

Research Article

Good Management Practices and Absorptive Capacity: Impacts on Firms' Productivity



Boas Práticas de Gestão e Capacidade Absortiva: Impactos na Produtividade das Firms

Rafael Ricardo Jacomossi¹
Paulo Roberto Feldmann²

ABSTRACT

Context: there are few studies that aim to calculate productivity at the microeconomic level and one of the variables that contributes to this is the ability of firms to absorb external knowledge - absorptive capacity. However, another variable is also gaining explanatory power in this direction - that of good management practices. It turns out that studies that deal with these two variables together and that relate them to productivity are not easily found. **Objective:** the objective of this research is to understand how the interaction between good management practices and the absorptive capacity of firms and the impact on productivity takes place. **Method:** the multi-case method was used, having been applied in transnational and national industries. **Results:** the results show that the existence of good management practices acts as an influencer of absorptive capacity, and that this relationship has a positive impact on the productivity of firms. Furthermore, it was revealed that management processes in transnational companies contribute more effectively to absorptive capacity and productivity than in national companies. **Conclusions:** as a contribution, an analysis model is presented that demonstrates the relationships between the variables studied, showing the importance of good management practices as a determinant for the development of absorptive capacity and the improvement of firms' productivity conditions.

Keywords: good management practices; absorptive capacity; productivity.

JEL Code: L1, D24, G39.

RESUMO

Contexto: poucos são os estudos que visam a calcular a produtividade em nível microeconômico e uma das variáveis que contribuem para isso é a capacidade das firmas de absorver o conhecimento externo - capacidade absorptiva. Contudo, outra variável também vem ganhando poder de explicação nessa direção - a das boas práticas de gestão. Ocorre que não se encontra facilmente estudos que tratem essas duas variáveis em conjunto e que as relacione com a produtividade. **Objetivo:** o objetivo desta pesquisa é entender como se dá a interação entre boas práticas de gestão e a capacidade absorptiva das firmas e seu impacto sobre a produtividade. **Método:** foi utilizado o método multicase, tendo este sido aplicado em indústrias transnacionais e nacionais. **Resultados:** os resultados apontam que a existência de boas práticas de gestão atua como uma influenciadora da capacidade absorptiva, e que tal relação gera um impacto positivo sobre a produtividade das firmas. Ademais, foi revelado que os processos de gestão nas empresas transnacionais contribuem de forma mais efetiva quanto à capacidade absorptiva e produtividade do que nas empresas nacionais. **Conclusões:** como contribuição, é apresentado um modelo de análise que demonstra as relações entre as variáveis estudadas, podendo-se evidenciar a importância das boas práticas de gestão como determinante ao desenvolvimento da capacidade absorptiva e à melhoria das condições de produtividade das firmas.

Palavras-chave: boas práticas de gestão; capacidade absorptiva; produtividade.

¹ Centro Universitário FEI, São Bernardo do Campo, SP, Brazil.

² Universidade de São Paulo, Faculdade de Economia, Administração e Contabilidade, São Paulo, SP, Brazil.

Cite as: Jacomossi, R. R., & Feldmann, P. R. (2020). Good management practices and absorptive capacity: Impacts on firms' productivity. *Revista de Administração Contemporânea*, 24(5), 432-447. <https://doi.org/10.1590/1982-7849rac2020190140>

Editor-in-chief: Wesley Mendes-Da-Silva (Fundação Getulio Vargas, EAESP, Brazil)
Reviewers: Renata B. B. de Vasconcelos (Universidade Federal de Pernambuco, Brazil)
Paulo H. Ferreira-Alves (Universidade de Brasília, Instituto de Psicologia, Brazil)

Received: April 12, 2019
Last version received: April 19, 2020
Accepted: April 22, 2020

of invited reviewers until the decision

	1	2	3	4	5	6	7	8	9
1 st round	(x)	👤	👤	(x)	(x)	(x)			
2 nd round	👤								
3 rd round	👤								

INTRODUCTION

The relationship between innovation and its potential to promote increased competitiveness is consolidated in the literature (Freeman, 1987; Nelson & Winter, 1982; Pavitt, 1984; Schumpeter, 1982). At the same time, studies show that a country or company needs to be more efficient in its markets to improve its productivity, which is also a condition for increasing competitiveness (Carayannis & Grigoroudius, 2014; Gordon, 2016; Ledereman, Messina, Pienknagura, & Rigolini, 2014).

Therefore, there is an intrinsic relationship between innovation activities and productivity, which is demonstrated in the seminal work by Griliches (1979). The author studied the effects of R&D spending on productivity, showing that the latter is a consequence of incorporating innovation into the production process. The findings by Griliches (1979) were corroborated afterward in several studies (Gordon, 2016; Mairesse & Robin, 2009; Medda & Piga, 2014; Parisi, Schiantarelli, & Sembenelli, 2006; Wakelin, 2001).

The emergence of innovation activity in firms reflects how they absorb knowledge in the external environment and internalize it in their internal context, causing changes in routines and culture, thus contributing to the activity of innovating. This phenomenon is called absorptive capacity.

According to Cohen and Levinthal (1990), Nelson and Winter (1982), and Zahra and George (2002), absorptive capacity involves the process a firm uses to seek new knowledge and technologies in the external environment and how they are introduced and/or readapted in organizational routines. Therefore, innovation within a company may be the result of a process of organizational learning (Jacomossi & Demajorovic, 2017; Nelson & Winter, 1982), through which several routines are activated and/or readapted, potentially contributing to product and process innovation. Therefore, absorptive capacity is a set of routines derived from the firm's ability to learn.

Studies have shown that other variables in addition to absorptive capacity may be associated with productivity, such as the case of 'good management practices' (Agarwal, Brown, Green, Randhawa, & Tan, 2014; Bloom & Van Reenen, 2010; Feldmann, 2009; Feldmann, Jacomossi, Barrichello, & Morano, 2019; Kerzner, 2018; Mundlack, 1961). Research suggests that firms adopting results-oriented management practices are more competitive than others. Bloom and Van Reenen (2010), for example, compared management practices among countries, showing significant

differences. For the authors, Brazil - emphasized in this article - was one of the countries with the lowest score regarding the adoption of good management practices.

Therefore, it is possible to observe that both dimensions — the organization's absorptive capacity and good management practices — influence the increase in productivity. However, there is little study on the relationship between these two constructs and their combined effects on productivity, which points to the need to understand how these elements interact in the organizations. Thus, the research addresses this gap in the literature, working based on the following research questions: how does the interaction between the dimensions of good management practices and absorptive capacity occur in the organization, and what are their combined impacts on productivity? The study also tackles a second problem: is there a difference between management practices and absorptive capacity in Brazilian and transnational companies operating in Brazil, which can influence productivity?

The research questions guide the objectives of the study, which are to analyze and understand how the two dimensions interact; and to examine them in the comparison between Brazilian and transnational firms, verifying the impacts on productivity.

The contribution of this research lies in filling a gap in the literature, promoting and expanding the debate about the importance of combining the constructs of good management practices and absorptive capacity to understand how they influence firms' productivity.

LITERATURE REVIEW

This section offers a literature review on the central constructs adopted in the study — absorptive capacity and good management practices.

