

APRESENTATION

Innovation in Emerging Market Organizations

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Abstract

This special issue of Cadernos EBAPE.BR invites reflection around building a critical research agenda on the field of innovation strategies and organizations in emerging economies, considering the implications of such an agenda to the Brazilian academy. The published articles reveal the spectrum of upcoming interests of Brazilian researchers on this topic. The first group of articles focused on analyzing innovation policies aimed at SMEs, agriculture and mining, environmentally sensitive sectors, and the foundations of start-up ecosystems. The second group of articles focused on innovation in emerging markets, based on the approaches of frugality, social businesses, and the dynamics of organizational radicality. Finally, the articles published in this issue brought theoretical and practical contributions to the debate, discussing topics such as digital transformation, the industry 4.0 and its relevance to BRIC countries, and administration of smart cities and knowledge-intensive services.

Keywords: Innovation in emerging economies. Frugal innovation. Industry 4.0. Innovation ecosystems. Start-ups in emerging economies.

Inovação em Organizações de Economias Emergentes

Resumo

Esta edição temática do Cadernos EBAPE.BR buscou como objetivo provocar uma reflexão voltada à arquitetura de uma agenda de pesquisa crítica sobre o campo das estratégias de inovação e das organizações em economias emergentes e suas implicações originais na academia brasileira. O conjunto de artigos aprovados nesta edição revela o espectro dos interesses nascentes dos pesquisadores brasileiros sobre este tema. Um primeiro grupo tem como foco de análise a dimensão das políticas de inovação destinadas a MPEs, agricultura e mineração, setores sensíveis pelo impacto ambiental e as bases de formação de ecossistemas de *start-ups*. O segundo conjunto de artigos teve como objeto de interesse o fenômeno da inovação em mercados emergentes, que foi analisado pelas abordagens da frugalidade, dos negócios sociais e da dinâmica de radicalidade organizacional. Por fim, compondo as principais contribuições teóricas e aplicadas desta edição, foram reunidos para este debate artigos que têm conexão com o tema da transformação digital ao considerar a indústria 4.0 e sua relevância para o BRICS, a gestão de cidades inteligentes e dos serviços intensivos em conhecimento.

Palavras-chave: Inovação em economias emergentes. Inovação Frugal. Indústria 4.0. Ecossistemas de Inovação. *Start-ups* em economias emergentes.

Innovación en Organizaciones de Economías Emergentes

Resumen

El objetivo de esta edición temática de Cadernos EBAPE.BR fue provocar una reflexión para la elaboración de una agenda de investigación crítica sobre el campo de las estrategias de innovación y de las organizaciones en economías emergentes y sus implicaciones originales para la academia brasileña. El conjunto de artículos aprobados en esta publicación revela el espectro de los intereses nascentes de los investigadores brasileños sobre este tema. El foco de análisis del primer grupo de artículos fue la dimensión de las políticas de innovación destinadas a MPE, agricultura y minería, sectores críticos debido al impacto ambiental, y las bases de formación de ecossistemas de *start-ups*. El objeto de interés del segundo conjunto de artículos fue el fenómeno de la innovación en mercados emergentes, analizado desde los enfoques de la frugalidad, de los negocios sociales y de la dinámica de radicalidad organizacional. Por último, se reunieron para este debate artículos vinculados con el tema de la transformación digital considerando la industria 4.0 y su relevancia para los BRIC, la gestión de ciudades inteligentes y de los servicios intensivos en conocimiento.

Palabras clave: Innovación en economías emergentes. Innovación frugal. Industria 4.0. Ecossistemas de innovación. *Start-ups* en economías emergentes.

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[Translated version] Note: All quotes in English translated by this article's translator.

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INTRODUCTION

Emerging markets have proved over the years to be the main driving force for expansion in the global economy, attracting investment, and generating social wealth by including millions of low and middle income consumers into mass consumption markets. According to information gathered by Shankar and Narang (2019) in 2017, total emerging market gross domestic product (GDP) corresponded to 58.7% of world GDP, almost double that of the 1980s. The authors, based on statistic projections, estimate that about 70% of world economic growth in the coming years will come from emerging markets. The basis of this rapid growth is grounded on the share of middle class consumption in emerging markets. Kharas (2017) estimates that by 2030 the global level of middle-class participation in emerging markets will more than double (from the current 2 billion to 4.9 billion). Shankar and Narang (2019) argue that East Asia, including China, will host 64% of the global middle class. In addition, there will also be significant participation from economies such as Brazil and India.

