

A survey on infrastructural exclusions in new established cities of Iran (Case of ICT Diffusion in Golbahar & Binalood)

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Abstract:

In our country, as in the most countries around the world, the Internet and other information and communication technologies (ICT) are mainly used by young, educated, well paid and urban consumers. Elderly, low-educated, low-paid and marginalized residents (who also known as marginal in this paper) are among those who use the ICT, especially Internet the least. This is the reason that in today's post-modern network society and globalized world they are at the risk of social exclusion.

This paper is aimed at the analysis of ICT diffusion in new established communities of Iran, exploring the main social patterns of diffusion and characteristics of new established communities Internet users. The study is based on *focus* group discussions and ۳۰۰ questionnaire-based survey of residents in selected new cities Golbahar and Binalood in north-east of Iran. The paper discusses types of change agents involved in the processes of ICT diffusion in new established communities and the main motives for using the communication technologies. It also explores the impact of ICT on ways of private communication and communication with relevant public authorities, discusses both positive and negative attitudes to ICT use in everyday life activities.

Key words: Iran, New established communities, ICT Diffusion, Internet users, social exclusion

۱- INTRODUCTION

Information society is one of the major visions that characterize the end of ۲۰th and the beginning of ۲۱st century. This new type of society is described as “a new social and economic paradigm restructuring the traditional dimensions of time and space within which we live, work and interact” (Loader , ۱۹۹۸:۳). Information and communication technologies as itself do not change the social structure, the force for change is provided by the use of ICT in all spheres of everyday life activities. Information and knowledge we get by means of the Internet empower individuals to participate successfully in nowadays society's life. Thus unequal opportunities to use the Internet and other ICT and relevant accessories are tightly related to an issue of social exclusion.

Many authors (Haythornthwaite & Wellman, ۲۰۰۲; Kahin & Keller , ۱۹۹۵; Katz & Rice , ۲۰۰۲a , ۲۰۰۲b ; Kavanaugh & Patterson, ۲۰۰۲) analyzed and still are analyzing the way

the new information communication technologies, especially the Internet, influences everyday life of community members. But, as Howard Rheingold (۲۰۰۲) argues, the “popular concerns, images and delusions” created and diffused by mass-media journalism and online folklore, sometimes outpaces “systematic studies of social cyberspace”. Mass media often gives controversial answers about the relationship between ICT and social constructs of equality and inequality.

There are two opposite perspectives on the role of ICT in society. One part of Scholars view computers and the Internet as magic entities with the power to transform society. They consider the Internet as a new medium of communication, helping to cope with issues of social exclusion, social inequality. According to Manuel Castells (۲۰۰۲), this is one of the reasons “why, after three decades of existence, it emerged from specialized communities in the world of researchers, techies, hackers, and countercultural communities, to catch fire in business and in society at large”.

But there are others who consider the new ICT as a tool to strengthen social Inequality and widen the information gap, when one part of the population (haves of information) uses digital devices, while the other part of the population (non-haves) is in a digital divide.

Limited access to Information and Communication Technology, ICT, means that new established communities lack basic information that could assist them to improve their livelihoods. ICT services can support development in new established communities areas. A third of all Iranians (۳۳,۶۵ percent) live in new established town, city or marginal areas beside the bigger cities across the country. Most of these have yet not to use ICTs as a development tool.

The key questions framing this article are as follows:

- What are the theoretical debates about the impact of ICT diffusion on the issue of social exclusion?
- What are the prospects and the main obstacles for using the Internet in new established Communities in Iran? Is there a threat of social exclusion for new established communities residents who do not use the Internet?

In the first section of this article the main theoretical perspectives on diffusion of innovations are presented, exploring different aspects of diffusion research.

An issue of social exclusion in the information society is analyzed in the second Section of the article.

Finally, In the third section of this article there are presented the evidence from our study "ICT diffusion in new established communities Golbahar & Binalood ", examining prospects and obstacles for using the Internet in these new cities as parts of new established communities of Iran. This study describing the common tendencies and exploring the main questions and areas that should be investigated more deeply in the further studies.