Absorptive capacity

Absorptive capacity is an element of analysis associated with the process of routines that involve the search for new knowledge and technologies in the external environment for the assimilation and adaptation of organizational routines and the inherent process of keeping them in the company. A firm's ability to innovate depends on this element (Cohen & Levinthal, 1990; Nelson & Winter, 1982; Zahra & George, 2002).

According to authors such as Cohen and Levinthal (1990), and Zahra and George (2002), the

absorptive capacity is composed of two dimensions subdivided into four others, namely: potential absorptive capacity (acquisition and assimilation) and realized absorptive capacity (transformation and exploitation) (Table 1).

Absorptive capacity captures both the organization's internal and external knowledge and transforms them through the development and reconfiguration of routines, improving the firm's innovation capacity.

Table 1. Absorptive capacities.

Potential	Acquisition	The firm's ability to locate, identify, value, and acquire external knowledge that is critical to its business.
	Assimilation	The processes and routines that allow newly acquired information or knowledge to be analyzed, processed, interpreted, understood, internalized, and classified.
Realized	Transformation	The refinement of externally acquired knowledge in order to adapt it to the accumulated knowledge of the organization, providing the assignment of new routines and combining them with internal routines.
	Exploitation	The implementation of routines and processes, allows the transformed knowledge to be exploited by business routines and operations. The result of such routines promotes new processes, products, knowledge, generating a more sustainable position for the organization.

Note. Elaborated by the authors based on Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185-203. <https://doi.org/10.5465/amr.2002.6587995>

For Zahra and George (2002), events such as an internal or external crisis that demand strategic changes precede the firm's process of potential absorptive capacity (acquisition and assimilation). Thus, the company goes through experiences that generate knowledge such as acquisitions, purchases, inter-organizational relationships, licenses and commercial agreements, R&D consortia, alliances, and joint ventures. The lessons learned through experiences are crystallized in the organization's memory (Walsh & Ungson, 1991), defining how they operate.

The research by Choi (2014) identified that both the formation of memories and the absorptive capacity directly and positively influence the quality of relationships in the organization. Kim's (2016) study in South Korea observed that firms that receive foreign investment and have a well-developed absorptive capacity had presented better results.

In addition, Phoocharoon (2015) and Wang, Zhao, and Zhou (2018) stress the need to reinforce transformative leadership and offer incentives, so employees develop a learning-led approach, in order to increase the firm's absorptive capacity.

Ritala and Hurmelinna-Laukkanen (2013) found that absorptive capacity is responsible

for the firm's incremental — more often — and radical innovations. Other authors such as Kostopoulos, Papalexandris, Papachroni and Ioannou (2011), Tavani, Sharifi, and Ismail (2014), Brettel, Greve, and Flatten (2011), and Cardozo, Kronmeyer Filho, and Vaccaro (2019) observed that, in addition to promoting innovation, the absorptive capacity was related to better financial and organizational performance.

Once an organization acquires and assimilates absorptive capacity, there is no guarantee that it will unfold to realized absorptive capacity and its sub-dimensions of transformation and exploitation. In this sense, Cuervo-Cazurra (2017) observed the existence of weak mechanisms of social integration blocking the implementation of absorptive capacity strategies. For Armstrong and Lengnick-Hall (2013), Vega-Jurado, Gutiérrez-Gracia and Fernández-de-Lucio (2008), and Zahra and George (2002) this problem can be avoided by strengthening such mechanisms through organizational structures that encourage integration between employees, creativity, and teamwork.

The use of this strategy stimulates employees to become more aware of their importance and promote the flow of information. According to Morano, Barrichello,

and Jacomossi (2016), and Morano, Moraes, and Jacomossi (2018), these mechanisms can generate cohesion, which is manifested through social identity.

Finally, Guimarães, Thielman, Guimarães e Cornick (2016) reinforce the importance of absorptive capacity as a central and moderating element. For the authors, innovation results from a process based on strategies and clear management policies, which is crucial for the firm to adopt a clear direction regarding its innovation strategies.

Thus, absorptive capacity is also associated with the firms' ability to intelligently manage their business, which emphasizes the importance of quality management.

Good management practices

Mundlack (1961), Bloom and Van Reenen (2010), and Agarwal, Brown, Green, Randhawa and Tan (2014) point out that the differences in productivity may be a result of technological innovations and also a consequence of good management practices in organizations.

The history of economics justifies this relationship. According to Landes (1969) and Chandler and Hikino (1994), the collapse of English firms and the strength of American and German enterprises in the early twentieth century occurred due to the management practices adopted in the countries. In this direction, the work by Kerzner (2018) reinforced the importance of management by demonstrating through case studies that the quality of management is an indicator of the firms' survival and success over time.

In addition, Feldmann, Jacomossi, Barrichello, and Morano (2019) found that the competitiveness of nations is explained by

the capacity for innovation, and also by the mediating role of good management practices as an element that promotes both innovation and competitiveness.

Although the quality of management is discussed in the best business schools around the world, there is no consensus around measuring this variable. The broad scope of the field may be a reason for the lack of agreement on this matter. Venkatraman and Ramanujam (1987), for example, argue that quality management may be analyzed by comparing companies and competitors, observing elements such as commercial success, and accounting indices related to profitability, sales margins, and business productivity.

However, there are few validated instruments for this measurement. Bloom and Van Reenen (2006) sought to fill this gap in the literature by developing a method to measure quality management, which was applied to 732 manufacturing firms in the USA, France, Germany, and the United Kingdom. Years later, the same authors expanded and perfected the method applying it to almost 6,000 firms in different countries (Bloom & Van Reenen, 2010). The system includes both qualitative and quantitative methods, using econometric techniques. Table 2 shows the variables considered for the three dimensions observed when measuring the quality of management: operations, performance, and incentives.

Table 2. Good management practices — variables.

Operations	Use of lean manufacturing techniques; rationality of decision-making processes; records of nonconformity; performance evaluation; periodic performance assessment; quality of performance meetings; actions on results.
Performance	Use of financial and non-financial goals; clear goals; distribution of goals; the degree of difficulty to achieve goals; all people involved are aware of the goals; time scale.
Incentives	Bonus programs; performance actions; promotion policies; identification of people with company policies; policies on talent attraction and retention.

Note. Elaborated by the authors based on: Bloom, N., & Van Reenen, J. (2006). Measuring and explaining management practices across firms and countries [CEP Discussion Paper No. 716]. *Centre for Economic Performance*, London, United Kingdom; Bloom, N., Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, 122(4), 1351-1408. <https://doi.org/10.1162/qjec.2007.122.4.1351>; Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives*, 24(1), 203-224. <https://doi.org/10.1257/jep.24.1.203>

For Bloom and Van Reenen (2010), the firms' management practices are strongly associated with the level of productivity and profitability in an instrument named "best practices in management." The adaptation of this construct to the Brazilian context in this study follows the work by Feldmann et al. (2019), using the expression "good management practices." However, Bloom and Van Reenen's (2010) instrument has received criticism. Agarwal et al. (2014) comment on its limitation in not considering some important dimensions, such as knowledge, relationship, technology, and strategic management, which should be related to the management practices of manufacturing companies.

Maloney and Sarrias (2014), on the other hand, confirm Bloom and Van Reenen's (2007) research findings. The authors reinforce that variables such as company ownership structure and human capital are essential to good management.

