

AN OPEN INNOVATION PLATFORM FOCUSING ON DEVELOPMENT COUNTRIES

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ABSTRACT

The objective of the paper was to propose a new open innovation platform focusing on the special needs of customers in developing countries. Although technical infrastructures supporting the utilization of open innovation platforms have been developing rapidly in developing countries, there is a lot of unused potential as regards to using open innovation in developing countries. In comparison to developed countries, the business environment in developing countries is very different and customers demand different products and non-similar product features. Thus, the existing models for platforms can not, as such, be applied in developing countries. In the proposed new open innovation platform, direct contacts with the contributors were amended with contacts utilizing intermediaries such as non-government organizations and various social groups. Money for the platform can be generated at least from three different revenue sources: telecommunication companies, companies using the platforms, and website advertisements.

INTRODUCTION

Open innovation entails combining internal and external ideas as well as internal and external paths to market in order to advance the development of new products. In contrast, in the traditional closed innovation, new product development takes place within the firm boundaries.

In practice, external ideas for new product development are collected, for example, by means of websites on which customers, suppliers and other external parties can submit their new ideas. Such on-line points of interactions between companies and their ex-

ternal partners are called open innovation platforms. Companies set up open innovation platforms for creating and supporting profitable business.

Utilizing open innovation has become an integral part of research and development activities in almost all multinational companies. In open innovation, however, companies are collaborating mostly, if not totally, with customers residing in developed countries. Consequently, the voices of a large number of customers are not heard – these are the customers who are living in developing countries.

In many cases, the needs of customers

in developing countries are different from the needs of customers in developed countries. Customers in developing countries need various products and services that may have no market demand in developed countries; furthermore products and services targeting to satisfy customers in developed countries do not readily fulfill the needs in developing countries.

The number of people living in developing countries is much higher than the number of people living in developed countries. Even though the current per capita purchasing power in developing countries is relatively low, the total market potential in developing countries is huge.

Possibilities to utilize open innovation in developing countries have increased considerably in the recent years. In developing countries, the number of people having mobile telephones and access to the Internet is growing by millions every year. Rapid development of communication technologies and easy access to information has made customers also in developing countries smarter than ever (Freeman 2007) and they are well aware of world affairs. Especially the advent of mobile phones has predominantly changed the knowledge environment in developing countries, too.

Developing countries differ from developed countries in many respects. Among other things, the culture, educational systems, infrastructure, media

Developing Countries	End Of 1960s	1990	2000	2007
Share in Global R&D	2.0	10.2	21.0	24.0
R&D as percent of GDP	NA	0.7	0.9	2.3
Coverage	Excluding centrally planned economies	Including centrally planned economies and newly industrialized countries (NIC)		

Table 1: Share of developing countries in global research and development (R&D) activities. Source: Kaplinsky et al. 2009 and Bagley 2009

as well as the roles of non-government organizations and the government are very different. When designing the utilization of open innovation such differences need to be carefully investigated and taken into consideration. The large potential that open innovation has in developing countries is mostly untapped by business enterprises, and open innovation in developing countries has been discussed only very scantily in academic literature. Thus, the objective of this present study is to propose a new open innovation platform focusing on the special needs of customers in developing countries. Important consideration in the design of the platform is that the platform has a sustainable business model.

POTENTIAL OFFERED BY DEVELOPING COUNTRIES

It is widely acknowledged that developing countries is a major vehicle of growth in the future. Multinational companies expect around 70% of the world's growth over the next few years to come from emerging markets (The economist 2010).

At the moment, about half of the world's population live in acute poverty and around 4 billion people live at the bottom of the pyramid earning less than US\$ 4 a day, Table 2. However, even without any growth the cumulative purchasing power of people earning less than US\$ 4 a day is as much as US\$ 5 trillion a year (Falcioni 2009; Gardetti 2010; Johnson 2007; Hart 2005).