Shaphali and Gupta (2019) warn that from the standpoint of business innovation strategies for new products and the microeconomics of demand, it should be considered that between 4 and 5 billion consumers are at the bottom of the pyramid segment (BoP), i.e., largely excluded from global market demand. Arunachalam, Bahadir, Bharadwaj and Guesalaga (2019) argue that the efforts of academics and applied management professionals are still insufficient to understand the needs of consumers in the BoP segment and the rising middle class in emerging markets. These authors recommend further studies to understand the tactics of product development (trickle up) for BoP focusing on consumer needs, as well as the diffusion dynamics of these innovative solutions typical of resource constrained environments and institutional gaps within local and global markets, guiding the formulation of management strategies and public policies.

Regarding the foreign direct investment (FDI) vectors, the last two decades have witnessed an extraordinary increase in the inflows of productive capital into industries, which has led to dramatic gains in catch-up and technological innovation processes, either by subsidiaries of multinational corporations (MNCs) or by local companies in emerging markets. Much of the scientific mainstream considers FDI to be a key mechanism through which emerging markets seek to capture value, learn, and develop technological capabilities for innovation-based competition on the global stage. Such scientific approaches to innovation seek to explain this phenomenon by examining how emerging countries market or companies are delineating cumulative trajectories, enhancing local R&D capabilities, integrating and recombining internal and external knowledge flows (BELL and FIGUEIREDO, 2012; WILLIAMSON, RAMAMURTI, FLEURY et al., 2013).

This scenario has boosted expectations of windows of opportunity for MNCs, leading them to a relative decentralization and deconcentration of global R&D investment flows, as well as relocation of innovation management strategies for emerging markets. This new global geography of innovation has benefited some of these emerging markets, giving countries such as China and India a new global role (KEUPP, FRIESIKE and VON ZEDTWITZ, 2012). Thus, a significant portion of research that has focused on the institutional environment of these markets seek to understand the impacts of reforming national systems and the creation of innovation ecosystems to enable market-driven competition and to encourage technological advancement through start-ups and internationalization strategies (CARAYANNIS and VON ZEDTWITZ, 2005; CARAYANNIS and CAMPBELL, 2009).

It is possible to observe the existence of a new agenda on innovation (newstream), which has shown that in emerging nations such as India, China, and Brazil, and other Latin American economies, strategies or the very nature of the origin of innovation are not restricted solely to technology-driven, science-intensive, or R&D departments solutions. Some studies have identified a particular pattern of technological conduct, arguing that in emerging economies, using as example Brazilian companies, a significant part of innovations is applied in the process, are incremental, a novelty to the company but not necessarily to the market, and originates from technology already adopted in the international market (QUADROS, FURTADO, BERNARDES et al., 2001; FIGUEIREDO, 2010; OLIVEIRA JR., BORINI and FLEURY, 2013).

A research question worth asking would be what is new and important for emerging market innovation research that requires new theoretical approaches? One answer to this question could perhaps be that the new 'wealth of emerging nations,' which are plagued by challenges such as resource constraints, technological fragility, social exclusion, and institutional

gaps, comes from local strategies that combine innovative solutions synchronized with shared value criteria, frugality, good-enough and cost-saving innovation, social inclusion, and sustainability, that are replicable in new global markets (reverse innovation) (GOVINDARAJAN and TRIMBLE, 2012; BORINI, COSTA, BEZERRA et al., 2014; VON ZEDTWITZ, CORSI, SØBERG, et al., 2015; BORINI, COSTA and OLIVEIRA JR., 2016; BERNARDES, BORINI, ROSSETO et al., 2019; GUPTA, 2019; SHANKAR and NARANG, 2019).

In many of new businesses or products in these regions, there is the creation of competitive advantages using low or medium technological complexity, modeled or prototyped based on solutions that respond to resource scarcity and institutional gaps, drawing on experiences of cultural heritage, whilst learning to interact with local innovation ecosystems with unique creative skills. It is not uncommon for innovative solutions developed for these local markets to gain world attention and become successful global innovations (GOVINDARAJAN and TRIMBLE, 2012).