Bloom et al. (2019) extended their research to 35,000 firms, corroborating other studies. They found that exogenous factors such as high levels of human capital and competition between sectors are also associated with scores of best practices in management.

In addition, Wu (2015) and Wiengarten, Gimenez, Fynes, and Ferdows (2015) argue that an organization must first build its culture in line with its goals, and then benchmark the practices of its successful competitors. In this sense, people's attitude, behavior, priority, and beliefs are essential in conducting tactical decisions that impact strategy.

The studies by Bloom and Van Reenen (2006, 2007, 2010) also present a series of events that contribute to persistent deficit management, mainly due to the imperfect markets. Some of their considerations include:

- a. Companies with better management practices tend to be bigger and more productive, grow faster, and have higher survival rates.
- b. There are significant differences in management practices between countries. For example, while in the United States a small number of firms are on the tail of poor management, in Brazil and India many companies are badly managed.
- c. In the countries in which they are established, multinationals are generally better managed than national firms.
- d. Family companies that appoint a family member (especially the oldest son) as CEO are, on average, very badly managed.
- e. State-owned companies are generally poorly managed, but when these companies have pension funds as shareholders, the results are better.

METHODOLOGY

The research adopted an explanatory exploratory method, which allowed us to study the dynamic of the outside world (Angrosino, 2009; Godoy, 2006). The exploratory approach was used to understand the possible relationships that can be established between good management practices, absorptive capacity, and their effects on productivity. A multi-case study was used, which, according to Eisenhardt (1989), allows the construction of theories about little-known phenomena.

The study selected three transnational companies operating in Brazil and two Brazilian companies, all of them in the field of plastic packaging, a category of medium-low technological intensity. As noted by Feldmann (2009), many companies of low and medium technological intensity are located in Brazil. Choosing this category of firms, therefore, may reveal aspects of the country's dynamic concerning the variables studied.

The units of analysis in these companies were R&D and management departments. Table 3 presents details about the firms.

Table 3. Characteristics of the firms.

Firms	Characteristics/Singularity
Alpha	Founded in Portugal, but currently belongs to an American group. It is present in 16 countries with 59 industrial plants. It maintains a subsidiary in Brazil and has strong market penetration. The company innovated in the organizational model by installing its plants within the customer's facilities, dramatically reducing the operation costs. This innovation was due to market pressure for lower costs due to increased competition.
Beta	American company, present in the American, European, and Asian continents, with 95 factories. It has a branch in Brazil. Its main innovation was the creation of a machine that increased productivity 18 fold, becoming a worldwide benchmark. The machine was born from the company's need to reduce operating costs.
Gama	American company, with 18,000 employees and 60 factories, spread over 12 countries, considered the largest flexible packaging company in the Americas and the largest pressure-sensitive materials industry. In Brazil, it has 5,000 employees distributed in 4 factories. It has several PhD scientists located in its parent company abroad, having developed several product innovations, with a strong culture of differentiating from the competition.
Sigma	Traditional Brazilian company with 30 years' experience, with an industrial unit and 400 employees. The company presents itself as one of the leaders in its segment. It has an R&D laboratory and discloses its innovation actions in its institutional environment, which are carried out according to customer demands.
Zeta	Traditional Brazilian company, founded in the 1980s. It has seven industrial units in several Brazilian states and constantly receives innovation awards for its packaging. These innovations occur due to customer demands.

Note. Elaborated by the authors.

Data were collected in two phases:

1st phase: The aim was to interview the same number of foreign companies with subsidiaries in Brazil and national companies. However, due to the difficulty of finding Brazilian companies that meet the criteria of the strong market presence or targeting innovative activities, only two Brazilian companies were interviewed.

The firms operate in the field of plastic packaging, suppliers for the food, cosmetics, beverages, and pharmaceutical industries. This segment was chosen according to the convenience criterion, and the participants had to be recognized in the market for their upward history

and innovation policies, elements observed in a report produced about the sector (Abiplast, 2015).

The interviews followed a semi-structured script and were applied to fifteen executives (three from each company), who occupy positions of direction and management, specifically in the areas of R&D, operations, and management. The analysis of absorptive capacities sought to understand the routine of seeking external knowledge and how it is treated within the organization (Table 4).

Table 4. Points mapped in fieldwork in the dimension – absorptive capacity.

Potential absorptive capacity	Acquisition	The ways and means by which the company seeks external knowledge; how employees seek and deal with information within and beyond the industry; partnerships established with suppliers, universities, customers, and business networks; relationship of the multinationals' subsidiaries with their parent company abroad.
	Assimilation	Processes and routines that allow new information to be analyzed, processed, interpreted, and classified in the company; flow of information between departments; distribution of new knowledge.
Realized absorptive capacity	Transformation	Ways in which the company structures the new knowledge and how it connects old routines with new or adapted routines.
	Exploitation	Implementation of new routines that emerge as a result of the transformation process, or old routines that are readapted and applied to existing routines, which give rise to new technologies created by the organization.

Note. Elaborated by the authors, based on the literature review.

In addition, it was verified how the companies' activation mechanisms influence the beginning of the process of potential absorptive capacity (acquisition and assimilation) and the mechanisms of social integration in relation to realized absorptive capacity (transformation and exploitation).

As for good management practices, the interviews were conducted based on the questionnaire developed by Bloom and Van Reenen (2006, 2007) and perfected in their research in 2010 (Bloom & Van Reenen, 2010). The variables for good management practices are presented in Table 2 (section 2.2 above). The authors' original instrument has qualitative and quantitative elements, and the present study adapted the qualitative part of the instrument.

The interviews were consensually recorded and later transcribed and analyzed using content analysis — considered by Mozzato and Grzybovski (2011) as an important instrument for qualitative research in the field of Administration. The NVivo software was used to support and facilitate the categorization of data, which were collected from secondary sources, generating triangulation of information, and reinforcing the analysis.

2nd phase: In this phase of collecting primary data, the study aimed to gather elements to measure the evolution of the companies' productivity. The research relied on the firms' willingness to provide data since many of them consider this as strategic information. Therefore, the study used non-standardized forms to measure productivity, noting that all forms used are provided in the manual of the Organization for Economic Co-Operation and Development (Organisation for Economic Co-operation and Development [OECD], 2001) for calculating productivity.

The first option was to calculate productivity based on the total factor productivity (TFP), which can be obtained using the Cobb-Douglas production function. This is an accurate way to calculate productivity since it is possible to cancel the trade-off effect of replacing employees with technology. In the second option, the ratio between total production (in tons) and the number of employees was calculated, which is known as "labor productivity." The last option considered productivity as a result of the ratio between added value (net revenues — production costs) and some measurement referring to the labor force — such as salaries or number of employees (OECD, 2001).

Because some firms did not provide data, claiming strategic secrecy, it was not possible to

collect the same information for all five companies. Thus, the only comparable information collected was the calculation of labor productivity, which can generate a single standard of comparison. The period used for this calculation was five years, between 2013 and 2017.

RESULTS

In order to facilitate the presentation of the results, the main characteristics per company in the studied variables are divided into two groups, foreign and national subsidiaries. Table 5 presents the characteristics of transnational companies.