Multinational companies have increasingly shifted their research and development (R&D) activities into developing countries (von Zedtwitz 2004). From 1970 to 2007, Table 1, the share of low-income economies in global research and development (R&D) activities increased from 2% to more than 24% (Kaplinsky et al. 2009; Bagley 2010). India had attracted over 100 of

the Fortune 500 companies to conduct a part of their research and development (R&D) activities in India by 2003 (GOI 2003). As an example, multinational companies like SGS-Thomson Microelectronics, AstraZeneca, Texas Instruments and Daimler Benz have stationed research and development centres in India (Reddy 1997). From 1998 to 2003, India received US\$ 4.65 billion from foreign companies in research and development (R&D) investments (GOI 2003).

As part of the extraordinary shift in the global innovation landscape, low-wage country involvement in incremental innovation has also increased considerably (Li & Kozhikode 2009). A favorable consequence of conducting research and development (R&D) in developing countries is that it makes easier for the companies to set up production facilities in these low-cost countries.

A huge pool of talents is available in developing countries, typically for less than a fourth of what it would cost in developed countries (Ernst 2006). Many Western educated researchers are returning to their home countries. This new shift is termed reverse brain drain (Reddy 1997). The growing importance of developing countries can also be seen in the number of patent applications. According to World Intellectual Property Organization (WIPO) report of 2007, eleven of the top twenty countries in terms of patent applications in 2006 were from emerging economies, including eight of them from Asia.

Issue	Wealthy	Emerging Middle Class	Low Income Markets
Income Level Per Annum	More than US\$ 15,000	Between US\$ 1500 and US\$ 15,000	Below US\$ 1500
Population in Millions	800	1,500	4,000

Table 2: Market distribution based on the income level of the world population Source: Falcioni 2009

EXAMPLES OF INNOVATIONS IN DEVELOPING COUNTRIES

A vast number of examples can be listed of products that are geared to the special needs of people in developing countries. There may not be any market for these products in developed countries but in developing countries the market potential is enormous. Such products cannot be developed as modifications of products offered for customers in developed countries. The development of these products requires understanding of local customer needs and local special conditions. Around one billion people in the world have no access to clean water (The Economist 2010). Hindustan Unilever and TATA are providing special water filters at a very low price in India (Ahlstrom 2010). According to Hart & Christensen (2002), more than 3 billion people are in lack of telecommunication services around the world. Qualcomm, in partnership with Grameen Foundation, is successfully providing mobile phones to poor people in Indonesia (Altman et al. 2009).

It has even been referred to as a revolution when TATA recently introduced the TATA Nano car, the cheapest car in the world (Guru 2010; Brown & Wyatt 2010). Proctor and Gamble (P&G) has developed an array of special low cost products for the Brazilian market (Kanter 2010). Many other companies are striving in similar manner. Examples include cheap ice cream in India (Pralhad 2002), Laptops with a price tag of about \$ 100 and cheap smartphones (Ahlstorm 2010), inexpensive LED lamps, and low-cost wind turbines. All of these products are specially targeted to the markets in developing countries (www.SingaporeSessions.com).

Low prices give opportunities to the poor to avail new products; otherwise the poor would be left out entirely from the market (Hart & Christensen, 2002). Low priced products for de-

veloping countries have often been profitable for the companies designing, producing, and distributing them. Low-priced Chinese products are an evidence of this.

Many opportunities for business are imminent in developing countries. Promising fields of business include telecommunication, customer electronics and energy production, among many others (Hart & Christensen 2002).

BENEFITS OFFERED BY OPEN INNOVATION IN DEVELOPING COUNTRIES

Conducting research and development in developing countries is a means to extend the potential markets beyond the wealthy and emerging middle class segments. Otherwise it would be more difficult to reach the low income markets that comprise as many as 4 billion people.

Many multinational companies are facing the necessity to adapt their products and services to the large and mostly untapped markets in developing countries, especially in Asia. This adaptation requires extensive local knowledge (Li & Kozhikode 2009).

