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EDITORIAL

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MARIA JOSÉ TONELLI
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QUALITATIVE RESEARCH, QUANTITATIVE RESEARCH, AND BEYOND

The recent paper of Cassel (2018) on the similarities between the skills required to conduct qualitative research and to perform management functions has rekindled an old debate about the contrast between qualitative and quantitative research. The author believes that *MBA* students conducting qualitative research for the first time acquire managerial skills such as the ability to analyze complex environments, which is a fundamental skill for organizations today. The study presents empirical data sourced from students and managers about the skills acquired in the research process.

Despite several decades of intensive qualitative research in the area of administration, it is still necessary to emphasize the importance of qualitative research by students pursuing a professional master's degree or a PhD, who would likely be interested in applied research and scientific research, respectively. Qualitative research is not for beginners. The methods involved have become impressively sophisticated over the decades (Alvesson & Skoldberg, 2009; Prasad, 2005; Symon & Cassell, 2012). When qualitative research is taught in *stricto sensu* programs, students should be exposed to various complementary perspectives that present the difficulties as well as potential benefits of such research, thus making the training more comprehensive.

The same can be said of quantitative research; its methods have also evolved (Hodis & Hancock, 2016). Data collection from a digital ecosystem facilitated by online businesses and mobile devices, along with software and hardware technological advancements, has permitted the expansion of analysis periods and led to greater success of natural and field experiments, enabling more complex quantitative analysis. However, researchers do not completely reap the benefits of such advancements, because of the need for urgent results or the high cost, time, and effort required to obtain skills to perform cutting-edge quantitative analysis.

These phenomena lead us to increasingly believe that research is beyond methods and is a fascinating exercise that we are fortunate enough to practice in the academic world. Researches of good quality can be qualitative or quantitative, critical or functional. A good result is often represented by an obvious yet previously unnoticed finding.

This edition presents articles based on qualitative and quantitative research that would hopefully enrich the reader's experience. The section Perspective presents reflections of Roberto Patrus on "Social inequality and graduate studies in business Administration in Brazil: The role of evaluations," and of Edson Guarido on "Social inequality, responsibility and responsiveness of research". This issue concludes with a book review by Dennys Eduardo Rossetto and Felipe Mendes Borini on *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth*, written by Navi Radjou, Jaideep Prabhu and Simone Ahuja; a book review by Reid Hoffman, Ben Casnocha and Chris Yeh on *La alianza: Cómo gestionar el talento en la era de internet*, written by María Carmen Sánchez-Sellero and Pedro Sánchez-Sellero; and the book recommendations "Cultural perspectives on the financial control of the economy and of the organizations" by Silvio Eduardo Alvarez Candido and "Epistemology of Management science" by Pedro Jaime.

Have a good read!

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REFERENCES

- Alvesson, M., & Skoldberg, K. (2009). *Reflexive methodology: New vistas for qualitative research*. London, UK: Sage.
- Cassell, C. (2018). "Pushed beyond my comfort zone": MBA student experiences of conducting qualitative research. *Academy of Management Learning & Education*, 17(2), 119-136. doi:10.5465/amle.2015.0016
- Hodis, F. A., & Hancock, G. R. (2016). Introduction to the special issue: Advances in quantitative methods to further research in education and educational psychology. *Educational Psychology*, 51(3-4), 301-304. doi:10.1080/00461520.2016.1208750
- Prasad, P. (2005). *Crafting qualitative research: Working in the postpositivist traditions*. New York, USA: Sharper Inc.
- Symon, G., & Cassell, C. (Eds.) (2012). *Qualitative organizational research: Core methods and key challenges*. London, UK: Sage

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THE EFFECT OF BRAND HERITAGE ON CONSUMER-BRAND RELATIONSHIPS

Efeito da herança da marca nos relacionamentos entre consumidores e marcas

El efecto de la herencia de la marca en las relaciones entre consumidores y marcas

ABSTRACT

Heritage is a brand value proposition that provides a unique basis for building and maintaining strong relationships with consumers. Seeking to understand how this strategic resource influences the relations between consumers and brands, this study aims to examine brand heritage as a determinant of self-reinforcing elements (enticing, enabling, and enriching the self). A survey was carried out with 309 Brazilian and American consumers to test the proposed relationships. Based on a structural equation model, the results demonstrated that consumers process the characteristics related to brand heritage through the three self-reinforcing elements, but their overall effect on self-brand connection occurs only through the sensory and aesthetic pleasure that the brand offers (enticing the self). The study also presents academic and managerial implications and makes recommendations for future research.

KEYWORDS | Consumer-brand relationships, brand heritage, self-reinforcing elements, enticing the self, self-brand connection.