When analyzing Table 5 above, it is possible to draw the following observations:

- The three companies present a management culture. Although there are variations in the way in which they fit into the dimensions of management, they seek to follow rational processes of management techniques.
- In Alpha and Gama, the culture of innovation is evident. The subsidiary of Beta in Brazil is temporarily not engaged in innovation activities. However, the firm is recognized in the sector and is looking for alternatives to resume these activities.
- With regard to R&D activities, all three companies are highly dependent on innovation policies originating from their parent companies abroad.
- As a result of the management routine, although subordinated to the guidelines of their parent company abroad, all three subsidiaries develop mechanisms of social integration. This is observed in the role of leaders, who gather, prepare, and motivate their teams, also pressuring them for results. Thus, there is a natural path in which it is easier to move between the phases of assimilation (potential absorptive capacity) and transformation (realized absorptive capacity). In other words, external knowledge becomes internalized in the modus operandi of these companies.

Table 5. Summary of results verified in subsidiaries of multinational companies located in Brazil.

		Alpha	Beta	Gama
Potential absorptive capacity	Acquisition	Knowledge is acquired and developed in its entirety at R&D centers abroad. In this case, the Brazilian subsidiary is totally dependent on this external knowledge.	The search for knowledge is entirely centered on the headquarters in the USA and Italy. Due to a strategic decision by the parent company abroad, the Brazilian operation, temporarily, will not be able to develop new products until previous investments are financially recovered.	The company maintains an R&D center at the office of its parent company in the United States, where it maintains training programs and alignments with the various R&D units around the world. This information derives, in addition to the internal work of PhD's, from the firm's interaction with suppliers, customers, universities, and research centers.
	Assimilation	After the knowledge is absorbed from the outside, it is internalized. However, knowledge is not dynamically assimilated among the firm's departments. To a certain extent, there is a centralization of information in a few leaders.	The management team in Brazil frequently meets to discuss market trends, innovations, and the company's performance as a whole. Improvements are incorporated into the production processes, generating improvements in products.	The company maintains a rotation program for employees from different plants in the world, working temporarily in the R&D located at the office of its parent company. This routine allows for a greater flow of information and assimilation of knowledge. In addition, daily and weekly meetings are held by the teams.
	Transformation	New knowledge from abroad is considered for incorporation into organizational practices. This is done with the support of a management system that aligns all employees.	Managers, together with their teams, consider new information to transform and adapt the routines that need to be reworked.	New routines from abroad are easily incorporated, readapted, and generate new routines. In some cases, this transformation comes up against the limit of the operation of customers, who are unable to modify their production structures due to high implementation costs.
Realized absorptive capacity	Exploitation	New knowledge is easily exploited by the company, modifying routines when necessary.	Although the company considers new information in order to transform its routines and apply them, many improvements come up against the strategic limitation imposed by the head office on the Brazilian subsidiary.	The new knowledge is adapted and exploited in the organization, supported by a management process that controls all innovations.
	Operation	It has control of the entire operation through KPIs. There is a system of goals that covers all employees. The employees' performance is measured through these goals. A training plan is designed for those who do not reach the goals.	The company does not have a lean manufacturing system in place in all countries (it does not have the system in the Brazilian subsidiary). Results are measured periodically, and employees who do not achieve results, after specific training, are dismissed.	The company adopts lean manufacturing practices in a standardized manner at all plants around the world. Daily, there are meetings between supervisors and their teams to align goals and results. Performance problems do not harm the firm, as daily meetings are used to correct errors and increase the chances of getting the intended results.
Management practices	Performance	There are financial and non-financial goals, deployed at all levels. They are routinely charged, generating internal competition between departments, which is also used as promotion criteria.	The financial and non-financial goals are deployed worldwide up to the level of supervision of each subsidiary. The goals guide the employee's actions. Short, medium, and long-term goals are managed.	The goals are aligned with the company's long-term plan, distributed to all plants and descending to all levels. In general, they are not easy to reach. However, it motivates employees due to the award system linked to this system.
	Incentives	Although there is no bonus system that rewards good performances, they feed the employee's promotion opportunity.	The company maintains a worldwide training plan for attracting talent. Although employees do not have a formal career plan, they are remunerated with bonuses in view of the results achieved.	The company has a system that controls results vs. targets linked to the bonus payment program. In order to seek greater efficiency, the firm is judicious in the selection and hiring of talents.
Results	Productivity	The company presented an accumulated increase in productivity of 67.02% between 2013 and 2017.	In the accumulated years between 2013 and 2017, there was an increase in productivity of 37.22% .	The company showed accumulated productivity growth of 7.35% between 2013 and 2017.
		2013 → 2014: 1.11% 2014 → 2015: 35.53% 2015 → 2016: 0.77% 2016 → 2017: 29.61%	2013 → 2014: -1.08% 2014 → 2015: 21.16% 2015 → 2016: -4.03% 2016 → 2017: 21.17%	2013 → 2014: 1.38% 2014 → 2015: 6.91% 2015 → 2016: -4.33% 2016 → 2017: 3.39%

Note. Elaborated by the authors.

Table 3 highlights another important point: Transnational companies were motivated to innovation due to challenges — activation mechanisms — to their survival. For Alpha, the activation mechanism was the installation of its plants within the customers' manufacturing areas. In the case of Beta, it was the invention of a mechanism that allowed the plastic blowing technology to increase productivity eighteen times. For Gama, the incentive was the company's will to stay ahead of its competitors.

In general, it can be inferred that the culture of these companies, with regard to management

practices and the search for external knowledge to improve innovation activities, generates positive results in productivity. This was observed in the three companies due to the accumulated growth (Alpha: 67.02%; Beta: 37.22%; Gama: 7.35%). According to the managers interviewed, the superior result of Alpha stood out because of the radical transformation of the management process in recent years, supported by the work of a consulting firm.

In the case of Brazilian companies, the results are presented in Table 6.

Table 6. Summary of the results verified in Brazilian companies.

		Sigma	Zeta
Potential absorptive capacity	Acquisition	The innovation policy is geared towards customer demands. R&D is reactive, acting mainly to adapt the production of these demands to the company's equipment. Every innovative effort is directed towards incremental improvements in the product lines. Another aspect of knowledge acquisition results from the purchase of machines, which generates training for those involved in the operation.	The company's new knowledge is concentrated in the packaging engineering department, which acts, above all, on the functionality of the machines to adapt new products to production, aiming at higher productivity.
	Assimilation	Knowledge arising from the exchange with customers or with suppliers related to the equipment purchased by the company is limited to departments involved in the operation.	New knowledge, especially that resulting from the acquisition of new machines, is limited to the people involved in the operation.
Realized absorptive capacity	Transformation	The changes in routines are not significant beyond the departments involved. The changes are due to the technological dependence surrounding the equipment the company uses.	The changes in patterns and routines are not significant in the company. Even though there are some projects developed together with customers, these do not generate changes in the company's routines.
	Exploitation	Due to the company's characteristic of concentrating new knowledge in the productive areas, it does little to transform and exploit the potential for improvements that are presented.	Because the company adopts an innovation practice centered on the exchange of equipment, it does little to transform its routines and practices.
Management practices	Operation	The company follows operational parameters within the standards imposed by accreditation certificates, such as the ISO 9001 certificate.	In addition to the certification ISO 9001-2008 implemented, the company maintains the SAP system to integrate the operations. The SAP is understood as extremely important to ensure the standardization of operations.
	Performance	There are general figures, such as billing goals, customer acquisition goals, waste goals, general quality goals, customer satisfaction goals, among others. These are drawn up once a year in January.	Billing numbers are generally allocated according to the department. After defining the annual number, these are distributed to all departments in all factories, limited to the managerial sphere.
	Incentives	The company applies a profit-sharing system limited to the requirements of current legislation. The goals are general, but not individualized, which does not allow remuneration to be linked to performance.	Performance compensation does not occur for all levels, only for managers and directors.
Results	Productivity	The company's accumulated productivity between 2013 and 2017 decreased (0.66%). 2013→2014: -0.24% 2014→2015: -2.76% 2015→2016: 3.76% 2016→2017: -1.42%	The company's accumulated productivity between 2013 and 2017 decreased (7.59%). 2013→2014: -2.74% 2014→2015: -2.71% 2015→2016: -0.43% 2016→2017: -2.57%

Note. Elaborated by the authors.