The innovation process in an individual company is of great importance not only to the company itself but also to the growth of the national economy in which the company operates (Sundbo 1998). Engaging customers in developing countries in the new product development processes of companies can play a vital role in the development of the economies of those countries. In accordance, developing countries are growingly formulating policies to support innovation (Aubert 2010).

In addition to generating new ideas, utilizing open innovation in developing countries offers many other benefits. The company gains access to target customers so that the company during the development process becomes aware of local market information in depth. The company is better able to assess the value of the product and is more prepared to make correct pricing decisions. Through participation in the open innovation process, potential customers become aware of the future product. The information of the future product spreads also to other potential customers through informal connec-

tions that the people have. This serves as product marketing without expenses. A deeper involvement of customers with the product development process often persuades the customers to use the product. Customers who continuously engage in product development often grow to become long-term loyal customers.

Despite the benefits that open innovation can offer for generating new products for developing countries, there are only few examples of its successful use for the benefit of developing countries. One example is the development of the BOGO solar light. This light is increasingly becoming popular in developing countries where more than 2 billion people live without access to dependable electricity and are forced to use traditional lighting like kerosene lamps, candles, flashlights etc. (Hart & Christensen 2002). The BOGO light is a product of Sunlight Solar Company. Targeting the markets in developing countries was the original aim of the company. At the initial stage of the development project the company contacted InnoCentive which is a premier open innovation platform, having its headquarters in the USA. Consequently, the challenge of the BOGO light was posted in the InnoCentive open innovation platform. The contributors in this platform were able to solve the development issues taking into account the special needs of customers in developing countries (www.bogolight.com).

Another example of using an open innovation platform for generating a new product for customers in developing countries is a water purifying bottle that uses ultraviolet light to sterilize drinking water. This product will help people in developing countries who have no access to pure drinking water (BBC 2010).

CHALLENGES IN UTILIZING OPEN INNOVATION

In a study, Enkel *et al.* (2009) have investigated special challenges that are inherent to open innovation by interviewing companies that have utilized open innovation. The following factors were identified as major risks (the percent figure in parenthesis refers to the share of respondents who mentioned the corresponding risk): loss of knowl-

edge to external stakeholders (48%), higher coordination costs (48%), and loss of control and higher complexity in operations (together 41%). Barrett (2010) has identified additional important challenges associated with utilizing open innovation: assessing the cost/benefit impact of factors like projected value creation, different time schedules, various types of risks, licensing costs, opportunity costs, and technology integration.

Open innovation is also confronted with the same challenges that are characteristic to traditional innovation activities. The inability to change the old business models as required by the new innovation and the inability to meet customer needs with the new product better compare to competitors have customarily been named as major challenges associated with innovation (Frigo & Ramaswamy 2009).

The challenges of open innovation are very much dependent on the context. Challenges in developing countries are different than challenges in developed countries. The special context of developing countries needs special attention.

Intellectual property rights (IPR) are an example of a matter that needs special attention in the context of developing countries. In many developing countries, laws concerning intellectual property rights are not well established. In some cases even when appropriate laws are in place, there is no proper implementation of the laws. Good news is that the situation is improving very rapidly and the World Intellectual Property Organization (WIPO) is stressing upon assisting developing countries continuously in this pursuit (WIPO 2010).

The political situation in each country needs special consideration. It has been said that typically in developing countries, the nexus between politics and the business world is closer than that in developed countries.

PROPOSED BUSINESS MODEL

The existing models of open innovation platforms from developed countries are not directly applicable for developing countries. Thus, with no previous examples directly to refer to, taking the special needs of developing countries into consideration, a new

model for an open innovation platform was developed, Figure 1. Non-government organizations, phone companies, social groups, media, government welfare departments and universities, along with potential contributors are included as salient stakeholders.