The term “emerging market innovation” is used in scientific literature to denote typical creative solutions in two cultural patterns of institutional and economic environments that in many cases interconnect, namely:

- Fast-growing macroeconomic environments, relatively stable liberal-legal framework to attract investment, friendly to multinational capital and entrepreneurial investment. There is offer of relatively high qualified personnel and a potentially promising medium/low income consumer market;
- Institutional environments marked by resource constraints, cultural heterogeneity, poor technological and basic infrastructure, macroeconomic uncertainty, inefficient political and regulatory governance, environmental degradation of natural resources, high levels of exclusion and social inequality, with the existence of pockets of poverty

In this issue, we adopt the definition “emerging market innovation” suggested by Shankar and Narang (2019), i.e., the innovation developed in emerging markets for use by local consumers or for use in other emerging or developed markets.

Presentation of the articles

The central theme of this issue of Cadernos EBAPE.BR is ‘innovation in emerging market organizations.’ In the Call for Papers to gather studies on the subject, guidelines described particularities of the phenomenon offering multiple perspectives, which allowed the academic community to express a variety of topics within innovation in emerging market organizations. The articles submitted and selected for publication in this thematic issue (Box 1) present specific perspectives leading the debate on innovation in emerging market organizations, namely: a) the impact of environment and innovation policies on organizations; b) innovation ecosystem and organizations entrepreneurship; and c) the importance of service innovation.

Institutional environment and innovation policies in emerging markets organizations

The first debate in this issue of Cadernos EBAPE.BR refers to the impact of the institutional environment and innovation policies in emerging market organizations. Compared to organizations operating in advanced markets, emerging market organizations offer results for financial performance in the short term, adopting systemic innovations in stakeholder value proposition strategies. This indicates that, for these organizations, efforts should be focused on seeking synergy between different types of innovation, rather than on choosing between product or process innovations, or marketing or organizational innovation (OLIVEIRA PAULA and DA SILVA, 2019). Interestingly, in the service sector, systemic efforts seem to be also essential. Organizations that focus on only one type of innovation or the set of marketing and organizational innovations are those that suffer most from the barriers to innovation (VINCENZI and CUNHA, 2019).

In addition to comparing emerging and advanced markets, the efforts to promote interaction among institutions are conducive to technology transfer (DOIN and ROSA, 2019). The results of this interaction initially reverberate in incremental innovation in emerging market organizations (DOIN and ROSA, 2019). Thus, organizations in emerging economies should be encouraged to catch-up strategies, in particular activities of industry 4.0 (MENELAU, MACEDO, CARVALHO, et al., 2019), as well as organizations involved in businesses related to smart cities and the internet of things (JOÃO, SOUZA and SERRALVO, 2019). However, cooperation should not be restricted to the dyad “emerging and advanced.” Innovations in the current industrial age of digital transformation require global cooperation efforts among emerging markets to accelerate learning paths in science, technology and innovation (MENELAU, MACEDO, CARVALHO et al., 2019).

Critically reflecting on sectors of the economy and sustainability, this issue of *Cadernos EBAPE.BR* discusses two segments, mining and agriculture, which are very sensitive in terms of social and environmental impacts. The articles on this matter present topics such as policies of incentive, which deserves specific attention. The debate highlights the need for a broader policy to support innovation for emerging market organizations. Results in the mining sector show that, compared to an advanced economy, the economic policy of innovation focuses on the technological and economic aspects but lacks non-technological dimensions as well as social and environmental concerns (PAMPLONA and PENHA, 2019). Therefore, tax incentives such as those from funding agencies and supporting organizations (GALVAN and COSTA, 2019) should adopt a broader view regarding innovation aspects. In this sense, the direction of public efforts for innovation should privilege the model of six organizational characteristics and four characteristics of innovation of organizations in emerging economies (ARISAWA and MOREIRA, 2019) – with the exception that, in the public sector, the risk issue should be considered (ARISAWA and MOREIRA, 2019).

