

India's Emergence as a Lead Market for Frugal Innovations: An Introduction to the Theme and to the Contributed Volume

Cornelius Herstatt and Rajnish Tiwari

The present work “Lead Market India: Key Elements and Corporate Perspectives for Frugal Innovations” in a way, documents the evolution of the research on globalization of innovation not only at our institute but also at a macro level. In 2006, when we decided to set up a research project “global innovation” to investigate internationalization of research and development (R&D) and its transcendence towards globalization of innovation, the world still looked a little different. Even if India was registering impressive growth in gross domestic product (GDP) and attracting large amounts of foreign direct investments (FDI), considerable skepticism remained with regard to India's potential to create innovations to cater to the rising demand and aspirations of its people. The dominant logic then was still that “lead markets”—markets that provide key impetuses for globally successful innovations in an industry or industry segment over a sustained period of time—can only emerge and exist in the economically developed world (Beise, 2001; Beise & Cleff, 2004; Beise & Gemünden, 2004; Gerybadze & Reger, 1999; Ghoshal & Bartlett, 1990; Jänicke, 2005; Porter, 1990). A country in the developing world, such as India, was therefore not seen as a lead market or even having the potential to become one in near future.

This presumption was also perfectly logical. After all, there must be certain affluence and the corresponding purchasing power to pay for the newest and best technologies. Products and services that result from high-cost R&D efforts are expensive at the beginning of the product lifecycle. Innovations in a lead market would attempt to cater to the anticipatory needs of a “sophisticated” customer base under the presumption that these needs would diffuse globally and the lead market—an industrialized nation with high international visibility such as the United States of America, Germany or Japan—would act as a role model for customers

C. Herstatt • R. Tiwari (✉)
Hamburg University of Technology, Hamburg, Germany
e-mail: c.herstatt@tuhh.de; tiwari@tuhh.de

elsewhere. So, in a sense, innovations, to a good extent, were driven by technological development intending to induce demand from affluent customers and aimed to serve the top of the economic pyramid.

This logic could be traced back to the theory of international product lifecycle (Vernon, 1966). However, the late C.K. Prahalad and Kenneth Lieberthal in a Harvard Business Review article once compared such practices to “corporate imperialism” (Prahalad & Lieberthal, 1998) and advised firms to develop products that would better suit the demand conditions of the masses in the emerging economies. Later, Prahalad and some other well-known researchers postulated the concept of the “Bottom of the Pyramid” (Hart & Christensen, 2002; Prahalad, 2004; Prahalad & Hart, 2002), which—despite some shortcomings (see, e.g., Karnani, 2007; Karamchandani, Kubzansky, and Lalwani, 2011; Tiwari & Herstatt, 2012b)—acted as an eye-opener for many a manager and academic, for it forcefully illustrated the vast opportunities that lied unattended in exactly those segments that many big corporates had considered absolutely unattractive till then.

However, much water has flowed down the Ganges and other rivers since then. As our present book is set in the context of India, let us stick to the subcontinent, though. Our early research brought to our notice some very interesting cases of constraints-induced, low-cost innovations from India such as the *Gramateller*, solar-powered cash-dispensers (IBEF, n.d.), the *Tata Nano*, the world’s cheapest car (van den Waeyenberg & Hens, 2008), high-quality and low-cost open-heart surgeries (Economist, 2009) or self-generating power supply systems (Gulyani, 1999). Business press coined a specific term “indovation” (Lamont, 2010; Menon, 2011; Mitra, 2011) to refer to such cost-effective and efficient solutions coming from the land of many paradoxes, such as high poverty contrasted with a growing, big middle class; often poor public infrastructure coupled with the world-class facilities of many individual firms and institutions; and illiteracy in the face of a large skilled workforce. A survey of foreign firms engaged in R&D activities conducted by us in collaboration with the Hawaii-based East-West Center in 2007 revealed that the “unsaturated, emerging middle-class consumer market of India is growing into the role of ‘lead market’ for certain products especially electronic goods and automotives with basic functionality, less over-engineering, durability and affordable prices” (Herstatt, Tiwari, Ernst, & Buse, 2008).

