

Panel (TIN): Technological Innovations

Papers: 7

Chair:

Zhang Liyan

Faculty, TUFU, China

Co-Chair:

Solomon Darwin

Executive Director, Centre for Corporate Innovation, UC Berkeley-Hass school of Business

Time: 11:30-13:00

Venue: Wing-11, Committee Room

1.

**Policy Support for Innovation at Grassroots in Developing Countries:
Perspectives from Nigeria**

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This paper examines government policy support for innovation at grassroots in a developing country's context, taking into account the idiosyncrasies of the actors and sectors involved. Currently, traditional policy approaches inadequately support innovation at grassroots. There is therefore a need to re-evaluate existing [science, technology and] innovation policies and to develop policy instruments useful for supporting innovation at grassroots. Drawing from existing literature and cases from Nigeria, the paper explores the roles that such public policies could play in supporting innovation at grassroots, which may be jointly developed by NGOs, formal sector, and individuals in the informal sector, unattached professionals or companies in collaboration with local people. The paper concludes by suggesting areas that policy support could help in fostering innovative activities at grassroots, thereby addressing local problems and contributing to development.

Keywords: Government Public Policy; Innovation at Grassroots; Science, Technology and Innovation; Developing Countries; Nigeria

2.

Innovations *for* and *at* grassroots in Russia

Olga Ustyuzhantseva

In a transition economy, the conventional concept of grassroots innovations [Honey Bee Network newsletter 1990, Gupta, 1989, 1992, 2006 and 2011a, 2011b] to describe

innovations for inclusive development may have limited application. Based on these researches it's possible to define basic factors, triggers and environment of GRI development in India, such as large informal sector of economy and high poverty level as main environment for GRI generation; shortage of resources or access to it (i.e. water, food, energy) as a factor of GRI demand; existence/creation of infrastructure for GRI promotion with active participation of government, academic sector and business; recognising of GRI occurrence by the government in order to provide grassroots innovators with needed support (legal, financial, infrastructural, policy).

These factors and GRI itself need to be conceptualized in the social, economic, cultural and historical context in terms of national innovation systems.

With a limited size of informal sector in Russia (about 17-18 per cent of Russian economy), the innovations by individuals, mostly educated (self-employed or otherwise) working at community level is defined as innovations at grassroots [1]. Innovations from individuals in informal sector could be considered as grassroots innovations. In the absence of much research work on this subject, I am drawing upon the field work done on innovations of individuals in formal as well as informal sector.

In part one, I discuss the innovation policy of Russia and the degree of inclusiveness evident in these policies. The extent to which needs of the grassroots people are targeted and/or support to 'innovations at grassroots' and 'innovations for grassroots' is directed will also be reviewed. I would also discuss the extent to which conditions for emergence of grassroots innovations are available in Russia similar to the conditions in India where disadvantaged communities have shown enormous capacity for innovation and entrepreneurship through their own efforts.

In the second part, I describe an example of innovation in traditional knowledge. The illustrations of 'innovations at grassroots' both by individuals and industry are discussed in part three.

3.

Temporal Aspects of Task Partitioning in Open Innovation Projects

Shantam Shukla; M.R. Dixit; Anil Gupta
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Open innovation is an invitation for members external to the organization to contribute in internal innovation efforts of the organization. Designing project execution plans and processes, which facilitate participation of external members, is critical for success in any open innovation program. Scholars largely agree that innovation development practices such as modularity and partitioning of tasks allow to pool distributed expertise for specific tasks of project, which may otherwise may be outside the organization and not accessible for product development. Though it may enhance value creation ability within organizations, managers are at times concerned with development of external dependency, which may lead to issues of hold-up and opportunism. A possible mean to mitigate such concerns is by focusing upon duration of tasks while designing the product development plan. In this research, we argue that innovation managers not only need to partition tasks to encourage participation from external members but also need to focus upon temporal aspects of partitioned tasks. An in-depth case study on development of Wikispeed suggests that smaller duration tasks attract more participation of external members interested in contributing to open innovation projects.

Also smaller duration tasks do not lead to hold-ups as the efforts can be replicated or replaced without significant effort. Further issues of opportunism are absent as there is limited dependency upon specific individuals or contributors. However, the study suggests that organizations need to possess high absorptive capacity to assimilate and benefit from large volumes of small inputs it receives in this process.

Keyword: open innovation design; task partitioning; time

4.

