Mobiles for Development -
Low cost applications for sustainable development!

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Abstract

Twenty first century has been marked by advances in global prosperity unlike any other in the human history. In fact a look at the poverty trends for the past few decades indicates significant decline in the proportion of population living in extreme poverty. Similarly standard of living and access to basic services have seen remarkable improvement over the years. But despite such broad based progress the absolute number of poor has remained alarmingly high. This paper explores the impact of Information and Technology on Poverty and develops a strategic framework that would help us successfully leverage new technologies like mobile tele-communication to ensure sustained growth.

1. Introduction

Imagine living a life of uncertainty – uncertainty of whether you will be able to earn some money, whether you will be able to feed your family, whether you will get any medication when you fall sick or simply whether you will be able to survive another day. Imagine or may be just look a little outside your routine world – for more than half of the world's population lives a life of helplessness and despair, a life marked by poverty [1]!

According to the World Bank Development Report 1.4 billion people live on less than USD 1.25 a day, an amount considered to be the bare minimum to sustain the human body. An equally large number of people do not have access to basic facilities like hygienic food, potable water, sanitation, healthcare and education. According to an estimate one third of the deaths in the world – some 50,000 people per day are due to poverty related causes [2].

But why is it so? Especially when the past century has been marked by advances in global prosperity unlike any other in the human history. In fact a look at the poverty trends for the past few decades indicates significant decline in the proportion of population living in extreme poverty (in developing countries this number fell from 28% in 1990 to 21% in 2001) [6]. Similarly standard of living and access to basic services have seen remarkable improvement over the years. So why is it that despite such broad based progress, the absolute number of poor has remained so alarmingly high?
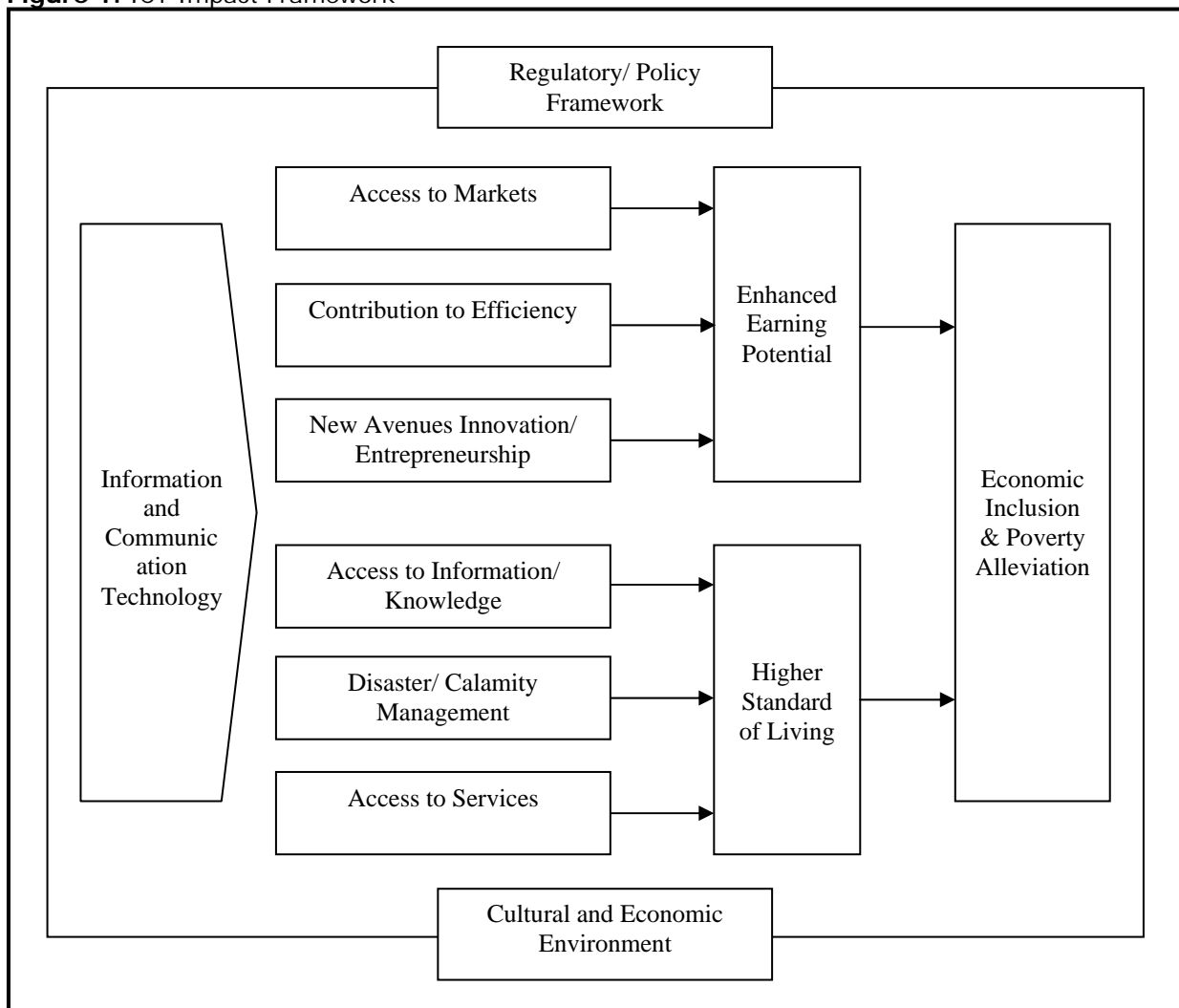
The reason is that the poorest of the poor have still not been able to integrate