Then, price-sensitivity of the Indian market, all of a sudden, turned from a liability to a key asset. In a globalized world there was an increasing demand for low-cost, “good enough” innovations even if they came from an emerging economy such as India; notwithstanding the negative “country of origin” effects which a classic, marketing text-book would have probably prophesized (cf. Johansson, Douglas, & Nonaka, 1985; Kotler & Gertner, 2002; Shimp, Samiee, & Madden, 1993). There were far too-many similarities in the demand- and supply-side structures in many other parts of the developing world, largely neglected by big multinational companies (MNCs) in their product planning, to cause a snob effect and reject such cost-effective, charming solutions to the day-to-day problems. On the other hand, significant cost pressures and lack of skilled manpower have made MNCs more open to integrating emerging economies, such as India, into their

innovation value chains. Kumar and Puranam (2012) have documented several “invisible” component-level innovations that have enabled a broader, successful innovation without coming into limelight. These findings were, thus, early precursors of a phenomenon which came to be known as “reverse innovation” in due course (Govindarajan & Ramamurti, 2011; Sarkar, 2011).

Our own studies (see, e.g., Buse, Tiwari, & Herstatt, 2010; Herstatt et al., 2008; Tiwari & Herstatt, 2010, 2011, 2012a, 2012b; Tiwari, Buse, & Herstatt, 2007; Tiwari, Herstatt, & Ranawat, 2011) continued studying the interplay of the forces of globalization in India, a large, emerging economy. By 2014 we had published results that indicated that a lead market had emerged there for a particular category of innovations. This lead market was for products that, in principle, enabled “affordable excellence” and came into existence primarily on account of three reasons (Tiwari & Herstatt, 2014):

- (a) The size of the potential demand in the domestic market was enough to over-compensate the negative effects of lower per-capita income.
- (b) The country's eco-system was endowed with significant technological capabilities (both domestic and MNC-owned) that enabled large chunks of product development to be performed in Open Global Innovation Networks (OGINs) reducing development costs as well as market and technological uncertainty.
- (c) The country had become a part of the global village. On account of its membership in multilateral organizations such as World Trade Organization (WTO), companies producing in India could export their products and services to the wider world.

Based on these studies we have proposed certain changes to the lead market model and have defined them as follows (Tiwari & Herstatt, 2014: 205):

A lead market is a national market, which primarily on account of the size of its domestic demand, its access to technological capabilities and its embeddedness in the global economy provides key innovation impetus to a particular category of products.

This modified understanding of lead markets has already found application in the relevant research community (Jänicke, 2014; Quitzow, Walz, Köhler, & Rennings, 2014) and builds the basis of our understanding for lead markets in this work.

As regards innovations, we discovered that there has been a multitude of terms to define those cost-effective, good-enough solutions which enable affordable excellence. Some scholars have called them “Jugaad” (e.g., Holtbrügge, 2013; Radjou, Prabhu, & Ahuja, 2012), but this term has been prone to criticism on account of its focus on “make-do” solutions (Birtchnell, 2011; Krishnan, 2010; Tiwari, Fischer, & Kalogerakis, 2016). Other terms such as “Indovation”, “Grassroot Innovation”, “Bottom of the Pyramid” or “Inclusive Innovation” have emphasized certain aspects of such solutions but have not given a comprehensive definition (Tiwari & Herstatt, 2014). The term “reverse innovation” too presupposes that these products or services will *necessarily* move in due course from east to west. Nevertheless, there has to be no such theoretical, binding requirement for a cost-effective product from an emerging economy to succeed worldwide, especially in