۲. THEORETICAL APPROACHES TO “ICT” DIFFUSION

Getting a new idea adopted, even when it has obvious advantages, is difficult (Rogers, ۲۰۰۳:۱).

The diffusion of innovations has been a focus of many research and scientific studies from diverse academic areas (Rogers, ۲۰۰۳:۳). There were over ۱۵۰۰ diffusion oriented studies even during the ۱۹۵۰s and ۱۹۶۰s and research areas ranged from anthropology, new established communities sociology, medical sociology to educational or mass media research (Harper, ۱۹۸۹:۱۱۱). As Charles Harper (۱۹۸۹:۱۱۱) notices, research findings in these diverse areas have been “remarkably consistent and cumulative”.

Diffusion theories suggest that there are several types of factors affecting the spread of innovations. Emphasizing different sets of factors, theoretical perspectives offer the ways how to analyze the dissemination of new technologies, ideas, reforms or products.

The recent spread of information communication technologies in society has raised new aspects in diffusion research.

According to Paul Attewell (۱۹۹۶:۲۰۴), two main metaphors or images are prevalent in diffusion research. He classifies the diffusion theories into ۲ main categories:

- Adopter studies, and
- Macro-diffusion theories.

The first group implies theories which explain the patterns of innovation diffusion in relation to communication flows. The diffusion research focuses on adoption by individuals (or by single organizations) and investigates the impact of such factors as the nature of innovation, characteristics of adopters, diffusion networks and other (Attewell, ۱۹۹۶:۳۵; Harper, ۱۹۸۹:۵۱).

The most widespread theory of innovation diffusion is presented by Everett Rogers. According to this theory, diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, ۱۹۸۳:۵), thus the main ۴ elements, which are identifiable in every diffusion research study, are as follow:

- (۱) an innovation,
- (۲) communication through certain channels,
- (۳) time and
- (۴) members of social system.

The first element – innovation - is considered to be any idea, practice, or material artifact perceived to be new by the adopting organization or individual (Rogers, ۱۹۸۳:۷). In our case, we analyze ICT communication through certain channels among the members of new established communities Golbahar and Binalood.

The potential adopters can find about new ideas just in case they are informed about them, thus the diffusion process implies the second element - communication through certain channels. According to Rogers (۱۹۸۳), innovations such as ICT can be transmitted to the receiver using ۲ types of communication channels:

- (۱) interpersonal channels, and
- (۲) mass media channels.

First type implies direct (e.g. face-to-face) communication between transmitter and receiver; and the second type includes governmental policies communicated through TV, radio, newspapers, etc. This existing discourse makes an impact on beliefs and attitudes of people toward ICT use and is one of the means for ICT diffusion among society members.



The second group of theories - macro-diffusion theories – examines the diffusion of new technologies across entire populations, communities, society. Speed of adoption depends on such factors as population size of an area, the distance of that area from other centers of population (Attewell, ۱۹۹۶:۲۰۵).

John Carey (۱۹۹۶) distinguishes *marketplace factors* as a separate group in diffusion research. This group includes pricing policy, replacement cycles.

The price of innovation (new product, technology, service, etc.) has an important role in the process of adoption by the public. Generally new products are introduced at a high price, as early manufacturing is more expensive (due to the costs associated with the research and development of the product, low scale of production). As John Carey (۱۹۹۶) argues: "a new technology has to find some early users who are able and willing to pay a high price for the product or service in order to achieve the economies of scale in manufacturing that can reduce the price for the general public" (Carey, ۱۹۹۶:۲۵).

The mass production reduces the costs and the price of the product. Typical examples of such pricing policy are introduction of radio, black white and color TVs, telephone connection. The initial price of the new technology was very expensive for an average household and the technology was not widely used, but the decrease in price resulted in a wider adoption.

But, as John Carey (۱۹۹۶) argues, the personal computer has followed a different pricing pattern: "rather than drop the price of personal computers, manufacturers have increased the capabilities of PCs each year" (Carey: ۱۹۹۶:۲۷).

