



## Technological Forecasting & Social Change



### Introduction to “Special Section: Innovations in India”

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India is one of the fastest growing economies, and the role and significance of India in the global economy are continuously increasing. India offers enormous opportunities to both individuals and organizations. At the same time, with a complex diversity, huge population and not-so-good performance on many non-economic dimensions, India also provides and faces numerous challenges.

Globally, scholars agree on the increasing need and importance of innovations for bringing positive change to individuals, companies, societies and countries. With an increasing number of multinationals setting research and developments centers in India, government policy changes – particularly, adoption of product patents – and growing international aspirations of Indian firms, the concern for innovations is gaining voice in industry, government, civil society and academia in India. Innovations and its strategic management need to be harnessed for bringing overall development and progress of the country.

The special section generated a lot of interest and finally six papers and three research notes were selected.

The paper ‘The effects of patent-law changes on innovation: The case of India’s pharmaceutical industry’ contrasts data (from 2001 to 2004) on patents in India’s process-patent regime with preliminary data (from 2005 to 2008) on patents in the country’s new product-patent regime and argues that Indian pharmaceutical companies have changed their decision-making in response to changed patent laws by moving from process to product research. The paper highlights the need for research and public policy to establish optimal social returns from product-patent regimes.

The paper ‘Globalization, socio-institutional factors and North–South knowledge diffusion: Role of India and China as Southern growth progenitors’ constructs an empirical general equilibrium model to explore the ricochet effect of technology transmission and its capture. In particular, the model shows that exogenous technology shock from the developed North, vehicled via trade, transmits to developing Southern regions and induces productivity growth.

The paper ‘Innovative initiatives supporting inclusive innovation in India: Social business incubation and micro venture capital’ discusses emerging alternative financing initiatives which are forming an innovation eco-system of support for inclusive innovation and social entrepreneurship. It highlights two instruments in particular that are used in conventional innovation support, namely, business incubation and venture capital.

The paper ‘The harnessing of biotechnology in India: Which roads to travel?’ shows that while India has strong scientific and technological capabilities; it is constrained by weak social capabilities of its labor force, lack of institutional capabilities in regulation and financing, infrastructural constraints and absence of national programs to achieve concrete targets in terms of biotechnology innovations to promote a more inclusive development.

The paper ‘From information technology to bioinformatics: Evolution of technological capabilities in India,’ through a detailed case study across 6 years, investigates the exaptation process of Information Technology (IT) capabilities into bioinformatics by an Indian IT firm, Tata Consultancy Services (TCS). Findings suggest that just leveraging existing technological capabilities alone is a model set for failure.

The paper ‘On the diffusion of toilets as bottom of pyramid innovation: Lessons from sanitation entrepreneurs’ examines why and how sanitation entrepreneurs are succeeding in India to diffuse toilets—an innovation for households which never had access to one before. It shows that the common thread that unifies progressive sanitation entrepreneurs is their adoption of a market based approach. They create innovations in technological design as well as in the delivery platforms to include practices for accompaniment, sustainable maintenance and generation of knowledge, demand and innovation spillovers in an endogenous fashion.

The paper ‘Scenario development for an evolving health insurance industry in rural India: Input for business model innovation,’ using insights from information processing and institutional theory, presents a scenario-development process combining

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a PEST (political, economic, socio-cultural, and technological) and a stakeholder approach. The authors exemplify its use for the evolving health insurance market in rural India and present how this approach can be used to study possible future developments relevant for business model innovations.

The research note 'Information technology innovation in India: The top 100 IT firms' taking patents as indicator of firms' innovation capability, analyzes patents issued during the period of 1997–2009 from the European Patent Office database and the United States Patent and Trademark Office database from the top one hundred Indian information technology firms.

The research note 'Diffusion of mobile telephony in India: An empirical study' investigates the social, technological, economical and political factors that have influenced the diffusion process of mobile telephony especially the diffusion speed. The results show that competition and government intervention played a significant role in accelerating the diffusion speed of mobile telephony by making the technology affordable.

The research note 'Innovations research in India: A multidisciplinary literature review' studies the progress of researches on innovations in India using bibliometric analysis on existing literature. This paper finds that there is an increasing amount of research work on innovations in India and the most profile journals measured by number of research papers published are *Economic and Political Weekly*, *World Development*, *Harvard Business Review*, *Technological Forecasting and Social Change*, and *Indian Journal of Agricultural Economics*.

The special section covers various issues related to innovations in India. We acknowledge the support from the *Technology Forecasting and Social Change* editors, reviewers and research staff for the special section. We sincerely hope it will help in improving our understanding of Innovations in the Indian context.