into the mainstream economy. Living mostly in remote rural areas they are still far removed from the impact of globalization. In fact a legacy of poor policies and poor performance has left too many of the least developed countries, and worldwide, too many poor people, behind in trade, finance, technology, that is, in precisely the things that could help them grow and hence reduce poverty. This essay focuses its attention on one such component – technology, assesses its impact on poverty and proposes a strategic framework that would help us leverage new technologies like mobile tele-communications to ensure sustained growth.

2. Empowerment through Technology

Technology has traditionally been considered a luxury meant for the rich. But with the rapid development of new technologies and the lowering of costs of existing ones the reach and impact of technology has moved beyond the rich and elite. This in turn necessitates that we clearly understand the potential of technology and its impact on the lives of the rural poor. Let us do this with the help of a simple framework *(refer figure 1)*.

Figure 1: ICT Impact Framework

The framework emphasizes the positive impact that ICT has on poverty alleviation by enhancing the earning potential of the rural poor as well as by providing them affordable access to the basic products and services which their not so poor urban counterparts are used to. The framework also recognizes the importance of the national regulatory system and the economic and cultural environment to support the catalytic role that ICT can play in poverty reduction.

Let us look at each of the underlying impact channels of the framework in little more detail.

2.1. Access to Markets

ICT enables the rural poor to bypass the geographical and infrastructural barriers and participate in the established markets, thus helping them avoid exploitative intermediaries and receive a fair price for their products [9].

2.2. Contribution to Efficiency

ICT enhances the efficiency of doing business. It eliminates the need of physical travel by providing an alternate transactional platform thus ensuring that the poor can devote the time and money saved to their core business. Similarly it also provides easy access to latest information and business best practices thus enhancing the operational efficiency of the poor [9].

Caselet: *ITC in India has set up a network of internet connected kiosks, known as e-Choupals, through which farmers can receive all the information, products and services they need to enhance their farming productivity and receive a fair price for their harvest* [3]*.*

2.3. New Avenues - Innovation/ Entrepreneurship

ICT is seen by many as a trigger for innovation and entrepreneurship. As people get used to technology and develop a sense of its potential they are able to identify unmet needs and hence develop innovative means of catering to them. This leads to creation of new revenue streams and hence encourages sustainable growth.

2.4. Access to Information/ Knowledge

ICT makes it easier for the rural poor to connect with the rest of the world. Voice based solutions and media rich content help them overcome the barriers of illiteracy. The knowledge so gained helps shape their aspirations and eventually leads to an improved standard of living.

Caselet: *Enlaces, the educational initiative of the Chilean government aims to integrate ICT into the educational processes in order to help achieve enhanced quality and outreach of its public schools* [13]*.*

2.5. Disaster/ Calamity Management

The response to a hazard decides whether it becomes a disaster or not. Hence preparedness and response are the two most critical aspects of any disaster management initiative. ICT plays a significant role in the implementation of both of these aspects by helping disseminate disaster management knowledge and by providing the necessary communication link for an early warning system [8].

Caselet: *UNOSAT (United Nations Institute for Training and Research Operational Satellite Applications Programme) provided immediate overview of the situation when the Indian Ocean tsunami struck on 26th December 2004. It created regional maps of potential impact which were freely distributed and referred to by the field agents* [8]*.*

2.6. Access to Services

ICT reduces the cost of access for the rural poor. Hence when traditional services are rebuilt around this new low cost platform they no longer remain unaffordable for the poor. This opens up the world of poor to a variety of services to which they had limited or no access till now.