The role of non-government organizations in the business model of the open innovation platform is essential. A great percentage of foreign aid to developing countries is distributed through non-government organizations. One reason for doing so is the intention to avoid problems of governmental bureaucracy. So, partnering with non-government organizations in any business model targeting to large numbers of customers in developing countries is most useful. Non-government organizations are everywhere in developing countries and they have everyday communication with masses of people there. They have established strong networks with local governments and international aid agencies aiming to mitigate social problems. Non-government organizations are considered as best actors when integrating businesses, governments, and charities. The number of non-government organizations in developing countries is extremely huge. It has been estimated that there are as many as 1.2 million non-government organizations in India. This estimation is based on the presumption that about half of the non-government organizations are unregistered in India (PRIA 2003). In Bangladesh, the number of registered non-government organizations is more than 2,000 (NGOAB 2010).

Infrastructure favourable for open innovation is developing rapidly in developing countries. People are talking on the mobile phone, sending text messages, blogging, tweeting, uploading and downloading files everywhere (Wilson and Murby, 2007). Astoundingly, in India, the figure of mobile phone subscribers was as high as 700 Million by July, 2010 (TRAI, 2010) and the mobile phone sector is one of the most profitable business sectors in India (Balan 2007). As other examples, the number of mobile phone subscribers is 100 million in Pakistan (Mahmood 2010), 70 million in Bangladesh (BTRC 2010), and 15 million in Sri Lanka (Tele Trends 2010). These