the industrialized world. It may be entirely sufficient for it to succeed in certain countries or maybe just in its home market. Moreover, frugal innovations do not have to take place in the context of developing economies. There is no reason why a firm in an industrialised nation cannot come up with a frugal solution for the needs of its customers at home or abroad. We, therefore, differentiate between these two concepts. Solutions that enable affordable excellence while being focused on core functionalities are referred to as “frugal innovations” (Agarwal & Brem, 2012; Brem & Ivens, 2013; Zeschky, Winterhalter, & Gassmann, 2014). These can overlap in their scope with any or all of the terms mentioned above. For the purpose of this work we use the following definition proposed by Tiwari et al. (2016: 17):

“Frugal innovations seek to create attractive value propositions for their targeted customer groups by focusing on core functionalities and thus minimizing the use of material and financial resources in the complete value chain. They substantially reduce the cost of usage and/or ownership while fulfilling or even exceeding prescribed quality standards.”

In this work we present results of 10 selected studies that have been conducted at our institute in relation to India, its lead market-potential for certain innovations and its penchant for frugal innovations. The volume has four sections. Section A consists of the chapters, “Frugal Innovation: An Assessment of Scholarly Discourse, Trends and Potential Societal Implications”, and “Frugality in Indian Context: What Makes India a Lead Market for Affordable Excellence?”. Thereby, it lays the foundation for the present volume by connecting India to the themes of frugal innovations and lead markets. Section B connects frugality to innovations at grassroots and for the “Bottom of the Pyramid” (BOP). It comprises of chapters “Emerging Patterns of Grassroots Innovations”, “Consumer Innovation at the Bottom of the Indian Economic Pyramid” and “Lessons from Low-Cost Healthcare Innovations for the Base-of-the Pyramid Markets: How Incumbents Can Systematically Create Disruptive Innovations”. Theme of section C is to connect frugal innovations with inventive analogies and disruption. Chapters “Developing Frugal Innovations with Inventive Analogies: Preliminary Evidence from Innovations in India” and “Made in India for the World: An Empirical Investigation into Novelty and Nature of Innovations”, which comprise this section, provide the reader with a larger perspective on the making of frugal innovations. The final section D, containing chapters “India’s Electronic Voting Machines (EVMs): Social Construction of a ‘Frugal’ Innovation”, “Renewable Energy in India: Policies, Trends and Foreign Direct Investments in Research and Development”, and “Commercial Vehicle Industry in India: An Investigation of the Innovation and Business Trends (2000–2015)”, introduces the reader to actual practices of frugal innovations in three selected industrial fields, i.e. voting machines, renewable energies, and commercial vehicles. Individual chapters, based on their abstracts, are described below.

After this brief introduction, the second chapter by Rajnish Tiwari, Luise Fischer and Katharina Kalogerakis deals with the topic “Frugal Innovation: An Assessment of Scholarly Discourse, Trends and Potential Societal Implications”. This paper follows a two-fold objective: (a) It seeks to establish the theoretical antecedents of frugal innovation by examining the scholarly discourse; and (b) It attempts to

generate hypotheses about its long-term relevance by examining historical trends of frugality and their disappearance. Based upon an extensive literature review and some preliminary primary data the authors propose a new definition for frugal innovation and hypothesize that frugality was a key social value with positive associations before the era of unprecedented prosperity in the industrialized world led to saturated markets and inter alia to feature-driven competition and over-consumption of resources. They posit that the new ground realities, e.g., economic downturn in the industrialized world and the rapidly rising consumption in the economically developing world, are expected to turn frugality, once again, into an important societal value and frugal innovation into a critical success factor in mid-term future.