RESUMO

A herança é uma proposição de valor da marca que fornece uma base única para criar e manter relações fortes com os consumidores. Buscando compreender como esse recurso estratégico influencia as relações entre consumidores e marcas, este estudo objetiva examinar a herança da marca como determinante dos elementos de reforço do self (seduzindo, habilitando e enriquecendo o self). Uma pesquisa com 309 consumidores brasileiros e americanos foi realizada para testar as relações propostas. Baseados em um modelo de equação estrutural, os resultados da pesquisa demonstraram que os consumidores processam as características relacionadas à herança da marca por meio dos três elementos de reforço do self, mas seu efeito global na conexão self-marca só ocorre por meio do prazer sensorial e estético que a marca oferece (seduzindo o self). O estudo é concluído apresentando as implicações acadêmicas e gerenciais e sugerindo pesquisas futuras.

PALAVRAS-CHAVE | Relacionamento consumidor-marca, herança da marca, elementos de reforço do self, seduzindo o self, conexão self-marca.

RESUMEN

La herencia es una propuesta de valor de la marca que proporciona una base única para crear y mantener relaciones fuertes con los consumidores. El objetivo de este estudio es examinar la herencia de la marca como determinante de los elementos de refuerzo del self (seduciendo, habilitando y enriqueciendo el self). Se realizó una investigación con 309 consumidores brasileños y estadounidenses para probar las relaciones propuestas. Basados en un modelo de ecuación estructural, los resultados de la investigación demostraron que los consumidores procesan las características relacionadas con la herencia de la marca por medio de los tres elementos de refuerzo del self, pero su efecto global en la conexión self-marca sólo ocurre por medio del placer sensorial y estético que la marca ofrece (seduciendo el self). El estudio se concluye presentando las implicaciones académicas y gerenciales y sugiriendo investigaciones futuras.

PALABRAS CLAVE | Relaciones consumidor-marca, herencia de la marca, elementos de refuerzo del self, seduciendo el self, conexión self-marca.

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INTRODUCTION

In a postmodern market, marked by increased dynamics, uncertainty, and massive disorientation in consumption, where consumers are exposed to a variety of brands daily, creating and maintaining strong relationships with consumers is the major challenge for strategic brand management (Oh, Prado, Korelo, & Frizzo, 2017). From this perspective, research in marketing literature and consumer behavior has emphasized that one way to achieve this goal is to associate brand-specific characteristics with consumer aspirations to reinforce their identities (Belk, 1988; Escalas & Bettman, 2003; Fournier, 1998).

Defined as a dimension of brand identity characterized by its longevity, core values, use of symbols, and history (Urde, Greyser, & Balmer, 2007), brand heritage is a key organizational resource for companies seeking to differentiate their offers in the market and wishing to gain a prominent position in the minds of consumers.

Contrasting the historical view that is focused on the past, heritage is characterized by incorporating elements of brand history into contemporary and future contexts, thereby ascribing a long-term strategic value to the brand (Hakala, Lätti, & Sandberg, 2011; Urde et al., 2007). Additionally, brands with heritage are seen as more credible and authentic by consumers, thus fostering personal identification and preference due to perceived exclusivity (Wiedmann, Hennigs, Schmidt, & Wuestefeld, 2011).

In order to understand how brand heritage influences the relations between consumers and brands, this research aims to test this construct as a determinant of the self-reinforcing elements (enticing, enabling, and enriching the self) described by Park, Eisingerich, and Park (2013). The brand attachment-aversion (AA) relationship model proposed by Park et al. (2013) describes how these elements build relationships between consumers and brands. Some brands help consumers gain aesthetic and/or sensory pleasure: they entice the self. Others allow consumers to control their environment, creating an effective and capable sense of self: enabling the self. There are also those brands that reinforce the self through the symbolic communication of values that resonate with the aspirations of consumers: they enrich the self. In this model (Park et al., 2013), to the extent that a brand has these three elements, it promotes a self-brand connection and, consequently, impacts the attitudes and behavior of consumers.

Although the brand AA model broadens the perspective of relationships in the consumer context, proposing important mechanisms that build the consumer-brand relationship, the failure to specify the role of marketing activities has been criticized (Oh et al., 2017). In particular, Schmitt (2013) emphasizes that this model does not specifically predict the determinants of the

relationship, since it is psychological, about internal constructs and processes, and does not specify the brand components that stimulate self-reinforcing elements. Considering that consumers reach their goals through their brand choices, understanding the background and consequences of these three elements will provide important information for the development of strategies that foster the consumer-brand relationship (Oh et al., 2017).

This research focuses on the fashion industry because it encompasses the evaluation of the three self-reinforcing elements through the purchase of products with multiple designs and symbolic attributes. It also extends the model proposed by Park et al. (2013) integrating brand heritage as a mechanism that determines whether a brand entices, enables or enriches the self. Furthermore, this research contributes to the brand heritage literature by demonstrating the mechanisms by which consumers process the historical aspects of the brand according to their self-identity goals. Figure 1 presents the proposed conceptual model.

