in 1997 promotes the ICT sector through awareness building, practical education for new graduates, paid internships and training programmes for mid-career employees.

Current status of ICT in Bangladesh

As a developing country Bangladesh is striving to create an environment for rapid dissemination of ICT at all stratum of the society. In this respect government of Bangladesh has shown keen interest in this sector. ICT is regarded as a thrust sector and the present government has pledged to build a digital Bangladesh within 2021. While the developed countries of the world have exploited the potential of science and technology in national development developing countries have fallen behind. Resource constraint, inadequate ICT capacity and lack of appreciation of the power of ICT may be cited as the reasons. The revolutionary development in the field of ICT has opened up new opportunities for developing countries to move forward in the path of progress by rationally exploiting its potential. In view of that
Bangladesh has been aspiring to achieve economic development through the application of Science as well as ICT. The government of Bangladesh has taken steps in this connection. The Government focuses on the reduction of poverty by applying ICT, increase in efficiency, productivity, transparency and access to information by the citizens. Citizens at large will be empowered with necessary information for efficiency performing their tasks.

National ICT policy, 2009

The government is committed to make Bangladesh Digital by 2021. The present Government has considered ICT as driving tools for Socio-Economic Development. In the election manifesto of Awami League it has been stated:

The potentials of ICT sector will be realized. Software industry and IT services will be developed by providing all possible assistance to talented young people and interested entrepreneurs. This measure will increase export and promote employment opportunities. Our vision is to make Bangladesh digital in 2021. IT education will be made compulsory at secondary level by 2013 and at primary level by 2021. The task force on ICT that was established during the Awami League rule but rendered ineffective by the BNP-Jamat Alliance will be reactivated. High-tech Park, software technology park, ICT incubator and computer villages will be set up at suitable locations in the country.

Considering the expectation & commitment the government has adopted the National ICT Policy on July, 2009 which can be considered as a Road Map of Vision 2021: Digital Bangladesh.

Structure of ICT policy, 2009

The policy document is structured as a hierarchical pyramid with a single vision, 10 broad objectives, 56 strategic themes and 306 action items. A pyramidal framework is followed where the vision remains at the top as the ultimate goal and the other linked parameters are placed in the subsequent layers. The vision and objectives are aligned with the general national goals while the strategic themes are areas within the broad objectives that can readily benefit from the use of ICTs. The action items are generally meant to be implemented either in the Short term (18 months or less), Medium term (5 years or less) and Long term (10 years or less).

Growth of ICT infrastructure in Bangladesh

Computer and the Internet

The growth of PC use and the Internet user’s growth is increasing gradually but still it’s not quite remarkable due to lack of content and affordability. PCs gained popularity in early 1990s. Since then on average approximately 100,000 PCs are purchased annually (Hasan, 2007). The growth rate of PCs sale have average 32.4% annually.

Telecommunication

Telecommunication is growing very fast in Bangladesh. The tele density (fixed line and cellular) in Bangladesh is 34.768% (Source: BTRC). A total of 12 landline operators have so far been awarded licenses. (Landline subscribers: 1.6 million). The total number of PSTN phone subscribers has reached 1603.187 thousand at the end of November 2009. The total number of Mobile phone active subscribers has reached 50.55 million at the end of November 2009. At present 5 mobile phone companies are operating in Bangladesh.
**Domestic ICT industry and software market**

The market size of the ICT Industry in Bangladesh is estimated to be around US$ 200 million/year (excluding the telecom sector). Out of this the software segment is estimated to be more than US$ 30 million/year. Locally there are over 500 software companies with 50,000 knowledge workers are operating in the country mainly catering to the customized software development and maintenance segment of the market. An encouraging sign is that 57% of the software companies are involved in Government sector IT project. It is a positive sign since the Government sector is potentially the biggest client for the software industry with the National IT Policy guideline of allocating up to 5% of ADP and 2% of revenue budget for IT. Currently more than 100 companies are exporting software and outsourcing to more than 30 countries. At least 40 Offshore Development Centers (ODC) and Joint Ventures started working during the last 2–3 years.

**Result and findings**

Most of the electronic device using by social media are smart phones (76%). Only 10% respondents use laptop to use social media. Desktop is only used by 12% showing on Figure 3. By analysing the study come to this point that the use of laptop and desktop is reducing because of portable use of mobile phone and the price of Laptop and Desktop are quite high. All the students are using the Internet daily for getting up to date news and update.