The analysis of Table 6 above allows the following observations to be drawn:

- The two companies, Sigma and Zeta, restrict their search for new knowledge based on the acquisition of machines or the need to meet customer demands.
- R&D departments do not have research activities and are involved in the production area, working to adapt products to manufacturing processes. This fact is corroborated by Feldmann (2009) and Ledereman, Messina, Pienknagura and Rigolini (2014), when mentioning the low innovation rates of Latin American firms.
- Sigma and Zeta adopt management processes according to accreditation standards, such as ISO 9001-2008.
- In both companies, social integration mechanisms occur at low levels, which disaggregates employees and disperses the focus on results. For example, managers concentrate important information on themselves, neither disseminating it among their team members nor promoting the information exchange or circulation within the firm, through different mechanisms.

As shown in Table 3, it is interesting to observe that, in national companies, the activation mechanisms that lead to pursuing external knowledge are limited only to the need to meet customers' demands, with no other market situation such as crisis or vision encouraging the firms to differentiate through innovation.

In addition, the management culture of these companies does little to help absorb relevant external knowledge, which could boost the innovation process and consequently leads to increased productivity. This finding is reflected in the drop in productivity accumulated between 2013 and 2017 for the two Brazilian companies (Sigma: -0.66%; Zeta: -7.59%).

This section has outlined some of the more general findings of the two groups of companies. Other issues are discussed in the following section.

DISCUSSION

Academic literature, documents from government agencies about management issues (Agarwal et al., 2014; Bloom & Van Reenen, 2010; Feldmann et al., 2019; Ledereman et al., 2014), and numbers about the efforts toward

innovation usually associate good results on this matter with developed countries. This research associates good management practices and absorptive capacity with productivity, offering elements for discussion, as presented in this section.

With regard to the absorptive capacity of transnational companies, these organizations access knowledge directly from their parent companies abroad. Bertrand and Mol (2013) argue that the parent companies, usually located in developed countries, count on abundant resources, producing knowledge based on strong processes of R&D. These processes are reinforced by the interaction with other research bodies such as universities, research centers, and suppliers. Wang and Han (2011), Müller-Seitz and Güttel (2014), and Cohen and Levinthal (1990) emphasize that these practices favor the growth of absorptive capacity.

New knowledge in Brazilian companies is the result of purchasing and operating new equipment, and a consequence of the need to meet unilateral demand from customers. In addition, as suggested by Nonaka and Takeuchi (1995), when studying Japanese firms, Brazilian companies may be stimulated and obtain insights from opportunities such as partnerships with suppliers or visiting fairs, which would broaden the organizations' horizon of knowledge. In this sense, the activation mechanisms — which leads a firm to seek new knowledge (Zahra & George, 2002) — in Brazilian companies are limited to meeting customers' demands and trying to innovate on this basis, resulting in fragile competitive strategies.

In national companies, because a large part of the routines is related to acquisition and assimilation of external knowledge (potential absorptive capacity), both the transformation and the exploitation of external knowledge (realized absorptive capacity) are not well developed. There is also a lack of social integration mechanisms in companies. The presence of these stimuli would reinforce social cohesion among employees and between leaders and their subordinates, promoting a learning and cooperation routine for the implementation of new ideas (Morano, Barrichello, & Jacomossi, 2016; Vega-Jurado, Gutiérrez-Gracia, & Fernández-de-Lucio, 2008; Zahra & George, 2002).

By comparison, transnational companies show an effort in managerial routines to reinforce established standards. Examples of these managerial routines are the high frequency of meetings held between leaders and their teams, and rotating employees in different

roles. Therefore, the managerial routines are important mechanisms, contributing to improving the distribution of knowledge and the implementation of new routines in organizations (Armstrong & Lengnick-Hall, 2013; Cuervo-Cazurra, 2017; Zahra & George, 2002).

There is a relationship between these mechanisms of social integration and the managerial tasks, considering that routines established in organizations are formally contemplated — most of the time — in the design of their processes. Thus, it is possible to say that the design of good management practices in the organization will positively influence its absorptive capacity. This position is corroborated by Guimarães et al. (2016), who state that if there is a good management process, the company adopts patterns of behavior that indirectly contribute to the increase of knowledge coming from external sources.

The study observed disparities between transnational and national firms in different dimensions analyzed. Regarding **Operations**, transnational companies adopt tools for applying lean manufacturing concepts, with a visible emphasis on controlling performance indicators. Brazilian companies limit their management using control mechanisms offered by the ISO 9001-2008 indicators.

Concerning the dimension of **Performance**, multinationals adopt well-defined criteria for planning and distributing goals, following a guideline from the parent company abroad. These goals are broken down by plants, directors, management, and supervisors, to the firm's shop floor, and include performance bonuses for achievement. Brazilian companies use goals, detailed by the board of directors and general management, followed and controlled based on the ISO system.

For the dimension **Incentives**, Brazilian firms follow labor legislation and union agreements as a parameter to guide the system of employee bonuses. The bonuses in Brazil are not linked to performance but are a fixed amount stipulated by law. This practice goes against the suggestion by Phoocharoon (2015) and Wang, Zhao, and Zhou (2018). For the authors, a management system that incentives employees to acquire and promote new knowledge that can promote changes is essential to develop the firm's absorptive capacity.

Transnational companies adopt well-defined criteria for promoting people and attracting or retaining talent, offering career and salary plans, as well as clear promotion policies. According to Bloom and Van Reenen (2006, 2007), in developing countries such as Brazil, where there is strong labor legislation, companies adopt few management mechanisms aimed at increasing productivity based on employee motivation and engagement.

According to the discussion above, both absorptive capacity and good management practices are different when comparing transnational companies and Brazilian firms. These differences have a direct impact on the firms' productivity, as observed in Tables 5 and 6, which shows that multinationals had an increase while Brazilian companies had a decrease in productivity during the period analyzed. This fact corroborates the studies by Bloom and Van Reenen (2006) and Maloney and Sarrias (2014), who found that in Brazil many companies are — considering the statistical distribution of organizations according to management — in the long tail of badly managed firms, which is evidenced based on their low productivity.

Kim (2016) argues that companies with FDI (foreign direct investment) are more likely to feel the effects of technology transfers on productivity. The author states that domestic companies benefit from the spillovers of FDI when they present higher absorptive capacity. Brazilian firms seem to be less open to such influence, not likely to engage in collaboration with external networks.