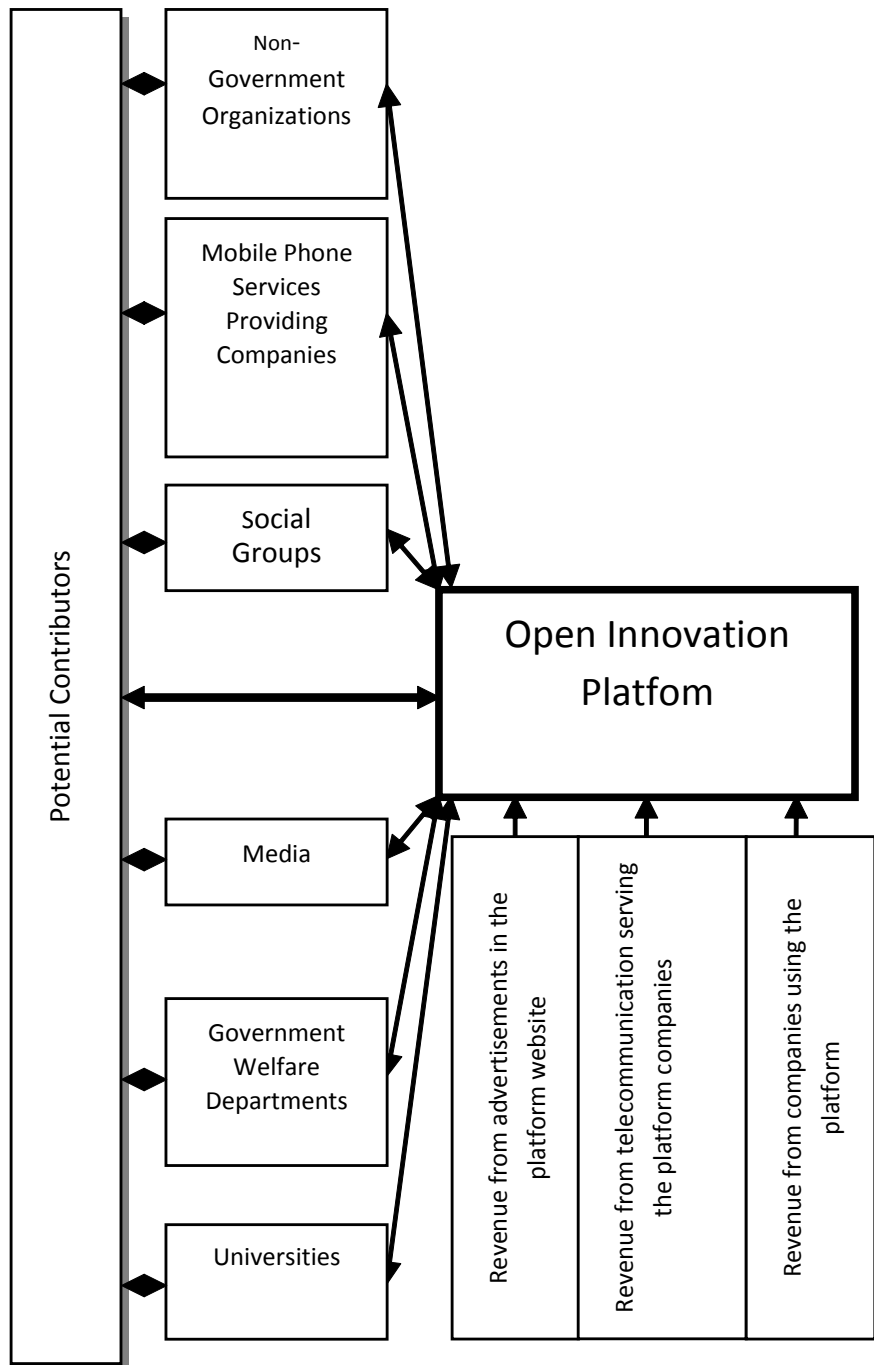


Figure 1: Conceptual Business Model for open innovation in developing countries.

figures tell about the importance of mobile phones in developing countries. Apart from mobile phones, telecommunication field includes broadband devices, digital subscriber links, wireless links, VOIP connections etc. All of these fields are flourishing in developing countries. Growing usage of mobile phones and laptops is changing the future scenarios of the developing world swiftly. Moreover, increasing use of desktop computers in offices and homes is influencing the work environment and facilitating a shift towards wide utilization of information and

telecommunication services. Social networking platforms like Facebook, LinkedIn, and Twitter are attracting people and the numbers of users are growing swiftly. All this considerably facilitates the use of open innovation platforms in developing countries. Users in developing countries want different services than users in developed countries: They usually do not look for information of journey schedules or offerings of nearby restaurants and seldom do they make online purchases. Instead, users in developing countries typically want information regarding

healthcare, crops and product price disparity in different locations.

Various social groups have a very substantial impact in policy making and spreading awareness among the masses of people. Local media has high esteem for the opinions of various social groups. Apart from partnering with above described stakeholders, for open innovation, it is necessary to build lasting relations with potential customers through partnerships with social groups.

Media is experiencing increased freedom in many developing countries and helping in speedy dissemination of information. Partnering with local media gives opportunities for increasing awareness of open innovation platforms among the potential contributors. Product marketing can be accomplished with low cost by partnering with local media. Moreover, the emergence of electronic newspapers is changing the media world and leading to new patterns of customer behaviour. Many companies are replacing paper media by electronic newspapers when communicating with customers. Overall, people are becoming increasingly knowledgeable in using electronic media services.

Partnering with government organizations is not only prudent but avoiding them may result in adverse consequences. Moreover, international donors and financial institutions are putting conditions while allocating financial aid to governments in developing countries and, thus, they play very important roles in societal improvement. Above all, governments are making their plans considering newly emerging needs. Governments are becoming increasingly flexible to collaborative innovation. Also importantly, governments of developing countries are supportive to various innovation activities especially to such that have potential to improve people's living standard.

Local institutes of higher education in developing countries are partnering with institutes of higher education from all around the world. Surprisingly, partnering with domestic universities and research institutes has not been deemed to be as important as it is in the case of developed countries. However, local universities are impor-

tant in motivating technology savvy students to contribute to innovation platforms. Moreover, Western educated researchers blended with their local knowledge can be utilized at lower cost and local researchers may be available at an even lower cost. In general, a large percent of the population of any developing country is comprised of youths who are communicating globally and adopting new technologies instantly. Mobility programs by institutes of higher education and international leisure travelling are driving them to the world of technology and innovation.