In practice, research of this nature is relevant because it addresses aspects of relational marketing that leave aside mass appeal and focus on the specific needs of individuals. In this way, the understanding of the new practices of brand management, and consequently consumer preferences, by companies and marketing professionals may result in a significant competitive advantage in the increasingly fierce competition for market share.

This article is structured as follows: first, the review of the literature conceptualizing the brand heritage and its effects on the consumer-brand relationship is presented along with related hypotheses. Then, the method used to collect and analyze the data is detailed and, finally, the results, implications, and limitations of the study are discussed.

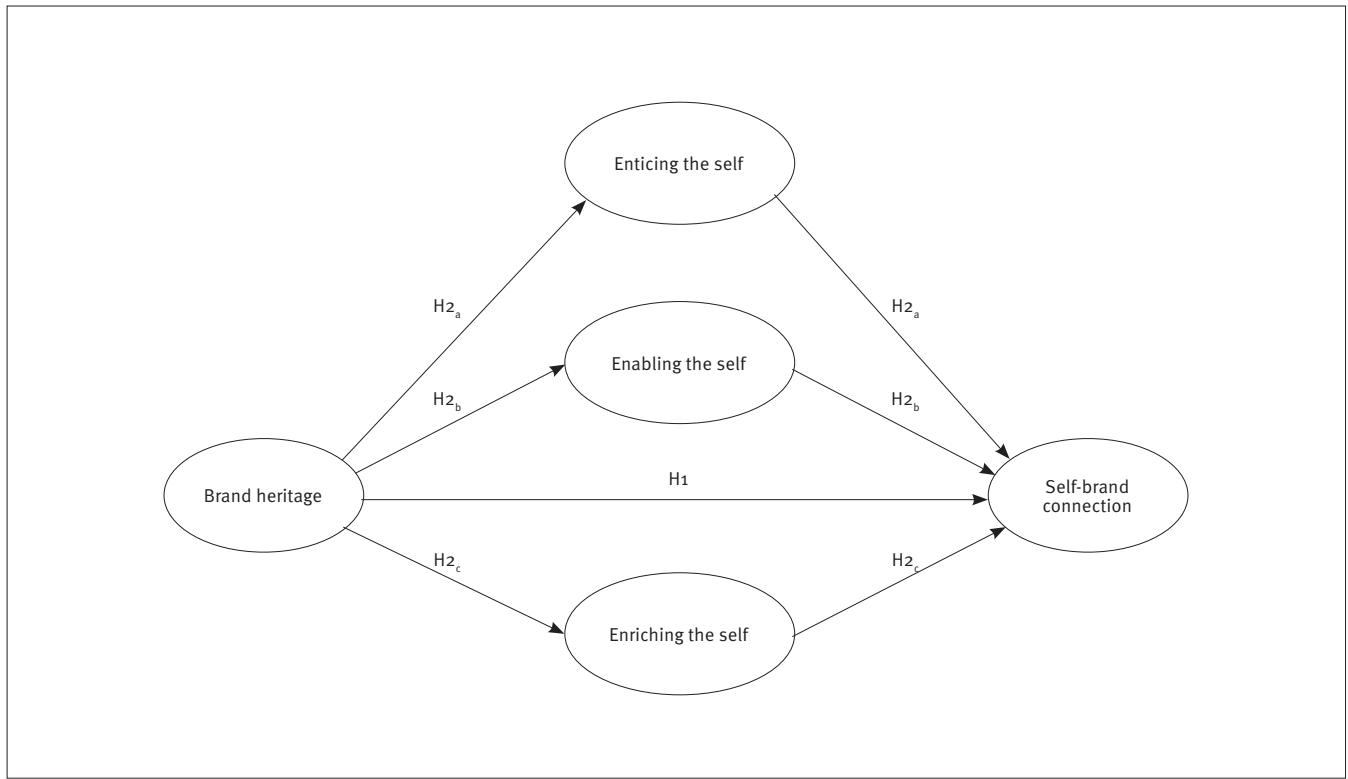
THEORETICAL-EMPIRICAL FOUNDATION

Brand Heritage

The study of brand heritage as a transporter of historical values from the past to the present and future and an element that adds value in the eyes of consumers is an emerging concept that has gained increasing interest in recent years, both in marketing research and managerial practices.

Hudson's (2007) independent analysis of Interbrand's 100 leading global brands (2007) corroborates this interest by revealing that more than a quarter of all classified brands have existed since the 19th century, the oldest (Moët et Chandon) having been launched in the year 1743, evidencing the longevity of many modern brands that have survived beyond one human generation.