All the dimensions related to the variables 'absorptive capacities' and 'good management practices' have an impact on the dynamics of innovation and, consequently, on productivity, which contribute to improve the firm's performance.

When analyzing the elements altogether, it is possible to build a new understanding of the dynamics around companies' productivity. Figure 1 represents an analytical model evidencing the relationship among the dimensions and variables and the impact on productivity and, finally, competitiveness.

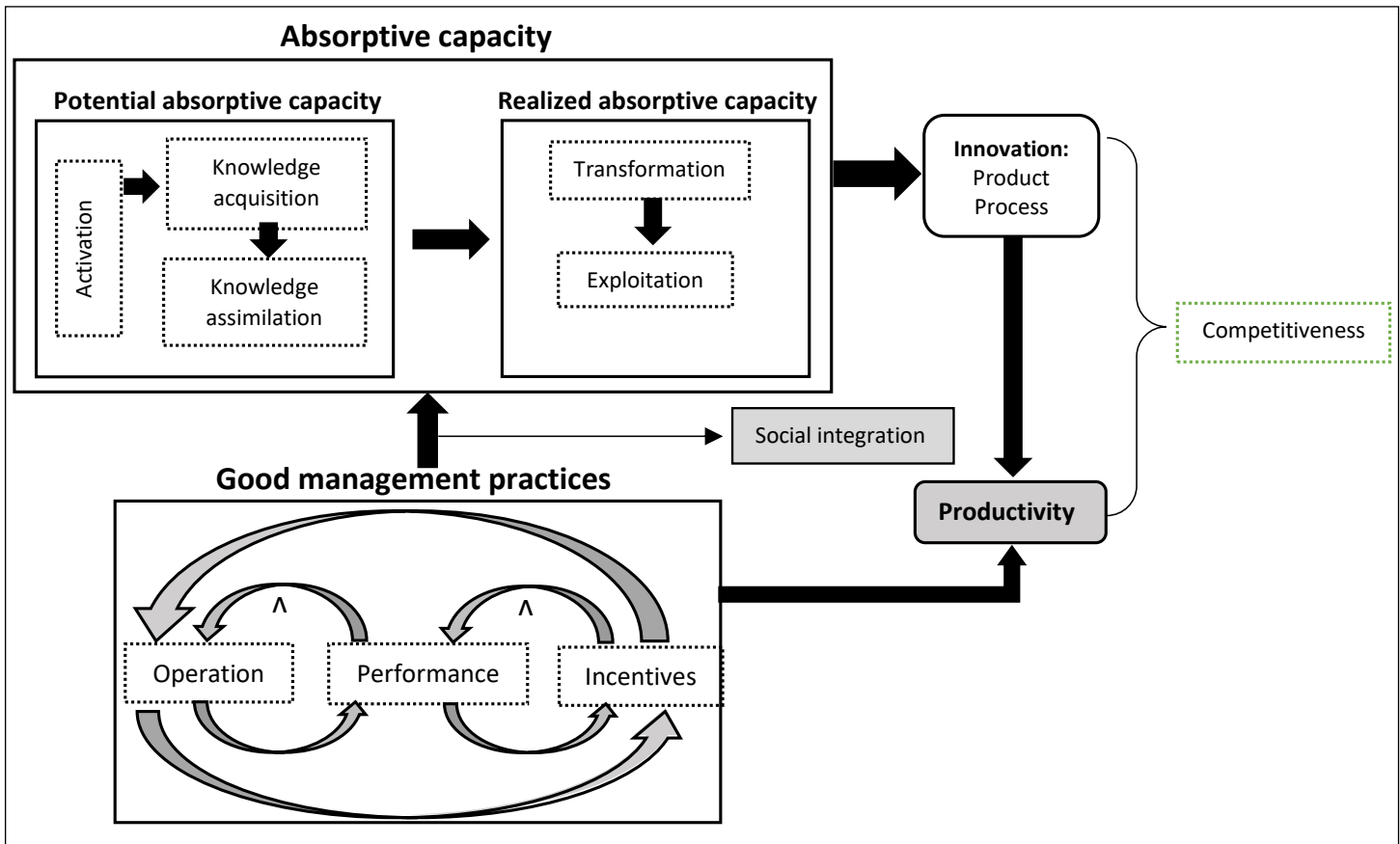


Figure 1. Analytical model of the relationship between good management practices and absorptive capacity.

Figure 1 shows productivity as the main goal. The model demonstrates that a firm with good management practices combined with its absorptive capacity influences its productivity and shows how the variables interact.

When looking at the model, it appears that the variables included in the box referring to good management practices (Operation, Performance, and Incentives) interact with each other, providing feedback and forming a management process that influences the absorptive capacity. This integration is reinforced by the mechanisms of social integration and is driven, from the beginning, by activation mechanisms (crises or opportunities). Routines related to absorptive capacity maintain their particularities, at the same time profiting from the outcomes of an organizational culture of good management.

CONCLUSION

This research sought to examine the interaction between the variables ‘good management practices’ and ‘absorptive capacity’ and its impact

on firms’ productivity, observing the differences when comparing the phenomenon in Brazilian and transnational companies operating in Brazil.

There is no way to neglect the importance of good management practices in the context of innovation and firms’ competitiveness (Agarwal et al., 2014; Bloom & Van Reenen, 2010; Bloom et al., 2019; Feldmann et al., 2019). The role of this variable is evidenced as an agglutinating and guiding element of activities in the search for external knowledge (absorptive capacity), seeking to improve productivity and, consequently, the firms’ performance.

Thus, management has an important role in influencing processes of absorptive capacity (Guimarães, Thielman, Guimarães, & Cornick, 2016). Management implies adopting performance standards that indirectly contribute to the increase of knowledge from external sources, which directly affects productivity and ensures competitiveness. These effects are enhanced when the company invests in areas that increase social integration (Morano et al., 2016; Vega-Jurado et al., 2008; Zahra

& George, 2002), creating an environment where creativity and knowledge flow smoothly.

The research demonstrated that, because of their complementarity, good management practices and absorptive capacity could not be analyzed in isolation when seeking to understand productivity. This evidence allowed the construction of the analytical model shown in Figure 1.

The result of a good absorptive capacity process can be materialized in the form of innovation that, to a large extent, contributes to increased productivity. On the other hand, the increase in productivity is a result of the firm's good management processes, which, indirectly, reinforces the absorptive capacity. Nevertheless, the increase in productivity, both as a result of innovations and as a result of an efficient management process, places the company in a better condition to compete in its operating markets.

Thus, the study demonstrated the relationship between the good management practices and absorptive capacity and the extent to which these variables, combined, influence firms' productivity levels. In addition, significant differences in the practices adopted between Brazilian companies and subsidiaries of transnational companies operating in the country could be verified, corroborating the studies by Bloom and Van Reenen (2010). While transnational companies are more pragmatic and result-oriented, Brazilian companies are lazier and lack effective management mechanisms.

That said, the task of absorbing external knowledge and its internalization in routines and procedures are hampered by the low effectiveness of the firm's management. In addition, national

companies are closed and do not adopt practices that potentially boost routines of innovation management, such as operating in collaboration networks with universities, research institutes, customers, and suppliers.