Third chapter by Rajnish Tiwari is concerned with “Frugality in Indian Context: What Makes India a Lead Market for Affordable Excellence?”. The author posits that, India, apparently, has acquired the role of a pioneer for innovations that aim at combining affordability with excellence, cutting across sectoral boundaries and poses the question: what is it that makes India a forerunner for an innovation paradigm with increasing global relevance? He then goes on propose that the “lead market” theory can explain to a quite large extent the attractiveness of India for frugal solutions. This paper, apart from dwelling on the concept of lead markets and its application in the context of frugal innovations in India, also presents some qualitative results of an empirical survey conducted by the author with Indian students that underscore the role of culture as a key determinant for the acceptance of frugal innovation by relevant stakeholders.

Fourth chapter by Anup Nair, Rajnish Tiwari and Stephan Buse investigates the “Emerging Patterns of Grassroots Innovations”. The study examines the dimensions and trends which make Grassroot Innovations unique, factors which govern and influence them and then suggests how these innovations can be commercialized. It is based on in-depth case studies which were gathered during field work with the National Innovation Foundation in India. The data illustrates how factors like education, age, occupation and sector influence the triggers and the outcomes of Grassroot Innovations. It also demonstrates how individuals, institutions and firms could collaborate to commercialize these products and solutions.

Fifth chapter by Sarah Praceus and Cornelius Herstatt takes a closer look at “Consumer Innovation at the Bottom of the Indian Economic Pyramid”. They specifically address the question whether user innovation exists at the Bottom of the Economic Pyramid (BOP) and at what quality levels. They analyze patterns and characteristics of a large sample of innovations developed by people living at the Indian BOP collected by the Indian National Innovation Foundation. They compare these innovations to consumer innovations in the developed world and examine effects of demographic, knowledge and context factors on innovation activity and the outcome. The authors find similarities with consumer innovation in the developed world and at the same time adaptations to the BOP context, e.g. fulfillment of rather basic necessities than hobby-related needs. The study further shows that consumer innovations are a good starting point for firms seeking solutions for BOP markets. It provides insights on identifying promising consumer innovators at the BOP.

Sixth chapter by Aditi Ramdorai and Cornelius Herstatt addresses the topic “Lessons from Low-Cost Healthcare Innovations for the Base-of the Pyramid Markets: How Incumbents Can Systematically Create Disruptive Innovations”. The authors analyze firms’ ability to successfully drive disruptive innovations from within the organization through the lens of organizational ambidexterity. While consensus exists on the need for ambidexterity, the underlying mechanisms remain under-theorized. The authors seek to address this general gap in the research of organizational ambidexterity. This work looks at the mechanisms of ambidexterity at GE Healthcare to help explain its ability in successfully hosting sustaining and disruptive innovations from within its boundaries.

Seventh chapter by Rajnish Tiwari, Katharina Kalogerakis and Cornelius Herstatt deals with the issue of “Developing Frugal Innovations with Inventive Analogies: Preliminary Evidence from Innovations in India”. The aim of this paper is to examine the use of inventive analogies in creating frugal solutions and their impact on project results. Based on three explorative case studies from India, the authors generate preliminary evidence that analogies can have a significant impact on the successful development of innovations in environments characterized by severe resource constraints and high price-sensitivity. Besides, useful insights for companies that want to exploit market opportunities in the emerging economies are generated.

Eighth chapter by Daniel Tobias Hagenau and Rajnish Tiwari is titled “Made in India for the World: An Empirical Investigation into Novelty and Nature of Innovations”. The study develops a consistent innovation typology for categorizing large data samples from a variety of existing literature. It then describes and finally evaluates a sample of 178 innovations for the Indian market based on 38 different criteria. The results show a considerable amount of radical innovations and innovations with disruptive potential among the sample and a special concentration on small- and micro-sized innovators from India. It confirms previous suggestions that India is especially focused on innovations within the software and electronics engineering sectors. The results also support the importance of local knowledge and ‘social capital’ for successful disruptive innovation. Finally, a perceivable increase in the technology orientation of innovations by foreign companies suggests a continuous build-up of local technology-competence and foreign trust in the same.