Caselet: HealthNet Uganda is pioneering the use of personal digital assistants with real time access to vital information. The technology allows for easier consultation and real time ordering of medicines thus improving the quality of the health care system [3].

Hence technology, as is apparent from the above discussion, can be a powerful tool for addressing the barriers and inefficiencies faced by the rural poor [7]. But unfortunately with a few exceptions, digital networks haven't sufficiently penetrated rural areas and relevant applications and low cost services have not yet reached scale or been widely replicated. While political, economic and socio-cultural factors have had their role to play in this, it is primarily the factors like high cost of acquisition, low local relevance of content available, and lack of support infrastructure that have constrained mass adoption of telecommunication technologies by the rural poor [11].

But fortunately the advent of low cost mobile telecommunication networks is set to change this. Rapid development in technology has helped reduce the costs of using mobile phones and has hence initiated their mass adoption especially in case of developing countries. A study for example found that the worldwide wireless prices fell by an average of 38% between 1996 and 1999 while the share of developing countries in the world mobile market increased from 10% to 20% during the same period. More importantly, a large proportion of the newly added mobile phones in developing countries went into the hands of the relatively poor people [10].

This rapid penetration of mobile telecommunication, especially in regions where traditional digital media has been slow to emerge, has made it the preferred choice for deploying e-development initiatives. Let us take a deeper look at what would it take for such mobile based development initiatives to sustain and succeed.

3. Mobile Telecommunication – Towards Sustained Growth

Mobile telecommunication networks are being touted as "leapfrogging alternatives" that can allow developing nations to close or at least narrow the "digital divide" between the developed and the developing countries [11]. But sustained growth is going to require much more than just access to low cost technologies. Let us look at a strategy framework that would help ensure the success of mobile based developmental initiatives in achieving sustained growth *(refer figure 2)*. The framework has two distinct components: *Contextual Environment and Business Strategy*. It must be noted that although neither alone can ensure sustained growth, the right kind of contextual environment is kind of pre-requisite to the success of business strategy.

3.1. Contextual Environment

The contextual environment at a basic level can be understood as the ecosystem that defines the scope of the activities of organizations operating in the technology based developmental space. As an example if we were to look at fish then the way they carry on their body metabolism is defined by the ecosystem they reside in i.e. the body metabolism for a salt water fish would be different from that of a fresh water fish even though both are of the same species. Similarly even though two initiatives might

be exactly similar in nature, their ultimate impact is significantly defined by the contextual environment they are implemented in. Let us now look at what constitutes this context in little further detail.

3.1.1. Regulatory/ Policy Framework

The regulatory framework of a country plays a pivotal role in developing its economic environment. Hence it is important that the government policies are designed such that they actively promote innovation and entrepreneurship. They should not only encourage open competition but also create incentives for the private service providers to cater to the rural poor. A relevant example is the universal services obligation fund, an initiative of the Indian Government, which provides support for the private sector's initial outreach to rural areas [14].
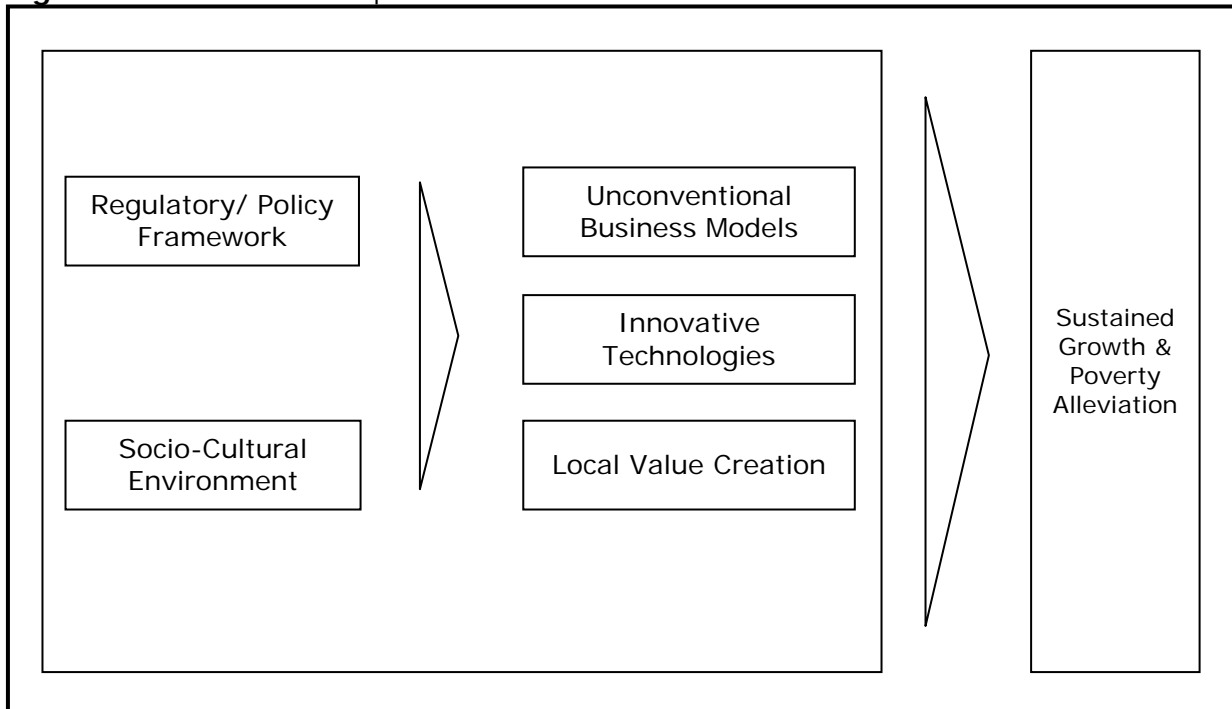
3.1.2. Socio – Cultural Environment

