
Editorial: Impact of technology on supply chains in emerging and informal markets

Editorial

997

Given growing saturation in developed and formal markets, untapped business opportunities in the base of the pyramid (BoP) have been attracting attention of practitioners and academicians alike. Global firms have started acting on informal markets as their next business destination. BoP markets are characterized by their informal nature and lax economic activity. The weak purchasing power of BoP consumers, lack of institutional and transportation infrastructure, geographically dispersed consumer base and their unique needs require firms to rethink their traditional business models and produce novel supply chain solutions (Lashitew *et al.*, 2021; Schilling and Seuring, 2021). The rationale of literature developed around the notion of BoP remains an addressing challenge of poverty through promotion of business activities (Dembek *et al.*, 2020). Creating inclusive business opportunities for BoP in global supply chains has thus remained an eminent part of the quest.

The advent of technology has played a crucial role in enabling the economic and supply chain activities around the globe, and BoP markets remain no exception. Technological advances have created unique opportunities of development and growth by enabling supply chains in the BoP. Technology-enabled process and product innovations have been proposed as fundamental to advance agenda of sustainable development in BoP markets (London and Hart, 2004; Hall *et al.*, 2014). This special issue intends to excite and invite respective scholars to start considering issues related to managing and leveraging technology for enabling sustainable supply chain management in BoP markets, as a potential avenue of their intellectual inquiry.

The technological advancements have the potential to revolutionize the business environment of BoP markets. This can be, for example in the form of participatory technologies (Arora and Romijn, 2011) allowing different stakeholders to engage in development projects actively, communication technologies facilitating knowledge sharing (Berger and Nakata, 2013), access to remote health services (Schrader *et al.*, 2012) or easier technological integration of BoP actors by global firms and NGOs (Khalid *et al.*, 2015). Technology can help modernize the BoP supply chains, along with addressing some of the unique challenges, such as institutional voids (de Lange, 2016). Technology addressing financial institutional voids remains a classic example from BoP (Berger and Nakata, 2013). The globalization of business arena has made nearly impossible for BoP entrepreneurs to compete in national and international markets without the aid of technologies. By linking farmers with markets and helping mitigate information asymmetry in agri-supply chains through their *e-choupal* initiative, the case of ITC (Indian tobacco company) is yet another example elucidating the role technology is playing in upgrading traditional supply chains in BoP (London *et al.*, 2010). Furthermore, it has been proposed that by integrating social and environmental goals into their business activities, global and local firms active in BoP can enhance the sustainability performance of their supply chains operations (Aman and Seuring, 2022).

This context demands research targeting the crossroads of supply chains and technology in BoP more thoroughly and ambitiously. However, the contemporary BoP literature appears short of providing a clear picture of prospects, implications and appropriateness of technology for BoP businesses in general and supply chains in particular (Kolk *et al.*, 2014;



The International Journal of
Logistics Management
Vol. 33 No. 3, 2022
pp. 997-1000
© Emerald Publishing Limited
0957-4093
DOI 10.1108/IJLM-08-2022-572

Khalid and Seuring, 2019). Apart from highlighting the technology-enabled achievements in streamlining financial flows (Arnold and Valentin, 2013), processes for innovation and presenting examples of technological ventures, current BoP literature does not have much to offer for a student of the subject (London *et al.*, 2010; Lim *et al.*, 2013; Hall *et al.*, 2014). Besides, the role of technology in facilitating business operations in BoP markets is yet to be acknowledged in supply chain research. To date, there is a lack of research on the implications of technology for (sustainable) supply chains serving the informal markets. A research gap thereby seems evident at the crossroads of supply chains, technology, sustainability and BoP, which we want to highlight and attempt to address through this special issue.

Acknowledging the research gap, this special issue intends to highlight the relevance of use of technology in enabling supply chains to promote business activities in BoP markets. The special issue presents two papers. The paper titled as “Sustainable value creation through information technology enabled supply chains in emerging markets” presents a theoretical framework linking elements of information and communication technologies (ICT) with those of supply chain management (SCM) for value creation in the context of BoP. Conceptual reasoning has been used as the methodological tool to answer, “how does ICT enable sustainable value creation in supply chains of emerging economies?”. Apparently, the connections between ICT and SCM have been studied in context of developed and more formal market environments. By explaining the theoretical links between the two fields of study for the purpose of value creation in backdrop of BoP markets, the paper intends to fill an obvious research gap.