The study found that the most popular online network was Facebook, with 82% of University students saying they use it on every day because most of their friends use Facebook and it is easy to use. There belongs one app which name is ‘Facebook Lite’ which consume lesser data volume. The least used social media platform was Whatsapp with 6% of students using it daily which are demonstrates on Table 4.

![Figure 3. Electronics devices using by social media. Source: Based on field survey.](image)

| Name of social media | Frequency | Percentage |
|----------------------|-----------|------------|
| Facebook             | 164       | 82         |
| Twitter              | 12        | 6          |
| Whatsapp             | 12        | 6          |
| Instagram            | 8         | 4          |
| Snapchat             | 4         | 2          |
| Total                | 200       | 100        |

Source: Based on field survey.
The main purpose of social media is vary from person to person. But the most of the respondents of our report argued for academic purpose (46%). Because it is easy to search on Google to find various form of academic file. Another major use of social media is for communication. Nowadays it is easy to call on Skype, IMO, Tango and Whatsapp and it is free of cost. It only consumes some portion of mobile data volume. Table 5 shows us the main purpose of using social media.

Respondents who are using social media more than a year is 12%. Thirty per cent respondents using social media between 2 and 3 years. Twenty six per cent young people are using more than 6 year. Social media is now become the most useful tool to communication. Fifty eight per cent respondents communicate with their friend by cell phone. Thirty per cent through social media and 8% use through face to face contract. Seventy two per cent young people believe that the price range of their Internet bill is high (Figure 4).

The 78% students who believe that the price range of electronics accessories like, Mobile, Laptop and PCs are high. Sixty per cent respondents believe that all these electronics are available in their city with good quality. Another prominent fact is that 62% respondents did not attend any ICT-related ‘Career Camp’ or ‘IT Fair’. The young people of Chittagong city are eagerly waiting for any type of IT fair to boost their potentiality and knowledge. The percentage of respondents who had completed their Basic Computer certificate course is 62%.

E-Voting mechanism is one of the most conspicuous factors to decrease corruption in election process. By using this system we can reduce the rate of corruption. Sixty per cent of young people believe that by promoting e-voting we can lessen corruption in election process. Nowadays every government is providing public service through electronic media. The government of Bangladesh also provide its some vital service through electronic media. But the quality may be of the service are not good enough. The government is focusing deeply to provide its citizen e-service. Fifty six per cent respondents visit regularly Government websites for getting e-service. Thirty four per cent respondents don’t visit government websites and 10% of them never visited such websites (Figure 5).

### Table 5. Purpose of using social media.

| Purpose of using | Frequency | Percentage |
|------------------|-----------|------------|
| Academic         | 92        | 46         |
| Communication    | 72        | 36         |
| Job search       | 8         | 4          |
| Entertainment    | 28        | 14         |
| Total            | 200       | 100        |

Source: Based on field survey.

### Figure 4. Sources of cost for the use of Internet. Source: Based on field survey.
Twenty eight per cent young people believe that our government website is enriched with relevant information and data. But 66% respondents argued about some defects in our government websites. They want the information and data to be updated on regular basis. Seventy two per cent respondents are now paying their Gas, Electricity and WASA bill through their cell phone. Sixty six per cent respondents get government new project information and public service news through SMS.

**Government initiatives for promotion of ICT**

- Exemption of tax/vat on computer hardware and software;
- Deregulation of telecom sector & establishment of BTRC;
- Installation of digital data network in all districts and upazilas;
- Creation of equity entrepreneur fund for the investors;
- Protection of intellectual property right distribution of computers to school/colleges;
- Establishment of ICT business promotion council.