The socio-cultural factors influence the adoption and usage of any new technology.

In some African countries for example although a mobile phone nominally belongs to a person, it is regarded as the property of the community. Even the content consumption is governed by the community [10]. Hence if such local cultural nuances and value systems are not understood by the product/ service providers then this could adversely affect the adoption of their offerings. Hence it is important that the technologies be developed not only keeping in mind the sensitivities of the consumers but should also add value to their local culture.

3.2. Business Strategy

Cutting edge technology in itself is not always sufficient in creating the desired developmental impact. Sometimes a simple existing technology wrapped in an innovative business model and outreach strategy is all that is required. Let us look at some such ingredients in further detail that might prove useful while creating a developmental product or service.

Figure 2: Sustained Development Framework

3.2.1. Unconventional Business Models

In order to successfully cater to the needs of the rural poor it is important that innovative business models be developed. For example by creating *local community based franchisee networks* a company can ensure access to and acceptance in the local community thus providing it with a rich understanding of its consumers while reducing its costs of access. Similarly *strategic partnerships* can lead to lowering of individual costs incurred along with enhanced ability to generate revenues. An apt example is *Grameen Phone* in which Grameen Bank and Grameen Telecom collaborate to cater to the rural poor. The bank gives loan and helps the rural poor to setup a cellular phone based venture while Grameen Phone provides access to telecommunication services [12].

3.2.2. Innovative Technologies

It is the technology innovation which has brought about the lowering of costs for mobile telecommunications and hence made mobile based development a possibility. Hence in order to sustain this development it is necessary that innovation happens on an ongoing basis and its rewards reach the poor. *Smart Padala* is one such initiative. It is the world's first international cash remittance service linked to the mobile phone. A sender abroad can without any hassle, through this service, remit money to either the beneficiary's SMART Money account or SMART cell phone in Philippines [4]. Similarly *Cached Internet Technology* is a recent innovation in mobile and internet technology that allows the rural people to access internet in a cost effective manner [5].

3.2.3. Local Value Creation

For any initiative to succeed in the rural market it is very important that it is able to add value to the community it operates in. This in turn requires that companies reinvent their products to meet the requirements of this new consumer segment. *'i-Shakti'* - an ICT-based rural information service developed by HUL is one such example [3]. It provides demand driven information and services across a large variety of sectors that impact the daily livelihood opportunities and living standards of the village community.

4. Conclusion

"..bridging the digital divide and promoting full community development goes well beyond mere access. It requires providing underserved communities with the power they need to use, transform, and design ICTs towards their own community development." - *Ricardo Kobashi* [3]

Information and Communication Technology in general and Mobile Networks in particular have the potential to reduce the global digital divide and bring about equitable growth. But sustained growth is going to require much more than just access to low cost technologies. Appropriate policies and frameworks need to be put in place and an environment conducive to innovation and entrepreneurship needs to be created. Incentives need to be created in order to enable the private sector to cater to the needs of the poor in a profitable yet sustainable manner. I would like to end this discussion with the thought that poverty is a universal bad and it requires concerted effort by both the government and the private sector towards its alleviation and to initiate the process of development. And in this whole process, key would remain *innovation* both in terms of technologies that we would experience or the business models that we would use.

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