Typical Innovations, Innovation Ecosystem, and Entrepreneurship in Emerging Market Organizations

The second debate of this issue encompasses the innovation ecosystem and the organizations entrepreneurship. When implementing their business model, organizations must think not only of their business but of the entire ecosystem architecture that underpins their business model (BITTENCOURT and FIGUEIRÓ, 2019). Thus, organizations in emerging markets are increasingly driven to structure the management of their innovation ecosystem seeking to create shared value among all actors involved (BITTENCOURT and FIGUEIRÓ, 2019). This is an equal challenge for advanced markets but perhaps more complex in the emerging ones because of the challenging innovation environment (OLIVEIRA PAULA and DA SILVA, 2019) and innovation financing policies (GALVAN and COSTA, 2019; PAMPLONA and PENHA, 2019). It should be noted that in emerging markets, even private investment, such as venture capital, is less prone to technology-based research and more focused on the commercial insertion of technology (NASCIMENTO, CHEROBIM and MENDONÇA, 2019).

In parallel, stand out the typical innovations of emerging markets and their dependence on the innovation ecosystem. First, it is worth highlighting the issue of frugal innovation, initially typical of emerging markets, but attracting more and more attention from advanced economies (RODRIGUES and CANCELLIER, 2019). The development of an innovation ecosystem seems to be strongly necessary for frugal innovation because of its interconnectedness with local development, and because of sustainability, and innovation through partnerships with small and medium-sized enterprises (SMEs) (RODRIGUES and CANCELLIER, 2019). At the same time, the development of innovation ecosystems seems to be central to social enterprises in emerging markets because social entrepreneurs stand out as the most aligned with emerging market economies (CICCARINO, MALPELLI, NASCIMENTO, et al., 2019). It is noteworthy these entrepreneurs' ability to identify unique opportunities and to build ecosystems that are not coordinated by pre-existing institutions (CICCARINO, MALPELLI, NASCIMENTO, et al., 2019).

Digital transformation and innovation management in knowledge-intensive services in emerging markets

Finally, the third debate highlights service innovation in emerging market organizations. The importance of the service sector in the global economy and its growth in emerging economies are notorious. Consequently, service innovation requires special attention. First, the age of digital transformation (MENELAU, MACEDO, CARVALHO et al., 2019) in line with the internet of things and smart cities (JOHN, SOUZA and SERRALVO, 2019) puts increasing pressure on the predominance of services in economies. It is well known that barriers to service innovation in emerging markets are not low and have special weight for technology-based knowledge-intensive business services (VINCENZI and CUNHA, 2019). Consequently, organizations in these markets need professional management for service innovation. Thus, this thematic issue presents four specific service innovation management models to meet this challenge, namely: fast compression application model, experiential rapid application model, practice-based model, and innovation model deliberated a posteriori (KITSUTA and QUADROS, 2019).

CONCLUSION

This thematic issue aimed to attract and map the interests of academic research focused on innovation in emerging market organizations. It was possible to notice that, in some points, the articles selected established connections and relative adherence to the international agenda (the main contributions of this edition are presented below).

Arisawa and Moreira (2019) analyze how institutionalization practices contribute to the diffusion of innovation in the public sector, in economies of institutional emptiness such as Brazil. In this case, the public sector may be characterized as a low-risk organizational environment, but paradoxically, the speed of adoption may encounter greater regulatory and institutional obstacles.

Other contributions deserve more detailed reflection, such as the study of social innovation and entrepreneurship that applies the typology for start-ups developed by the *Yunus Negócios Sociais Brasil* (CICCARINO, MALPELLI, NASCIMENTO et al., 2019). Another contribution that stands out is the debate on how to establish parameters and metrics to measure frugal innovation and the policy on innovation and incentives considering the environmental dimension (GALVAN and COSTA, 2019; PAMPLONA and PENHA, 2019). All of these articles follow a more general trend in international studies on emerging market innovation.

An interesting analytical dimension, addressed in this special issue and yet little explored by the theoretical perspective of innovation and organizations in emerging markets, is the dimension covering topics such as digital transformation, industry 4.0, the dynamics of knowledge-intensive services, and their implications for economies and organizations. Undoubtedly, these are strategic topics for future research (JOÃO, SOUZA and SERRALVO, 2019; VINCENZI and CUNHA, 2019; KITSUTA and QUADROS, 2019; MENELAU, MACEDO, CARVALHO et al., 2019).