Ninth chapter by Maximilian Herstatt and Cornelius Herstatt is concerned with “India’s Electronic Voting Machines (EVMs): Social Construction of a ‘Frugal’ Innovation”. This paper takes a closer look at the Indian voting technology and the discussions around alleged security holes. Using a theoretical model called Social Construction of Technology (SCOT), the authors argue that after the EVM was adopted in India, different social groups interpreted the EVM in diverse ways. They show the SCOT model to be helpful for structuring the controversy in a fruitful manner. The research questions addressed here are: How did the ECI and EVM manufacturers react to allegations that EVMs are vulnerable to manipulation? How was the election practice affected?

Tenth chapter by Aditya Prasad Bhagwat and Rajnish Tiwari is titled “Renewable Energy in India: Policies, Trends and Foreign Direct Investments in Research and Development”. Properly utilizing the potential of renewable energy (RE) is necessary for achieving sustainable development in a fast growing and demographically young country like India. They argue that intensified research and development (R&D) and business activity in the domestic sector is required to ensure the spread, affordability and efficacy of RE according to local needs. At the same time, collaborative activities on an international level are important to finance growth, gain technical knowledge and promote cost effective manufacturing in a rapidly connecting and increasingly inter-dependent world. They study different types of collaborations, e.g. in manufacturing and R&D, to understand the trends in India's RE sector, while capturing a larger picture.

Eleventh chapter by Bhimsen Dattatraya Phadnis and Rajnish Tiwari takes a closer look at the “Commercial Vehicle Industry in India: An Investigation of the Innovation and Business Trends (2000–2015)”. India has advanced to the position of the fifth largest commercial vehicle (CV) producer in the world. The CV industry has grown significantly since the turn of the new millennium increasing its sales more than fourfolds in the process, despite suffering some external shocks in this period. In this study the authors analyze the innovation and business profile of India's CV industry. The study is based on indicators such as sales and revenues, R&D expenditure, types of innovations and their impact, open innovation activities, product portfolio and product selling points. The study reveals that Indian CV manufacturers have relied mainly on product innovations compared to other types of innovations for growth, and most of these product innovations have resulted in incremental improvements of products. In addition, firms made various open innovation moves which helped them to acquire new markets and increase their revenue.

We hope that this book will be useful not only for those wishing to study India and her economic prospects but also for a large section of relevant stakeholders in India and abroad. The diverse studies in this contributed volume address multiple dimensions like innovations, economic growth, social welfare, and sustainability. These dimensions have high relevance for businesses, academia, policymakers and other stakeholders. By showcasing developments in India we also hope to make a humble contribution to the social and scholarly discourse on the role of frugality and resource-efficiency in a world where available natural resources are finite, but innovation policies, at least in the industrialized world, have been more input- than output-oriented in the recent past. Developing nations need to chalk their own course and do not necessarily have to emulate this dominant model.

If this work can showcase that excellence can be connected to affordability; that it is possible to place the interests of the end-consumer in the forefront during product development; and if we can contribute a small spark to ignite a social debate on whether and how the frugal approach can be *re*-incorporated in the business and innovation strategies of firms and organizations worldwide, then we would consider our research to have been fruitful.

Acknowledgements Rajnish Tiwari would like to sincerely thank Claussen Simon Foundation for supporting his research at TUHH with a generous grant.