The paper builds its propositions on the work of Amit and Zott (2001), Pagell and Wu (2009), Prahalad *et al.* (2012), Carter *et al.* (2015), Saeed and Kersten (2017), Freudenreich *et al.* (2020) and Lashitew *et al.* (2021). The paper thus integrates and extends the ICT and SCM related debate to explain the phenomenon of value creation in BoP. The authors conclude that supply chain flows (information, financial and physical) in the context of BoP related challenges (market, regulatory and socio-cultural) are streamlined by ICT’s service aspects of awareness, access, affordability and availability. These aspects enable e-business transactions and strengthening of sustainable supply chain management related behaviors thereby resulting in sustainable value creation for BoP businesses and their stakeholders. By presenting a comprehensive theoretical framework integrating the important yet distinct aspects, the paper can be regarded as a step toward the theory building efforts. The paper seeks to motivate future research on using, understanding, and enabling ICT to structure and optimize supply chain related operations for the purpose of value creation in BoP markets.

The second paper titled as “Factors that affect the adoption of RFID in the Saudi logistics industry: An empirical investigation” studies the interrelationship of technology, organization and environment. The paper employs a survey methodology to explore the factors influencing the technology (primarily radio frequency identification (RFID) technology) adoption to enable logistics in a specific context. Provided the BoP literature is mostly conceptual and case based in nature and attributed with the dearth of survey research (Khalid and Seuring, 2019), the paper can be seen as a step toward enriching the methodological rigor of the field of study. The paper’s findings conclude that cost, technical knowledge and lack of industry standards remain the prime obstacles hindering the technology adoption. While the authors have identified these obstacles in the context of a specific country, these challenges are more general in nature for BoP. Low purchasing power of consumers, illiteracy, lack of technical workforce and lax institutional frameworks and infrastructure have been identified as the common challenges businesses have to deal with in BoP (Dembek *et al.*, 2020).

Having identified the obstacles, the paper continues to elaborate the variables that positively influence the technology adoption by logistics firms in BoP. Toward this end top

management support, quality of human capital, firm size and pressure from other supply chain actors have been presented as the core factors. The authors of the paper though analyze the case of a specific technology, i.e. RFID and in a distinct context, talk about the challenges and opportunities associated with use of technology to streamline supply chain operations. This contribution is thereby more empirical in nature.

Toward the conclusion of this editorial, we would like to highlight the need for more concentrated efforts by the concerned researchers to analyze the case of technology for optimizing supply chain related operations in BoP contexts. The main body of SCM related literature remains focused on developed markets, studying the phenomenon in developing and informal markets will contribute toward enriching the field with novel insights. Furthermore, equipped with state-of-the-art advancements the modern technology is all set to redefine the world around us. The social, environmental and economic spheres of sustainability, all are being redefined and reshaped by the technological progressions. Supply chain management being part of this bigger ecosystem remains an essential part of this transformation. Researchers have already explored various avenues of how technology can be employed to address challenges in exclusive business environments. We see the research at the intersection of technology, BoP and SCM gradually taking momentum, however, we still need more focused efforts to develop the field further and integrate the piecemeal efforts into a comprehensive understanding.

**Raja Usman Khalid, Muhammad Shakeel Sadiq Jajja, Philip Beske-Janssen and
Daiane Mülling Neutzling**

References

- Aman, S. and Seuring, S. (2022), "Interestingly it's innovation: reviewing sustainability performance management in the base of the pyramid (BoP)", *Technovation*, Vol. 112, 102394.
- Amit, R. and Zott, C. (2001), "Value creation in E-business", *Strategic Management Journal*, Vol. 22 Nos 6-7, pp. 493-520.
- Arnold, D.G. and Valentin, A. (2013), "Corporate social responsibility at the base of the pyramid", *Journal of Business Research*, Vol. 66 No. 10, pp. 1904-1914.
- Arora, S. and Romijn, H. (2011), "The empty rhetoric of poverty reduction at the base of the pyramid", *Organization*, Vol. 19 No. 4, pp. 481-505.
- Berger, E. and Nakata, C. (2013), "Implementing technologies for financial service innovations in base of the pyramid markets", *Journal of Product Innovation Management*, Vol. 30 No. 6, pp. 1199-1211.
- Carter, C.R., Rogers, D.S. and Choi, T.Y. (2015), "Toward the theory of the supply chain", *Journal of Supply Chain Management*, Vol. 51 No. 2, pp. 89-97.
- Dembek, K., Sivasubramaniam, N. and Chmielewski, D.A. (2020), "A systematic review of the bottom/base of the pyramid literature: cumulative evidence and future directions", *Journal of Business Ethics*, Vol. 165 No. 3, pp. 365-382.
- Freudenreich, B., Lüdeke-Freund, F. and Schaltegger, S. (2020), "A stakeholder theory perspective on business models: value creation for sustainability", *Journal of Business Ethics*, Vol. 166 No. 1, pp. 3-18.
- Hall, J., Matos, S.V. and Martin, M.J.C. (2014), "Innovation pathways at the Base of the Pyramid: establishing technological legitimacy through social attributes", *Technovation*, Vol. 34 Nos 5-6, pp. 284-294.
- Khalid, R.U., Seuring, S., Beske, P., Land, A., Yawar, S.A. and Wagner, R. (2015), "Putting sustainable supply chain management into base of the pyramid research", *Supply Chain Management*, Vol. 20 No 6, pp. 681-696.