Money for the proposed open innovation platform can be generated at least from three different revenue sources: telecommunication companies, companies using the platforms, and website advertisements, Figure 1. Mobile phone companies are partnering with many other companies with the aim of attracting larger numbers of additional users for their telecommunication services, especially to utilize off-peak time excess capacity. People are inclined to contribute to open innovation during times when there are no other important things occupying them. Correspondingly, these times mostly are off-peak times when mobile phone service usage is low. It is a good opportunity for phone companies to be involved in open innovation communication networks. The open innovation platform organization can demand a share of the revenue from the telecommunication company. Companies which will post their problems in the platform will pay a service charge to the platform organization. InnoCentive is a well-known example of how this revenue model has been implemented successfully. Moreover, as open innovation platforms will be hubs for large traffic flows, it will be possible to attract platform advertisements. It is important to note that the cost of setting up and maintaining an open innovation platform is very low and, thus, there is hardly any chance for a larger loss when using this business model.

CONCLUSIONS

Innovation is considered as lifeblood for profitable business. Open innovation is a recently emerged idea for actively involving users in the innovation

process. This idea has already got momentum in developed countries. However, despite its high potential also in developing countries, open innovation has only scantily been utilized in developing countries yet.

As part of the present study a new open innovation platform focusing on the special needs of customers in developing countries was proposed. This model, among other things, depicts communication channels between different stakeholders. Communication with potential customers takes place directly and through intermediaries like non-government organizations and various social groups. A unique advantage for developing countries is low cost.

In developing countries, there has been a strong improvement as regards to factors that are necessary for the operation of open innovation platforms and open innovation platforms will increasingly be used in developing countries. Such platforms are an effective way to hear the voices of the large number of untapped customers in developing countries.

REFERENCES

- Ahlstorm, D. 2010. *Innovation and Growth: How Business Contributes to Society, the Academy of Management Perspectives, Vol. 24, No. 3.*
- Altman, D.G., Rego, L. and Ross, P. 2009. *Expanding Opportunity at the base of the Pyramid, People & Strategy, Vol. 32 Issue 2 pp. 46-51.*
- Aubert, J. 2004. *Promoting Innovation in Developing Countries: A Conceptual Framework, World Bank Institute.*
- Aubert, J. 2010. *Innovation Policy for the Developing World Success stories and promising approaches, Special Report, World Bank Institute.*
- Bagley, K. 2009. *Research boom in developing world, TheScientist, Available at <http://www.the-scientist.com/blog/display/56055/> Accessed on November. 2010*
- Barrett, P. 2010. *The Race for Open Innovation, European Medical Device Technology, Available at <http://www.emdt.co.uk/article/race-for-open-innovation>, Accessed on April 25, 2010.*
- BBC, 2010. *Clean water bottle wins UK leg of James Dyson Award, 3 August 2010, Accessed on October 25, 2010 available at <http://www.bbc.co.uk/news/technology-10858815>.*