References

- Agarwal, N., & Brem, A. (2012). Frugal and reverse innovation – Literature overview and case study insights from a German MNC in India and China. In B. Katzi, T. Holzmann, K. Sailer, & K. D. Thoben (Eds.), *Proceedings of the 2012 18th international conference on Engineering, Technology and Innovation*. IEEE: Munich.
- Beise, M. (2001). *Lead markets: Country-specific success factors of the global diffusion of innovations*. Heidelberg: Physica-Verlag.
- Beise, M., & Cleff, T. (2004). Assessing the lead market potential of countries for innovation projects. *Journal of International Management*, 10, 453–477.
- Beise, M., & Gemünden, H. G. (2004). Lead markets: A new framework for the international diffusion of innovation. *Management International Review*, 44(Special Issue 2004/03), 83–102.
- Birtchnell, T. (2011). Jugaad as systemic risk and disruptive innovation in India. *Contemporary South Asia*, 19(4), 357–372.
- Brem, A., & Ivens, B. (2013). Do frugal and reverse innovation foster sustainability? Introduction of a conceptual framework. *Journal of Technology Management for Growing Economies*, 4(2), 31–50.
- Buse, S., Tiwari, R., & Herstatt, C. (2010). Global innovation: An answer to mitigate barriers to innovation in small and medium-sized enterprises. *International Journal of Innovation and Technology Management*, 7(3), 215–227.
- Economist. (2009, April 18). Health care in India: Lessons from a frugal innovator. *The Economist*, pp. 67–68.
- Gerybadze, A., & Reger, G. (1999). Globalization of R&D: Recent changes in the management of innovation in transnational corporations. *Research Policy*, 28(2–3), 251–274.
- Ghoshal, S., & Bartlett, C. A. (1990). The multinational corporation as an interorganizational network. *Academy of Management Review*, 15(4), 603–625.
- Govindarajan, V., & Ramamurti, R. (2011). Reverse innovation, emerging markets, and global strategy. *Global Strategy Journal*, 1(3/4), 191–205.
- Gulyani, S. (1999). Innovating with infrastructure: How India’s largest carmaker copes with poor electricity supply. *World Development*, 27(10), 1749–1768.
- Hart, S. L., & Christensen, C. M. (2002). The great leap: Driving innovation from the base of the pyramid. *MIT Sloan Management Review*, 44(1), 51–56.
- Herstatt, C., Tiwari, R., Ernst, D., & Buse, S. (2008). *India’s national innovation system: Key elements and corporate perspectives*. Economics Series, Working Paper No. 96, Honolulu, Hawaii, East-West Center.
- Holtbrügge, D. (2013). Indigenous management research. *Management International Review*, 53, 1–11.
- IBEF. (n.d.). *Solar powered ATM to increase banking penetration*. Retrieved February 22, 2012, from <http://www.india-at-davos.ibef.org/download/Solar-powered-ATM-to-increase-banking-penetration.pdf>
- Jänicke, M. (2005). Trend-setters in environmental policy: the character and role of pioneer countries. *European Environment*, 15, 129–142.
- Jänicke, M. (2014). Entwicklungsländer als Vorreiter der Nachhaltigkeit? Frugale Technik. *Ökologisches Wirtschaften*, 29(1), 30–36.