Replacement cycles are also important. The growth of some technologies is linked to the purchase of other media. In this sense, replacement cycles for existing media can provide an important way to introduce new media. For example, in U.S. households, the average color TV is replaced after ۸ years, the average telephone answering machine after ۶ years and the average personal computer after ۶ years (Carey, ۱۹۹۶:۲۹).

۳. ICT AND SOCIAL EXCLUSION

Information technology is the core element analyzing the new, global, knowledge-based society. In today's world the use of ICT becomes one of the most influential factors that determine both the present performance and the future conditions for the person. The Internet offers a variety of ways for interaction. Green (۲۰۰۱) distinguishes ۳ ways of interaction: (۱) information access and retrieval, (۲) private interactive communication with individuals or small groups and (۳) public interactions (Green, ۲۰۰۱: ۱۹۷).

But unequal opportunities to use the Internet eliminate this variety of interaction.

When we talk about the impact of new information and communication technologies on the society, we analyze mainly two aspects of impact– networked or socially excluded people.

Contemporary scientists have formulated the terms like information poor and information rich (Green , ۲۰۰۱: ۱۰۴). An approach like this emphasizes the circumstances of people with access to minimal or large amounts of information. People who do not have or have limited access to information resources (non-haves of information or information poor) are in the social position lower than information rich. The policies based on the idea of fundamental equity are that all people should have "trouble-free access to information" and this will promote equality (Green , ۲۰۰۱: ۱۰۵).

Of course, not everything depends on the access: "Access to technology does not necessarily lead to its use, and information does not necessarily fuel self-empowering activity" (Green ,



۲۰۰۱، ۱۰۵). As Lelia Green argues: "access is a necessary, but by no means sufficient, condition of equitable participation. To talk simply in terms of equity of access ignores the fact that effective interaction in the information society requires high levels of motivation and sustained effort. Such keenness to interact with the technology of information cannot be assumed. Continuing motivation is perhaps the key determinant of successful participation – more important than access *per se* (Green, ۲۰۰۱): ۱۰۴).

The diffusion of ICT and adoption in everyday life activities such as e-learning, ecommerce, e-banking, etc. are rather complicated phenomena, depending on various characteristics of an individual and a certain social system.

ICT is a key enabler of globalization. It allows for the efficient and cost-effective flow of information, products, people and capital across national and regional boundaries. ICT is not a panacea for new established communities development problems, but it has the potential to help the new established communities poor to leapfrog some of the traditional barriers to development, by improving access to information, expanding their market base, enhancing employment opportunities and making government services work better.

Considering the use of the Internet, it is obvious that socio-demographic Characteristics determine a gap between different groups of the population. According to the data of a survey of ICT Diffusion in developing countries, the Internet and other information technologies are mainly used by young, educated, well paid and urban consumers. The statistical data of this survey showed that people at the age of ۱۵ – ۴۹, who have acquired higher education or live in major cities of the country, and have higher income are the most involved in the processes of information society development (Greech, ۲۰۰۴: ۲۰).

According to the statistical data, the lowest awareness of the processes and Opportunities of information society development belong to residents of Marginal, new established communities centers or towns which have low incomes and educations (Greech, ۲۰۰۲: ۴).

It is obvious that different socio-demographic characteristics have determined a gap between different groups of the population. This can lead to the information gap, when one part of the population uses digital devices, while the other part of the population is in a digital divide. Thus the residents of new established communities are at the risk of being in a digital divide or even in a social exclusion.

۴. PROSPECTS AND OBSTACLES FOR USING THE INTERNET IN NEW ESTABLISHED COMMUNITIES OF IRAN

۴.۱ Methodology

Our study "*ICT diffusion in new established communities Golbahar and Binalood*" tries to explore the prospects and obstacles for using information and communication especially internet for daily life activities in new established communities of Iran.

This Survey is based on qualitative and quantitative research methodologies.

■ Qualitative: focus group discussion. The survey implies data from ۲ focus group discussions. Participants are residents of new sample cities Golbahar & Binalood, like officials ,operators , schoolchildren ,teachers and librarians ,employees and etc. . They expressed their opinion about the willingness to use the Internet in their everyday life activities.