The study by Nascimento, Cherobim and Mendonça (2019) reveals a structural weakness in the pattern of venture capital investments in Brazil. Different from the dynamism seen in developed markets – Silicon Valley – or even in other emerging markets – Shanghai (China) –, private investments are less prone to technology-based research and more directed to the commercial insertion of technology. This evidence should alert innovation policy makers and new entrepreneurs to balance investments in the country's strategic sectors and future-bearing technologies.

Finally, one of the most sensitive findings of this issue concerns the typical emerging market innovations, their strong dependence on the innovation ecosystem, and the mechanisms of cooperation between public institutions, private organizations, and universities. Strategies based on shared value creation for actors with the perception of sustainability, social and digital inclusion criteria, are critical elements in emerging markets (BITTENCOURT and FIGUEIRÓ, 2019; DOIN and ROSA, 2019; OLIVEIRA PAULA and DA SILVA, 2019).

Box 1
Description of the articles in this special issue

| Article | Objective | Theoretical Lens | Methodology | Main results for reflection related to emerging market innovation |
|--|---|----------------------------|---|--|
| The impact of different types of innovation and governmental support in the performance of firms: the case of Central and Eastern Europe manufacturing SMEs (OLIVEIRA PAULA and DA SILVA, 2019). | Investigate the importance of partnerships with the government and systemic innovation in the companies' financial performance. | Absorptive capacities | Quantitative, with 1143 small and medium manufacturing companies in central Europe and Asia. | Organizations from emerging economies, when using innovation systems (product, process, marketing, and organizational innovations), improve financial performance in less time than developed countries. |
| University-business-government interaction: the case of the Brazil-Singapore educational program for knowledge transfer (DOIN and ROSA, 2019). | Analyze how the configuration of a triple helix model occurs in a university-company-government relationship. | Triple Helix | Qualitative, case study, an international program for educational cooperation for knowledge transfer Brazil-Singapore. | The institutionalization of the entrepreneurial university as the managing partner within the paradox between market and society was central to the implementation of the knowledge transfer program. In addition, the interaction between emerging market and developed market institutions provides at least the creation of incremental innovation for the emerging market studied. |
| Innovation policy for the mining sector in Brazil: a comparative analysis with Sweden centered on the interactions of involved agents (PAMPLONA and PENHA, 2019). | Examine the innovation policy for the mining sector in Brazil compared to Sweden. | Triple Helix | Qualitative, with 18 interviews in Brazil and Sweden. | The policy of supporting innovation in the studied emerging market is restricted. In other words, it is focused on technological and economic innovation. In Sweden, it was found that the innovation policy had both technological and non-technological focus, as well as economic, social, and environmental concerns. |
| Incentives and financing for research and innovation in agriculture: study in research foundations in the South of Brazil (GALVAN and COSTA, 2019). | Discuss the resource dependence for research and innovation in agriculture in five research funds in the South of Brazil. | Resource dependence theory | Qualitative, through semi-structured interviews with managers responsible for five research foundations. | The non-occurrence of taxes at the municipal, state, and federal levels is very important. The resource dependence of official development agencies, support organizations, and private resources is important in researching innovation in agriculture in the emerging market organizations analyzed. |
| In two decades of Awards, how many for innovation? The role of diffusion within the Enap Awards (ARISAWA and MOREIRA, 2019). | Mapping of the dimensions and variables that explain the diffusion of innovation in public services and test their application in the case of the Enap Award. | Innovation diffusion | Qualitative, through interviews with experts and documentary analysis regarding Brazil's Enap Awards. | The model of ten variables was tested for the emerging market studied observing 1) organizational characteristics [a) organizational leftover; b) flexibility and decentralization; c) alignment between top management, managers, and leaders; d) inter and intra-organizational communication; e) ability to take risks; and f) organizational learning/knowledge]; 2) characteristics of innovation [a) adaptation/reinvention; b) complexity; c) relative advantage; and d) compatibility]. It is important to stress that innovations in public services may occur in low-risk organizational environments. |
| Innovation ecosystems articulation and shared value creation (BITTENCOURT and FIGUEIRÓ, 2019). | Analyze the process of generating shared value from the perspective of the public involved in an innovation network. | Innovation ecosystem | Participating in action research in Southern Brazil, based on the interaction between a German multinational corporations, a public school, a university, the municipal government and the local community. | Resulting from the project analyzed in the emerging market organizations, the study found that 1) the search for creating shared value consolidates the establishment of an innovation ecosystem; 2) the innovation generated by the ecosystem is proportional to the heterogeneity of its actors; 3) Creating shared value in an ecosystem is related to the benefits generated at the micro, meso, and macro levels for each actor. |