Supporting Grassroots Innovation and Entrepreneurship in India: Reflection on Two Case Studies from Gujarat

Saumyaranjan Sahoo (Doctoral Student, EDII, Gandhinagar)

Dr. Astad Pastakia (Development Consultant)

An important area of research is to answer the fundamental questions of what can be done to support Grassroots innovations and entrepreneurs in India. Grassroots innovation is defined as innovative product or process created at the bottom of the economic pyramid, usually due to necessity, hardship and challenges. Grassroots innovators are among those individual who usually innovate only to solve their existing problems but not with the intention of commercialization. Most of the Grassroots Innovators have poor educational background, financial instability and lack entrepreneurial skills. Business incubators are proven and well known internationally as dynamic tools for fostering new ventures to support technology commercialization, technology transfer, innovation acceleration, economic development and job creation; and is a vital component of an entrepreneurial ecosystem. Technological Business incubators like GIAN have played the role of facilitator in giving initial support to germinating enterprises of these grassroots innovators, by providing mentoring support, technological support, financial support and even market linkages. Despite such efforts by incubators with innovation having huge market potentials, the success rate of commercialization of this innovation has been mediocre indicating a need to assess the role technological of business incubators in the ecosystem supporting grassroots innovations and giving suggestions to improve the success rate. The findings that are extrapolated from the analysis of two case studies from Gujarat are presented. The paper results provide suggestion and recommendations to improve the entrepreneurial ecosystem supporting grassroots innovators.

5.

A Study for Conceptualization of Technological Innovation in Rural Indian Context

Sonal Sing¹ and Bhaskar Bhowmick

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This paper describes the conceptualization of technological innovation in rural Indian context based on filed survey. In this regard, the paper main objective is to determine the variables of technological innovation from review of literature and to identify the factors of technological innovation by analysing empirical data. The filed survey is performed through close ended questionnaire and face-to-face interview of rural people who involved in entrepreneurial activities and somehow related to technological innovation approach. The paper has used mixed methodology consist case study and exploratory factor analysis. The paper explains three cases relevant to technological innovation of rural entrepreneurs. The finding of paper revealed that there is significant three set of factors which explain the underlying perception of rural people regarding technology innovation. Thus, this research gives unique contribution to literature by describing the measurable conceptualization of technological innovation in rural Indian context. Moreover, the study allow for the implication to be made for rural entrepreneurship development. Although the future scope of this research could corporate large sample data, greater number of variables of technological innovation and conduct in other countries.

Keywords: Innovation, Technological Innovation, Rural Entrepreneurs, India

6.

Smart Micro-grid: A Unique way to enlighten India

Lipi Chaya

The true meaning of technology is achieved only when it reaches to grassroot level and makes a difference in the lives of community. The most crucial requirement of rural empowerment is energy. Microgrid is a miniaturization of centralized power grid. It is an element of future Smart-grid technology. It is called smart as it is capable of taking decisions. Smart Micro-grid includes energy management system, renewable energy resources and energy storage. It generates, distributes and regulates the electricity on a micro level. It is an efficient and cost effective way to enlighten the cities, villages and remote areas. Smart micro-grid is a step toward energy transformation. It ensures the economical growth and consumer satisfaction. Smart microgrids increase reliability as it integrates redundant distribution, smart switches, automation, power generation, power storage and other smart technologies. Local power generation and storage allow portions of the grid and critical facilities to operate independent of the centralized grid when necessary and thus eliminate blackouts. Technologies such as smart switches and sensors automatically fix and even predict power disturbances, unlike today's system where switches have to be reset manually in case of an fault and outage. Smart Micro-grid is a solution of power theft which accounts for 50- 60% of total revenue loss. A local power generator can be renewable or natural gas-fuelled. The smart microgrid can reuse the energy that is produced during electricity generation for heating buildings, hot water, sterilization, cooling and even refrigeration. Smart microgrids also make it possible to get the most from renewable resources as they have the flexibility needed to use a wider range of energy sources, including those that present a challenge for the current centralized system such as wind and solar. Microgrids enable consumers to meet some or all of their electricity needs by generating their own power,

whether it is through sources like wind, solar, geothermal, microturbines and so on. This “bottom-up” consumer approach can reduce reliance on fossil fuels and lower greenhouse gas emissions based on open market economic value. It is technologically efficient and cost effective way to overcome the energy scarcity.

Keywords: Micro Grid, Smart Grid, Smart Micro-Grid, Renewable energy resources

7.

Interaction between Grassroots Innovators and the Formal Sector in the Creation and Diffusion of Technological Innovations in Rural China

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The research studies the process of 1885 farmer innovators' innovation creation and diffusion, understanding the interaction between grassroots innovators and the formal sector in rural China. The results show that:

- 1) Although there are many interactions between grassroots innovators and the formal sector they are not enough;
- 2) The interactions mainly exist at the diffusion stage;
- 3) The interactions are usually triggered by the government and grassroots innovators, but not the enterprises and universities /research institutes;
- 4) The interactions help the creation and diffusion of rural innovations.