**For human resource development**

- ICT training for the government employees;
- Computer training for secondary school/college teachers;
- Introduce post-graduate diploma (PGD) programme in public universities to produce quality ICT professionals;
- ICT internship programme to provide on the job training to new graduates;
- Government is providing 60% of their monthly allowance & 40% by the organization;
- standard computer training centres at divisional & district headquarters;
- establishment of Bangladesh-Korea institute of information and communication technology (BKIIICT) in collaboration with KOICA;
- ICT professional skill assessment and enhancement program (IPSAEP) through establishment of a government owned company ICT capacity development company (ICDC) Ltd;
- Establishment of training laboratories in the educational institutions at upazilla level;
- Establishment of community e-centres in the rural area throughout the country by the government & NGO.
Barriers

The relative advantage of young people who have grown up with modern devices has created a 'youth-local government ICT gap' that is growing steadily. The interviews provided clear evidence of disconnect between young activists found in most posts of confidence in local government. Experience with e-Government services in the past has demonstrated that factors such as technological and human capacity, financial sustainability and bureaucratic resistance can limit the adoption of ICT programmes and reduce their long-term impact. The reality is that most people in government are not very strong ICT users this is something youth do better. A key challenge reported on by youth interviewees is the tendency of governments to limit their view of ICTs and youth to issues of access and skills. While obtaining ICT skills is of key importance in today's market the potential impact is much broader. Young people are interested in applying their skills to influence social, economic and political arenas. This is something that governments are still slow to understand. Youth-focused ICT programmes have emphasized skills, access and infrastructure with little attention to how these tools can be applied to solve the problems youth are most concerned with. Another dimension of youth-local government relations related to capacity concerns the volume of traffic that mobile platforms in particular have brought to the citizen-government relationship. Contacts that were once annual or monthly are now daily in frequency and the pace and volume of exchange will expand with the increased access to ICT devices. Accordingly there is a need for greater municipal capacity in terms of staff time, skills, attention to measure, manage and take advantage of the increased flow of communications.

Policy recommendation

The research conducted to date suggests a number of recommendations that might enable greater potential benefits of ICT and accommodate the challenges it poses for youth and urban government:

**Putting youth and ICT in local governance on the agenda**

Governance needs to be infused with a much stronger sense of the young to account for their needs be responsive to their concerns and to harness their energies. Youthful citizens with mobile phones are governance game changers and authors of a generational-technological revolution. Policy-makers will want to gauge the stakes for governance and democratic participation by plumbing the impact of these changes. Careful analysis is required to understand the conditions and proper governance frameworks that are conducive to successful youth engagement via ICTs.

**Extend the impact of social media on local government**

Mobile phones connected to social media allow young people to engage local government by expressing voice. Policy-makers can build on the inroads created through social networks to extend into areas of governance that have so far been impacted less by ICTs and youth such as improving local services and increasing transparency.

**Capacity building for urban governments**

Training and capacity building for governments in digital communications can play a critical role in reducing the ICT capacity gap between young citizens and local government staff. Such training should go beyond basic ICT skills and focus on how ICTs can be harnessed not just for good governance but also for youth-focused policy outcomes.
Support crowd-sourced data for public goods

Local, national and international agencies should explore the great potential of harvesting the best of youthful contributions to local government by such means as social media, crowd-sourcing and coordinated use of mobile platforms as a way to revitalize local democracy.

Research on youth

Policy-makers should support research that explores the concerns of youth digs deeper into how they connect to each other and understands how they view their communities and their government. More comprehensive age-specific data by region and technology needs to be developed in order to ensure effective serious policy relating to youth participation through ICTs.

Young people to become self-employed

ICT offers a number of opportunities for young people to become self-employed or to start up a small enterprise due to the specialist IT skills they are more likely to have. Therefore, young people could be encouraged by governments to view self-employment in ICT-related activities as a viable option. This could be done by governments publicizing case studies perhaps on a web site of young self-employed using ICT. These case studies could act as valuable role models for young people presenting them with an image of success and achievement.

Conclusion

ICT is not the answer to developing democratic institutions for youth in the developing world but represent an entire new channel of communication that may contribute to this broader goal. Nor is the subject matter any longer merely governance of youth. Rather the scope of concerns crosses into new and uncharted territory as governance itself is transformed by fast-moving changes of ICT in the hands of the young. For one thing dynamic boundaries of ICT are being pushed forward on a daily basis because of the pervasive presence of mobile platforms and the inventiveness of young people in adapting technological devices to meet their needs. Young people are developing mobile phone applications in large numbers that affect many areas of local governance and community life such as leadership and inter-governmental relations. Moreover the impact of creative energies by young people goes beyond just governance of youth.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

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Survey Questionnaire

ICT, youth and urban governance

This study is a part of a Research. Your involvement is strictly confidential and no information about you will be used in any way that reveals your identity. Besides, your responds will be used in aggregate form and will not identify you as an individual. This will take 10–15 min to answer. Please answer all the questions as accurately as you can. Please complete the following section before you start.