It is emphasized that the results are limited by the use of a qualitative approach, and therefore cannot be generalized. In addition, exogenous variables that can influence the firm's performance, such as macroeconomic environment, were not considered when performing the triangulation of the combined effects of the good management practices and absorptive capacity and their impacts on productivity, which represents another limitation of this study. Lastly, the firms' policies regarding capital structure, size of operations, and other elements were not part of the analysis, and deserve consideration in future research.

Regarding the method used to calculate productivity, it is worth mentioning that some of the companies did not provide the data requested. Therefore, the study sought another method to calculate productivity, work productivity, which is supported by the OECD. However, it would be more appropriate if the calculation of this indicator was made using the total factor productivity. As a suggestion for future research, quantitative studies based on the analytical model — such as studies adopting structural equations — would be helpful to statistically measure the relationship power of the variables presented here, confirming the theoretical model and the inversion of the relationship, i.e., whether the absorptive capacity influences good management practices.

REFERENCES

- Abiplast, Associação Brasileira da Indústria do Plástico. (2015). *Perfil da indústria de plásticos no Brasil*. Retrieved from http://file.abiplast.org.br/download/2016/perfil_2015_ok.pdf
- Agarwal, R., Brown, P. J., Green, R., Randhawa, K., & Tan, H. (2014). Management practices of Australian manufacturing firms: Why are some firms more innovative? *International Journal of Production Research*, 52(21), 6496-6517. <https://doi.org/10.1080/00207543.2014.949362>
- Angrosino, M. (2009). *Etnografia e observação participante*. Porto Alegre: Artmed.
- Armstrong, C. E., & Lengnick-Hall, C. A. (2013). The Pandora's box of social integration mechanisms: Can they make it more difficult to realize absorptive capacity? *Journal of Strategy and Management*, 6(1), 4-26. <https://doi.org/10.1108/17554251311296530>
- Bertrand, O., & Mol, M. J. (2013). The antecedents and innovation effects of domestic and offshore R & D outsourcing: The contingent impact of cognitive distance and absorptive capacity. *Strategic Management Journal*, 34(6), 751-760. <https://doi.org/10.1002/smj.2034>

- Bloom, N., Brynjolfsson, E., Foster, L., Jarmin, R., Patnaik, M., Saporta-Eksten, I., & Van Reenen, J. (2019). What drives differences in management practices? *American Economic Review*, 109(5), 1648-1683. <https://doi.org/10.1257/aer.20170491>
- Bloom, N., & Van Reenen, J. (2006). Measuring and explaining management practices across firms and countries [CEP Discussion Paper No. 716]. *Centre for Economic Performance*, London, United Kingdom.
- Bloom, N., Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, 122(4), 1351-1408. <https://doi.org/10.1162/qjec.2007.122.4.1351>
- Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives*, 24(1), 203-224. <https://doi.org/10.1257/jep.24.1.203>
- Brettel, M., Greve, G. I., & Flatten, T. C. (2011). Giving up linearity: Absorptive capacity and performance. *Journal of Managerial Issues*, 23(2), 164-189. Retrieved from <https://www.jstor.org/stable/23209224>
- Carayannis, E., & Grigoroudis, E. (2014). Linking innovation, productivity, and competitiveness: Implications for policy and practice. *The Journal of Technology Transfer*, 39(2), 199-218. Retrieved from <https://ideas.repec.org/a/kap/jtecht/v39y2014i2p199-218.html>
- Cardozo, C. T., Kronmeyer Filho, O. R., & Vaccaro, G. L. R. (2019). Keep innovating: Absorptive capacity and the performance of Brazilian information technology companies. *Revista de Administração Contemporânea*, 23(4), 499-519. <https://doi.org/10.1590/1982-7849rac2019180221>
- Chandler, A. D., & Hikino, T. (1994). *Scale and scope: The dynamics of industrial capitalism*. Cambridge, MA: Belknap Press of Harvard University Press.
- Choi, S. (2014). Developing relationship-specific memory and absorptive capacity in interorganizational relationships. *Information Technology and Management*, 15(4), 223-238. <https://doi.org/10.1007/s10799-014-0181-5>
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152. <https://doi.org/10.2307/2393553>
- Cuervo-Cazurra, A. (2017). Barriers to absorptive capacity in emerging markets firms. *Journal of World Business*, 52(6), 727-742. <https://doi.org/10.1016/j.jwb.2017.06.004>
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550. <https://doi.org/10.2307/258557>
- Feldmann, P. R., Jacomossi, R., Barrichello, A., & Morano, R. S. (2019). The relationship between innovation and global competitiveness: The mediating role of management practices evaluated by structural equation modeling. *Revista Brasileira de Gestão de Negócios*, 21(2), 195-212. <https://doi.org/10.7819/rbgn.v21i2.3970>
- Feldmann, P. R. (2009). O atraso tecnológico da América Latina como decorrência de aspectos geográficos e de fatores microeconômicos interligados. *Economia e Sociedade*, 18(1), 119-139. <https://doi.org/10.1590/S0104-06182009000100004>
- Freeman, C. (1987). *Technology policy and economic performance: Lesson from Japan*. New York: Frances Printer Publishers.
- Godoy, A. S. (2006). Estudo de caso qualitativo. In C. K. Godoi, R. B. de Mello, & A. B. Silva (Eds.), *Pesquisa qualitativa em estudos organizacionais: Paradigmas, estratégias e métodos* (pp. 115-146). São Paulo: Saraiva.
- Gordon, R. J. (2016). *The rise and fall of American growth: The U.S. standard of living since the civil war*. New Jersey: Princeton.
- Griliches, Z. (1979). Issues in assessing the contribution of R&D to productivity growth. *Bell Journal of Economics*, 10(1), 92-116. <https://doi.org/10.2307/3003321>
- Guimarães, T., Thielman, B., Guimarães, V. C., & Cornick, M. (2016). Absorptive capacity as moderator for company innovation success. *International Journal of the Academic Business World*, 10(2), 1-18.
- Jacomossi, R. R., & Demajorovic, J. (2017). Fatores determinantes da aprendizagem organizacional para a inovação ambiental: Um estudo multicaso. *Revista de Administração Contemporânea*, 21(5), 685-709. <https://doi.org/10.1590/1982-7849rac2017160281>
- Kerzner, H. (2018). *Project management best practices: Achieving global excellence*. New York: Wiley.
- Kim, M. (2016). Erratum to: Productivity spillovers from FDI and the role of domestic firm's absorptive capacity in South Korean manufacturing industries. *Empirical Economics*, 50(4), 1647. <https://doi.org/10.1007/s00181-015-0973-4>
- Kostopoulos, K., Papalexandris, A., Papachroni, M., & Ioannou, G. (2011). Absorptive capacity, innovation, and financial performance. *Journal of Business Research*, 64(12), 1335-1343. <https://doi.org/10.1016/j.jbusres.2010.12.005>
- Landes, D. S. (1969). *The unbound prometheus: Technological change and industrial development in western Europe from 1750 to the present*. London: Cambridge University Press.
- Ledereman, D., Messina, J., Pienknagura, S., & Rigolini, J. (2014). *Latin American entrepreneurs: Many firms but little innovation*. Washington, DC: The World Bank.
- Mairesse, J., P., & Robin, S. (2009). *Innovation and productivity: A firm-level analysis for French manufacturing and services using CIS3 and CIS4 data (1998-2000 and 2002-2004)*. Paris: CREST-ENSAE.
- Maloney, W. F., & Sarrias, M. (2014). *Convergence to the managerial frontier* [Policy research working paper No. 6822]. *The World Bank*, Washington, DC. Retrieved from: <http://documents.worldbank.org/curated/en/925191468325272296/Convergence-to-the-managerial-frontier>
- Medda, G., & Piga, C. A. (2014). Technological spillovers and productivity in Italian manufacturing firms. *Journal of Productivity Analysis*, 41, 419-434. <https://doi.org/10.1007/s11123-013-0351-1>