- Khalid, R.U. and Seuring, S. (2019), "Analyzing base-of-the-pyramid research from a (sustainable) supply chain perspective", *Journal of Business Ethics*, Vol. 155 No. 3, pp. 663-686.
- Kolk, A., Rivera-Santos, M. and Rufin, C. (2014), "Reviewing a decade of research on the 'base/bottom of the pyramid' (bop) concept", *Business and Society*, Vol. 53 No. 3, pp. 338-377.
- de Lange, D.E. (2016), "Legitimation strategies for clean technology entrepreneurs facing institutional voids in emerging economies", *Journal of International Management*, Vol. 22 No. 4, pp. 403-415.
- Lashitew, A.A., Narayan, S., Rosca, E. and Bals, L. (2021), "Creating social value for the 'base of the pyramid': an integrative review and research agenda", *Journal of Business Ethics*, Vol. 2021, pp. 1-22.
- Lim, C., Han, S. and Ito, H. (2013), "Capability building through innovation for unserved lower end mega markets", *Technovation*, Vol. 33 No. 12, pp. 391-404.
- London, T. and Hart, S.L. (2004), "Reinventing strategies for emerging markets: beyond the transnational model", *Journal of International Business Studies*, Vol. 35 No. 5, pp. 350-370.
- London, T., Anupindi, R. and Sheth, S. (2010), "Creating mutual value: lessons learned from ventures serving base of the pyramid producers", *Journal of Business Research*, Vol. 63 No. 6, pp. 582-594.
- Pagell, M. and Wu, Z. (2009), "Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars", *Journal of Supply Chain Management*, Vol. 45 No. 2, pp. 37-56.
- Prahalad, C.K., Di Benedetto, A. and Nakata, C. (2012), "Bottom of the pyramid as a source of breakthrough innovations", *Journal of Product Innovation Management*, Vol. 29 No. 1, pp. 6-12.
- Saeed, M.A. and Kersten, W. (2017), "Supply chain sustainability performance indicators: a content analysis based on published standards and guidelines", *Logistics Research*, Vol. 10 No. 12, pp. 1-19.
- Schilling, L. and Seuring, S. (2021), "Sustainable value creation through information technology-enabled supply chains in emerging markets", *International Journal of Logistics Management*, Vol. 33 No. 3, pp. 1001-1016.
- Schrader, C., Freimann, J. and Seuring, S. (2012), "Business strategy at the base of the pyramid", *Business Strategy and the Environment*, Vol. 21 No. 5, pp. 281-298.

About the authors

Raja Usman Khalid has research interests in the intersection of sustainable supply chain management and base of the pyramid. He is working to evaluate the operationalization of established supply chain frameworks in informal markets and during the process develop novel constructs better able to answer exclusive challenges of BoP markets.

Muhammad Shakeel Sadiq Jajja has done research at the interface of technology, sustainability and supply chain management in bottom of pyramid countries. His research on these topics has published in journals e.g. *Transportation Research Part E: Logistics and Transportation Review*, *International Journal of Operations & Production Management*, *IEEE Transactions on Engineering Management*, *International Journal of Production Economics* and *International Journal of Physical Distribution & Logistics Management*.

Philip Beske-Janssen is researching the implementation of sustainability in supply chain management, performance management and general sustainability management. Furthermore, he is investigating the transition from current linear to future circular supply chains and how sustainability is integrated in such circular systems.

Daiane Mülling Neutzling does research in the field of sustainable food supply chains, alternative food networks (AFN's) and social businesses. Currently she is conducting research on social business and their social impact in supply chains.