■ Quantitative: opinion survey which given by analyzing data by statistical-discussion method and the following formula:



$$n = (t^2 pq) / d^2$$

t: acceptancy level

p: population with specific characteristics

q: population without specific characteristics

d: accuracy

The mass of sample determined by Cochran formula about ۳۰۰ persons, and the questionnaire was according to likhert ° degree spectrum.

The pilot study represents the opinion of local communities' leaders and people.

۴.۲ Results of study

Talking about community's everyday life activities and areas in which the communication technologies can be used is very important, the respondents of questionnaire in our survey identified ۶ main spheres:

- (۱) the search for information;
- (۲) e-mail communication;
- (۳) learning via the ICT especially Internet;
- (۴) spending leisure time on the Internet;
- (۵) presenting the information about community activities;
- (۶) participating in social and political activities.

People were the most likely to emphasize "the search for information". ۹۵% of respondents indicated this area as the main. ۸۴% of respondents pointed out that the e-mail communication is also important for communities' members. ۸۱% of respondents agree that World Wide Web can be used for the educational purposes. Nevertheless, new established communities residents are the least likely to use the Internet for participating in political activities.

Considering the categories of the Internet users, respondents of the questionnaire based survey pointed out that, according to their opinion, the leading users of the Internet in the new established communities of Iran are: (۱) schoolchildren, (۲) teachers and librarians, (۳) municipality officials and other governmental officers, and (۴) members of community centre. Almost all respondents (۹۷%) agree that the Internet is mostly used by schoolchildren. The retired, elderly and unemployed people are among those who use the Internet the least. Nobody of the respondents consider retired people as active users of the Internet.

According to the results of focus group discussions, the work-related reasons are the main for using the Internet. There is a relatively high level of unemployment in new established communities of Iran, thus a paid work is highly valued as the main source of household income. In order to be competitive in labor force market, people try to use ICT:

"... yes, work-related reasons are the main in the decision to learn how to use computers and the Internet..."

"...the fear of unemployment is the main reason why adult people learn to use computers and the Internet especially for official employees. Work guaranties income and financial security. On its turn, financial security creates moral comfort"

The shift from centralized economy to market economy and globalization around the world, naturally influenced changes in Iran's new established communities labor market structure : the emergence of new professions and the dissolution of the other ones:



"...some profession became unnecessary (like traditional grinding of wheat by wind or water), while new ones have emerged; so re-qualification is very important: People need new skills in using computers and new knowledge".

"...everything is different now, new requirements for employees...even for ordinary service worker..." .

The other group of reasons for using the Internet is related to the individual's everyday activities. Participants of focus group discussions emphasized the need for the Internet in order to save money and time in doing daily activities:

"...you should learn to use the Internet if you want to write e-mail instead of calling by phone... calling by phone is expensive, so in such a way you can save your money... or instead of writing an ordinary letter which is time-consuming. On the Internet you can check your account in the bank and find out whether you have received your pension or paying your monthly bills, or to read a news in online newspaper , and have to know about the latest prices of agricultural products" .

The diffusion of ICT can change the concept of new established communities, empowering such residents with new opportunities of participating in society's life.

According to the data of opinion survey, it is quite complicated to answer the Question whether the use of computers and the Internet really empowers new established communities residents to participate in society's life more effectively. As the data show, ۳۵% of respondents think that there is a threat of social exclusion of some groups in Iran, while ۳۰% of them consider that the traditional human relations are the most significant in community's life, the users or non-users of ICT in Iran society have the same opportunities, and ۳۵% of them do not have any opinion about this issue.

Participants of focus group discussion in sample new town and cities of Iran agree that:

at one point, the Internet refers to the idea of equality for all individuals in diverse society: all the information to all new established communities people .

As an ideal, it could empower socially excluded people, allowing them to participate in everyday activities, which previously were inaccessible, e.g. due to the shortage of time and unwillingness to leave their homes. The participants of the focus group explain the reasons why they try to establish the public access to the Internet:

The use of the Internet is very important, particularly to residents of new established communities:

I can not leave my home for a long period of time, so I can learn profession Educations (fanni-herfeyee) via the Internet , You do not need to travel ۵۰ kilometres (۱-۲ hours) for the lesson that lasts ۱-۲ hours Its cheaper for me to write an e-mail than to call by phone.