- Morano, R. S., Barrichello, A., & Jacomossi, R. R. (2016). A ação da identidade social sobre o comportamento discricionário de funcionários: Uma perspectiva brasileira. *Revista Ciências Administrativas*, 22(1), 283-305. Retrieved from <https://periodicos.unifor.br/rca/article/download/4056/pdf>
- Morano, R. S., Moraes, E. A. de, & Jacomossi, R. R. (2018). Can small groups avoid the tragedy of the commons? *AI & Society*, 33, 71-80. <https://doi.org/10.1007/s00146-017-0720-9>
- Mozzato, A. R., & Grzybovski, D. (2011). Análise de conteúdo como técnica de análise de dados qualitativos no campo da administração: Potencial e desafios. *Revista de Administração Contemporânea*, 15(4), 731-747. <https://doi.org/10.1590/S1415-6552011000400013>
- Müller-Seitz, G., & Güttel, W. (2014). Toward a choreography of congregating: A practice-based perspective on organizational absorptive capacity in a semiconductor industry consortium. *Management Learning*, 45(4), 477-497. <https://doi.org/10.1177%2F1350507613497323>
- Mundlack, Y. (1961). Empirical production function free of management bias. *American Journal of Agricultural Economics*, 43(1), 44-56. <https://doi.org/10.2307/1235460>
- Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge: The Belknap Press of Harvard University Press.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating firm: How Japanese firms create the dynamics of innovation*. New York: Oxford University Press.
- Organisation for Economic Co-operation and Development. (2001). *Measuring productivity: Measurement of aggregate and industry-level productivity growth*. Retrieved from <http://www.oecd.org/sdd/productivity-stats/2352458.pdf>
- Parisi, M. L., Schiantarelli, F., & Sembenelli, A. (2006). Productivity, innovation and R&D: Micro-evidence for Italy. *European Economic Review*, 50(8), 2037-2061. <https://doi.org/10.1016/j.eurocorev.2005.08.002>
- Pavitt, K. (1984). Sectoral patterns of technical change: Towards a taxonomy and a theory. *Research Policy*, 13(6), 343-373. [https://doi.org/10.1016/0048-7333\(84\)90018-0](https://doi.org/10.1016/0048-7333(84)90018-0)
- Phoocharoon, P. (2015). Enhancing potential and realised absorptive capacity: Macro-micro dynamic integrative design. *International Journal of Innovation Management*, 19(5), e1550058. <https://doi.org/10.1142/S1363919615500589>
- Ritala, P., & Hurmelinna-Laukkanen, P. (2013). Incremental and radical innovation in coopetition - The role of absorptive capacity and appropriability. *The Journal of Product Innovation Management*, 30(1), 154-169. <https://doi.org/10.1111/j.1540-5885.2012.00956.x>
- Schumpeter, J. A. (1982). *Teoria do desenvolvimento econômico*. São Paulo: Abril.
- Tavani, S. N., Sharifi, H., & Ismail, H. S. (2014). A study of contingency relationships between supplier involvement, absorptive capacity and agile product innovation. *International Journal of Operations & Production Management*, 34(1), 65-92. <https://doi.org/10.1108/IJOPM-09-2011-0331>
- Vega-Jurado, J., Gutiérrez-Gracia, A., & Fernández-de-Lucio, I. (2008). Analyzing the determinants of firm's absorptive capacity: beyond R&D. *R&D Management*, 38(4), 392-405. <https://doi.org/10.1111/j.1467-9310.2008.00525.x>
- Venkatraman, N., & Ramanujam, V. (1987). Measurement of business economic performance: An examination of method convergence. *Journal of Management*, 13(1), 109-122. <https://doi.org/10.1177%2F014920638701300109>
- Wakelin, K. (2001). Productivity growth and R&D expenditure in UK manufacturing firms. *Research Policy*, 30(7), 1079-1090. [https://doi.org/10.1016/S0048-7333\(00\)00136-0](https://doi.org/10.1016/S0048-7333(00)00136-0)
- Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, 16(1), 57-91. <https://doi.org/10.5465/amr.1991.4278992>
- Wang, C., & Han, Y. (2011). Linking properties of knowledge with innovation performance: The moderate role of absorptive capacity. *Journal of Knowledge Management*, 15(5), 802-819. <https://doi.org/10.1108/13673271111174339>
- Wang, L., Zhao, J. Z., & Zhou, K. Z. (2018). How do incentives motivate absorptive capacity development? The mediating role of employee learning and relational contingencies. *Journal of Business Research*, 85, 226-237. <https://doi.org/10.1016/j.jbusres.2018.01.010>
- Wiengarten, F., Gimenez, C., Fynes, B., & Ferdows, K. (2015). Exploring the importance of cultural collectivism on the efficacy of lean practices: Taking an organisational and national perspective. *International Journal of Operations & Production Management*, 35(3), 370-391. <https://doi.org/10.1108/IJOPM-09-2012-0357>
- Wu, S. J. (2015). The impact of quality culture on quality management practices and performance in Chinese manufacturing firms. *International Journal of Quality & Reliability Management*, 32(8), 799-814. <https://doi.org/10.1108/IJQRM-12-2013-0199>
- Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185-203. <https://doi.org/10.5465/amr.2002.6587995>

Autorship

Rafael Ricardo Jacomossi*

Av. Humberto de Alencar Castelo Branco, nº 3972-B, Assunção, 09850-901, São Bernardo do Campo, SP, Brazil.


E-mail address: rjacomossi@fei.edu.br

 <https://orcid.org/0000-0001-5584-142X>

Paulo Roberto Feldmann

Av. Prof. Luciano Gualberto, nº 908, Butantã, 05508-010, São Paulo, SP, Brazil.

E-mail address: feldmann@usp.br

 <https://orcid.org/0000-0001-5662-8735>

* Corresponding Author

Authors' Contributions

1st author: contributed equally to the conceptualization; data curation; formal analysis; investigation; methodology; project management; resources; software; supervision; validation; visualization; writing - original draft; writing - proofreading and editing.

2nd author: contributed equally to the conceptualization; data curation; formal analysis; financing acquisition; investigation; methodology; project management; resources; software; supervision; validation; visualization; writing - original draft; writing - proofreading and editing.

Funding

The authors would like to thank the Brazilian National Council for Scientific and Technological Development - (CNPq - Project nº 152128/2016-6) for supporting this work.

Conflict of Interest

The authors have stated that there is no conflict of interest.

Copyrights

RAC owns the copyright to this content.

Plagiarism Check

The RAC maintains the practice of submitting all documents approved for publication to the plagiarism check, using specific tools, e.g.: iThenticate.

Peer Review Method

This content was evaluated using the double-blind peer review process. The disclosure of the reviewers' information on the first page is made only after concluding the evaluation process, and with the voluntary consent of the respective reviewers.