Continue

| Article | Objective | Theoretical Lens | Methodology | Main results for reflection related to emerging market innovation |
|--|--|---------------------------|--|---|
| The influence of venture capital on innovation in Brazilian startups (NASCIMENTO, CHEROBIM and MENDONÇA, 2019). | Verify if the venture capital contribution has influenced the willingness of Brazilian startups to innovate. | Ambidexterity | Quantitative, through applied questionnaires, and qualitative, through interviews. | For the emerging market organizations researched, venture capital funds were more focused on the commercial insertion of technologies already developed or under development by companies. Investments in grassroots or early-stage innovation were not a priority. |
| Social innovation and entrepreneurial process: application of typologies in <i>start-ups</i> of Yunus Social Business Brazil (CICCARINO, MALPELLI, NASCIMENTO et al., 2019). | Associate the three types of social entrepreneurship (social bricoleur, social builder, and social engineer) with the entrepreneurial process of social business supported by the accelerator. | Social entrepreneurship | Qualitative, through case studies of YNS. | For the emerging market organizations analyzed, social builders were the predominant type, both in the discourse of evaluators and entrepreneurs. Evaluators mentioned social engineer type as a possibility and a desire. |
| Innovation management in information technology service companies in Brazil: planned innovation, rapid application and deliberate <i>a posteriori</i> innovation models (KITSUTA and QUADROS, 2019). | Verify that traditional innovation management models are applicable to IT service companies. | Service innovation models | Qualitative, through case studies of the IT sector. | In the emerging market organizations analyzed, in addition to verifying the adherence of traditional models in innovation management, other models were found, such as the rapid application by compression, the experimental application, and the practice-based model. Also, a new model called deliberate innovation <i>a posteriori</i> is suggested. |
| Characteristics of companies and innovations and their relations with barriers to innovation in the Brazilian services sector (VINCENZI and CUNHA, 2019). | To analyze the characteristics of companies and innovations developed and their relationship with barriers to innovation in service companies. | Service innovation | Quantitative, based on secondary data from PINTEC – Brazil. | In the emerging market analyzed, domestic firms pointed to more barriers to innovation compared to foreign ones. Regarding the type of innovation, those focused on organizational innovation and marketing also pointed to more barriers. Just as technology-based knowledge-intensive business services pointed to higher barriers than the others. |
| Frugal innovation: origins, evolution and future perspectives (RODRIGUES and CANCELLIER, 2019). | To present the origin, evolution, and current characterization in the literature of frugal innovation, besides discussing future perspectives of study on the subject. | — | Theoretical essay | It presents a research agenda for frugal innovation: a) in both emerging markets and developed countries; b) for SMEs; c) for local development; d) related to sustainability; e) in search of metrics and measurement instruments. |
| Mapping of the scientific production of industry 4.0 in the BRICS: reflections and interfaces (MENELAU, MACEDO, CARVALHO, et al., 2019). | To analyze the current profile of scientific production on Industry 4.0 of the group of emerging countries formed by Brazil, Russia, India, China, and South Africa. | — | Bibliometrics | There is an increase in studies on S&T Industry 4.0 in the BRICS, but there is a need for cooperation and effective development of common S&T goals for this group of countries. |
| A systematic review of smart cities and the internet of things as a research topic (JOÃO, SOUZA, SERRALVO, 2019). | Analyze current academic literature on smart cities and IoT. | — | Systematic review | Smart Cities and IoT are “booming” phenomena that have been reported based mainly on experiences in developed countries. The research on Smart Cities and IoT in emerging economies is still scarce. |

Source: Elaborated by the authors.

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