- Brown, T. and Wyatt, J. 2010. *Design Thinking for Social Innovation IDEO, Special Report*, World Bank Institute.
- BTRC, 2010. *Mobile Phone Subscribers in Bangladesh*, Available at http://www.btrc.gov.bd/newsandevents/mobile_phone_subscribers/mobile_phone_subscribers_september_2010.php Accessed on October 25, 2010.
- Capozzi, M. M. 2010. *Leadership and Innovation, Special Report*, World Bank Institute.
- Enkel, E. and Gassmann, O. 2008. *Driving open innovation in the front end. The IBM case. Working paper*, University of St. Gallen and Zeppelin University, St. Gallen and Friedrichshafen.
- Enkel, E. Gassmann, O. and Chesbrough, H. 2008. *Open R&D and open innovation: exploring the phenomenon*, R&D Management, Vol. 39, No. 4, pp. 311-316.
- Ernst, D. 2006. *Innovation offshoring: Asia's emerging role on global innovation networks*, East-West Special Reports 10, pp.1-50.
- Falcioni, J. G. 2009. *Base of the pyramid*, Mechanical Engineering, September.
- Freeman, J. B. 2007. *What Motivates Voluntary Engagement in Cooperative Information Systems? Proc. of HICSS '07*. IEEE Computer Society, Washington, 2007.
- Friego, M., and Ramaswamy, V. 2009. *Strategic Risk-Return Management*, Strategic Finance, May 2009.
- Gardetti, M. A. 2007. *A Base-of-the-Pyramid Approach in Argentina Preliminary Findings from a BOP Learning Lab*, Greener Management International, (51), 65-78.
- Goldman, R. and Gabriel, R. P. 2005. *Innovation happens elsewhere: open source as a business strategy*, Elsevier Inc.
- Guru, 2010. *TATA NANO – New Revolution*, available at <http://www.tatanano.org> Accessed on November 1, 2010
- Hart, S. L. 2005. *Innovation, Creative Destruction and Sustainability*, Industrial Research Institute, Inc. September- October.
- Hart, S. L. and Christensen, C. M. 2002. *The Great Leap: Driving Innovation from the Base of the Pyramid*, Sloan Management Review, 44(1): 51-56.
- Johnson, S. 2007. *SC Johnson Builds Business at the Base of the Pyramid*, Global Business and Organizational Excellence, September/October.
- Kanter, R.M. 2010. *Block-by-Blockbuster Innovation*, Harvard Business Review, May.
- Kaplinsky, R., Chataway, J., Clark, N., Hanlin, R., Kale, D., Muraguri, L., Papaioannou, T., Robbins, P. and Wamae W. 2009. *Below the radar: what does innovation in emerging economies have to offer other low-income economies*, International Journal of Technology Management and Sustainable Development, Vol. 8 No.3 pp. 177-197.
- Li, J. and Kozhikode, R. K. 2009. *Developing new innovation models: Shifts in the innovation landscapes in emerging economies and implications for global R&D management*, Journal of International Management, 15 pp. 328-339.
- Mahmood, J. 2010. *Pakistan: Mobile Phones Subscription Set to Hit 100 Million in August*, AudienceScapes, Available at <http://www.audiencescapes.org/pakistan-mobile-market-phones-subscription-set-hit-100-million-peak-communications-SIM> Accessed on October 25, 2010.
- NGOAB 2010. *List of NGOs*, Available at <http://www.ngoab.gov.bd/> Accessed on December 12, 2010
- Prahalad, C. K. 2002. *Strategies for the Bottom of the Economic Pyramid: India as a Source of Innovation*, Reflections: The SOL Journal, Vol. 3 No. 4.
- PRIA, 2003. *Invisible, Yet Widespread: The Non-Profit Sector in India*,
- Reddy, P. 1997. *New Trends in Globalization of Corporate R&D and Implications for Innovation Capability in Host Countries: A Survey from India*, World Development, Vol. 25, No. 11, pp. 1821-I 837.
- SingaporeSessions, xxx. *Innovating for the Developing World*, visit SingaporeSessions.com/innovation
- Sundbo, J. 1998. *The theory of innovation: entrepreneurs, technology and strategy*, published by Edward Elgar Publishing Ltd.
- Tele Trends, 2010. *Sri Lanka mobile users up 30-pct in first quarter*, available at <http://www.lankabusinessonline.com/full-story.php?nid=1180937564> Accessed on October 25, 2010
- The Economist, 2010. *For want of a drink: A special report on water*, pp-1-16, May 22.
- TRAI, 2010. *Telecom Subscription Data as on 31st August 2010*. http://www.trai.gov.in/WriteReadData/trai/upload/PressReleases/767/August_Press_release.pdf
- Von Zedtwitz, M. 2004. *Editorial: managing R&D in China*. R&D Management, 34: 341-343.
- Wilson, E. R. and Murby, R. 2007. *Communications as Innovation in Social Enterprise*, Development Outreach, World Bank Institute.
- WIPO, 2010. *Patent Information Services for Developing Countries*, http://www.wipo.int/patentscope/en/data/developing_countries.html. Accessed on December 7, 2010