- Johansson, J. K., Douglas, S. P., & Nonaka, I. (1985). Assessing the impact of country of origin on product evaluations: A new methodological perspective. *Journal of Marketing Research*, 22(4), 388–396.
- Karnani, A. (2007). The mirage of marketing to the bottom of the pyramid: How the private sector can help alleviate poverty. *California Management Review*, 49(4), 90–111.
- Karamchandani, A., Kubzansky, M., & Lalwani, N. (2011). Is the bottom of the pyramid really for you. *Harvard Business Review*, 89(3), 107–111.
- Kotler, P., & Gertner, D. (2002). Country as brand, products, and beyond: A place marketing and brand management perspective. *Journal of Brand Management*, 9(4/5), 249–261.
- Krishnan, R. T. (2010). *From Jugaad to systematic innovation: The challenge for India*. Bangalore: Utpreraka Foundation.
- Kumar, N., & Puranam, P. (2012). *India inside: The emerging innovation challenge to the West*. Boston: Harvard Business Review Press.
- Lamont, J. (2010, June 14). The age of 'Indovation' dawns. *The Financial Times*, London.
- Menon, N. (2011, November 26). Indovation or Indian Jugaad goes abroad. *Economic Times*, Mumbai, p. 5.
- Mitra, M. (2011, November 25). Indovation nation: Creating products in India for the Indian market. *Economic Times*, Mumbai, p. 5.
- Porter, M. E. (1990). *The competitive advantage of nations*. New York: Free Press.
- Prahalad, C. K. (2004). *The fortune at the bottom of the pyramid: Eradicating poverty through profits*. Upper Saddle River, NJ: Wharton School Publishing.
- Prahalad, C. K., & Hart, S. L. (2002). The fortune at the bottom of the pyramid. *Strategy + Business*, Spring(22), 2–14.
- Prahalad, C. K., & Lieberthal, K. (1998). The end of corporate imperialism. *Harvard Business Review*, 76(4), 68–79.
- Quitow, R., Walz, R., Köhler, J., & Rennings, K. (2014). The concept of "Lead Markets" revisited: Contribution to environmental innovation theory. *Environmental Innovation and Societal Transitions*, 10, 4–19.
- Radjou, N., Prabhu, J., & Ahuja, S. (2012). *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth*. San Francisco: Jossey-Bass.
- Sarkar, M. B. (2011). Moving forward by going in reverse: Emerging trends in global innovation and knowledge strategies. *Global Strategy Journal*, 1(3/4), 237–242.
- Shimp, T. A., Samiee, S., & Madden, T. J. (1993). Countries and their products: A cognitive structure perspective. *Journal of the Academy of Marketing Science*, 21(4), 323–330.
- Tiwari, R., Buse, S., & Herstatt, C. (2007). *Innovation via global route: Proposing a reference model for chances and challenges of global innovation processes*. Second International Conference on Management of Globally Distributed work, Indian Institute of Management, Bangalore.
- Tiwari, R., Fischer, L., & Kalogerakis, K. (2016). *Frugal innovation in scholarly and social discourse: An assessment of trends and potential societal implications*. Joint working paper of Fraunhofer MOEZ Leipzig and Hamburg University of Technology in the BMBF-ITA project, Leipzig/Hamburg.
- Tiwari, R., & Herstatt, C. (2010). The emergence of Indian multinational enterprises: An empirical study of the motives, current status, and trends of Indian investment in Germany. In K. P. Sauvant, J. P. Pradhan, A. Chatterjee, & B. Harley (Eds.), *The rise of Indian multinationals: Perspectives on Indian outward foreign direct investment* (pp. 233–253). New York: Palgrave Macmillan.
- Tiwari, R., & Herstatt, C. (2011). *Role of lead market factors in globalization of innovation: Emerging evidence from India and its implications* (pp. 475–483). IEEE International Technology Management Conference (IEEE-ITMC), IEEE, San José (USA).
- Tiwari, R., & Herstatt, C. (2012a). Assessing India's lead market potential for cost-effective innovations. *Journal of Indian Business Research*, 4(2), 97–115.
- Tiwari, R., & Herstatt, C. (2012b). Frugal innovation: A global networks' perspective. *Die Unternehmung*, 66(3), 245–274.

- Tiwari, R., & Herstatt, C. (2014). *Aiming big with small cars: Emergence of a lead market in India*. Heidelberg: Springer, pp. 29–32.
- Tiwari, R., Herstatt, C., & Ranawat, M. (2011). Benevolent benefactor or insensitive regulator? Tracing the role of government policies in the development of India's automobile industry. *Policy Studies*, 58.
- van den Waeyenberg, S., & Hens, L. (2008). Crossing the bridge to poverty, with low-cost cars. *Journal of Consumer Marketing*, 25(7), 439–445.
- Vernon, R. (1966). International investment and international trade in the product cycle. *Quarterly Journal of Economics*, 80(2), 190–207.
- Zeschky, M. B., Winterhalter, S., & Gassmann, O. (2014). From cost to frugal and reverse innovation: Mapping the field and implications for global competitiveness. *Research Technology Management*, 57(4), 20–27.