Thus, participants of focus group discussions agree that the Internet opens new opportunity for the individuals from new established communities of Iran.



In spite of the advantages and opportunities that new established communities residents see in the use of ICT, there were indicated the obstacles that ICT diffusion itself meet in new established communities of Iran. According to the opinion of the residents of our survey:

The Internet could be an useful tool, but, first of all, we need PCs and connections to the Internet here...

Thus non-equal ICT infrastructure is one of the problems. ICT infrastructure is deployed with widely varying local and regional rates of penetration, depending on factors such as geography, age and income levels. According to the static's of internet world states(۲۰۱۰), ۱۰,۸% of Iran's population are internet users .

۸۹,۲% of Iranian residents, who do not use the Internet, pointed out that the main obstacle is uneven distribution of access to the Internet. During the focus group discussion in our sample villages for survey , people supported this data:

"it is easy to have an access to the Internet in cities , but here, in country it is difficult..." .

The diffusion of ICT often relies on a change agent who is the most technically competent (Rogers, ۱۹۸۳, p.۱۹), but in new established communities the quality and number of professionals who maintain the network and provide ICT service is rather low.

The challenging issue in using computer and the internet is language. Most people in new established communities settlements of Iran are not able to read texts in foreign languages (especially English), thus foreign sites are not suitable for most new established communities residents from Iran. Participants of focus group of our survey comment on this:

"If you want to work, read, search for information, learn you should know foreign languages in order to read foreign sites you should know English well" .

But the main obstacle for using the Internet and buying computers are the costs of ICT. It does require much financial resources. At a starting point individual should acquire ICT hardware and software products; Internet costs also are relatively high in new established communities settlements of Iran. Thus only financially strong people can allow themselves to acquire PC and connection to the Internet. According to the focus group discussion results, the price which business and individual consumers pay for the Internet access, personal computer's both hardware and software is extremely high for them. There are good tendencies toward the lowering the costs of the Internet connection - now telecommunication company of Iran(TCI)the main provider of telecommunications in Iran, has a policy to connecting new established communities points to the Internet accession. The maximum speed of internet connection in Iran is ۱۲۸kbs by the cost of about ۲۰۰ tomans(about ۳۰ us cents) for one hour.

As residents from new established communities where low-income levels cannot support high priced ICT items argue, public access is essential in making the Internet available to greater numbers of individuals and firms:

...Internet cafes and tele-centers assume great importance in making the Internet available to those who do not have personal access at home or at work.

•-Conclusions



This study contributes to an analysis of ICT diffusion in new established communities Golbahar & Binalood located in north-east of Iran and deals with the problems of social exclusion. It allows some conclusions to be drawn about the role of the Internet in new established communities. Communities' members are the most likely to use the Internet in order to get information, for e-mail communication, and for educational purposes (e-learning).

This study suggests that new established communities' residents consider the Internet as a useful mean and new opportunity for being involved in everyday life processes. But also they indicate some obstacles that ICT diffusion meets in Iran. Non-equal ICT infrastructure at regional level, the low number of professionals who maintain the network and provide ICT service in new established communities of Iran, lack of knowledge in foreign languages, and relatively high costs of ICT (the prices for the Internet access or personal computer's both hardware and software) are the main obstacles for new established communities residents to use the Internet.

Public access is emphasized as one of the ways in making the Internet available to greater numbers of individuals and firms in new established communities of Iran.

Statistical data show that socially excluded groups (retired, elderly and unemployed people) use the Internet very little or do not use it at all.

This case study also suggests that the methodology of the pilot study should be revised, because it is quite complicated to answer the question about the impact of ICT on social exclusion. Data show that people consider that there is a threat of social exclusion of some groups (ICT non-users) in Iran. But they are also positive about the role of the Internet in solving problems of exclusion. The use of the Internet is considered as an effective mean to integrate socially excluded people into society's life, because living in new established communities is not the key issue for being excluded.

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