# University/college Name : …………………………………………………………………………………

# Department Name : …………………………………………………………………………………

# Age : …………………………………………………………………………………

# Gender : …………………………………………………………………………………

Questions

(Please place ‘√’ where applicable, select only one in each question)

(1) Do you use the Internet?
   (a) Yes
   (b) No

(2) How do you use the Internet?
   (a) Mobile phone
   (b) Desktop Computer
   (c) Laptop
   (d) Tab

(3) Do you use any form of social networking site?
   (a) Yes
   (b) No
(4) Which one do you use most?
   (a) Facebook
   (b) Twitter
   (c) Whatsapp
   (d) Instagram
   (e) Snapchat

(5) Why do you use social network?
   (a) Academic purpose
   (b) Communication
   (c) Job search
   (d) Entertainment

(6) How long are you using social media?
   (a) 0–1 year
   (b) 2–3 years
   (c) 4–5 years
   (d) 6+ years

(7) How do you communicate with your peer group or relatives?
   (a) Cell phone
   (b) Social media
   (c) Face to face
   (d) Text messaging

(8) The price of your 3G service is-
   (a) High
   (b) Medium
   (c) Low

(9) Do you want the price range of 3G service to be more reasonable?
   (a) Yes
   (b) No, I am satisfied with the recent price range

(10) What are the source of cost for the use of Internet?
    (a) Parents
    (b) Self-income
    (c) University free Wi-Fi

(11) Do you want better Internet service for faster data, multimedia and voice communication?
    (a) Yes
    (b) No

(12) The price of electronics accessories like, Laptop, PCs and Mobile are-
    (a) High
    (b) Medium
    (c) Low

(13) All these electronics are-
    (a) Available in my city with good product quality
    (b) Available in my city with bad product quality
    (c) Not available in my city

(14) Did you ever attend any ICT related ‘career camp’ or ‘IT Fair’ in your city?
    (a) Yes
    (b) No
    If yes, specify the name........................

(15) Did you complete any certificate course related with ICT or Basic Computer?
    (a) Yes
    (b) No

(16) Do you pay Gas bill, Electricity bill and WASA bill through your cell phone?
    (a) Yes
    (b) No

(17) Did you ever pay your tuition fees through Cell phone or Online Banking?
    (a) Yes
    (b) No

(18) Did you ever participate in E-Voting to elect your local representative?
    (a) Yes
    (b) No
(19) Do you agree that E-Voting mechanism helps to reduce corruption in election process?
   (a) Yes
   (b) No

(20) Do you visit Government websites for E-Public Service?
   (a) Yes
   (b) No
   (c) I never visited

(21) What do you think that our government websites are enriched with all relevant information and data?
   (a) Yes
   (b) No
   (c) I don’t know

(22) Are you satisfied with the E-Public Service delivery of our Government?
   (a) Yes
   (b) No
   (c) I haven’t tried

(23) Do you get Governmental Public Service information and project news through SMS?
   (a) Yes
   (b) No

(24) Are you satisfied with the recent progress of ICT by our Government?
   (a) Yes
   (b) No, I want more to update

(25) If the Answer of Q.24 is NO, what update do you demand to our ICT Sector?
   (a) …………………………………
   (b) …………………………………
   (c) …………………………………

(26) Do you agree that Government should invest more to ICT sector to boost the potentiality of our young generation?
   (a) Yes
   (b) No

(27) Do you agree that in recent times it is easy to get involve in cyber-crime?
   (a) Yes
   (b) No

(28) ‘Government of Bangladesh investigating some persons social media profile and Blogs regularly’ – Is it a positive sign of ensuring Cyber security?
   (a) Yes
   (b) No
   If No, please state only one reason………………………………………………

(29) Which section of people are now more engaged with Internet and social media?
   (a) Young
   (b) Mid aged
   (c) Elderly

(30) So, finally which areas are young people more engaged with in the Internet, social media and ICT?
   (a) Urban area
   (b) Rural area