Figure 1. Proposed conceptual model



Notes: H1 hypothesis of the direct model;

H2a, H2b and H2c hypotheses of the mediated model

In marketing literature, the notion of brand heritage was introduced by [Balmer, Greyser, and Urde \(2006\)](#), who, by exploring the Swedish monarchy as a corporate brand, drew attention to the importance of heritage in this context. However, it was the seminal article by [Urde et al. \(2007\)](#) that proposed the definition of this construct: "... a dimension of a brand's identity found in its track record, longevity, core values, use of symbols, and particularly in an organizational belief that its history is important" (pp. 4-5).

In contrast to the historical view, which is mainly focused on the past, the heritage of the brand incorporates, beyond this period, the present and the future ([Urde et al., 2007](#)). Brands born and maintained over decades or even centuries build a significant past, which helps make the brand relevant to the present and, prospectively, the future ([Wiedmann et al., 2011](#)).

To [Aaker \(2004\)](#), heritage is one of the first sources that add value and differentiation to brands, making their identity extremely strong, especially when they are reinterpreted in a contemporary light. Moreover, heritage is an important source of authenticity and legitimacy for a brand ([Beverland, 2005](#); [Urde et al., 2007](#)). Brands with a strong heritage become, over

time, synonymous with cultural values and acquire symbolic meaning beyond their original identity, which helps to establish a sense of legitimacy and authenticity among the target audience ([Kates, 2004](#)).

By addressing what constitutes the heritage of a brand, [Urde et al. \(2007\)](#) point out that many brands have heritage, but not all of them make this value proposition a part of the brand's position and identity. These authors suggest five main elements that denote whether, and to what extent, heritage is present in a brand. In this sense, brands that incorporate their heritage present a track record, which proves that the brand has kept its promises over time, are always aligned with the core values to which they are associated, make use of symbols as an expression of the brand's meaning over time, and communicate that they perceive their own history as important and meaningful to their identity. Adding to these characteristics, some brands have longevity, when they belong to multigenerational family businesses.

To [Banerjee \(2008\)](#), the four pillars of an inherited brand are brand history, its image, the consumers' expectancy in relation

to the physical and emotional benefits they receive from the brand, and equity, which comprises a set of competencies that facilitate the progression of the brand and bring an advantage over the competition.

Based on its contextualization and definition of the main elements and set of criteria, heritage is a distinct category in brand management, and its value proposition based on its equity is also a key component for the construction of brand identity (Aaker, 2004; Banerjee, 2008; Merchant & Rose, 2013; Rose, Merchant, Orth, & Horstmann, 2016; Urde et al., 2007; Wiedmann et al., 2011).

Effects of brand heritage

Heritage, especially in globalized markets, is an important organizational resource that helps to make the brand more authentic, credible, and reliable (Wiedmann et al., 2011), this being a strategic value that provides a unique basis for superior brand performance (Hakala et al., 2011). In addition, recent research has shown that heritage brands, by offering a value proposition to their target audience, positively influence overall brand assessment and consumer attitudes and behaviors (Merchant & Rose, 2013; Rose, et al., 2016; Wiedmann et al., 2011; Wuestefeld, Hennigs, Schmidt, and Wiedmann, 2012).

In their relationship model, Park et al. (2013) define the distance between the brand and the self as the place where the brand is in the consumer's mind and argue that the more the consumer perceives the benefits delivered by the brand in light of their personal goals and interests, the closer the relationship tends to be.

In this research, the term self-brand connection was adopted as a construct of the proposed relation. Like the concept of distance, the self-brand connection also represents a continuum that indicates how much the consumer feels distant and disconnected from the brand at one end, and close and connected at the other. Given this rationalization, it is expected that the connection between the consumer and the brand is greater with brands that incorporate their heritage in the construction of their identity and indicate that their fundamental values and level of performance are reliable and are maintained over time. Therefore, it is proposed that:

H1: Brands with heritage impact the self-brand connection positively.

Brands also play an important role in the construction of individuals' self (Belk, 1988; Fournier, 1998). Recent studies

(Escalas & Bettman, 2003, 2005) indicate that consumers construct their self-identity and present themselves to others through their brand choices, based on the congruence between brand image and self-image.

In the AA relationship model, Park et al. (2013) suggest that individuals are motivated to approach brands to reinforce their identities, incorporating features and self-relevant characteristics of brands into the self. According to this model, the consumer feels close to a brand when it is perceived as a means of expanding the self, this being called brand attachment. At the same time, if the consumer perceives the brand as a threat to the expansion of the self, he/she feels distant from it, which we call brand aversion. This sense of AA to the brand represents opposite ends in the relationship continuum and is influenced by brand elements that reinforce the self.

These elements, as they help consumers to achieve their goals, perform different functions and have different characteristics (Park et al., 2013). The first of these, enticing the self, reinforces the self through hedonic and pleasurable benefits. According to Hirschman and Holbrook (1982), hedonic consumption refers to the characteristics of consumer behavior that relate to the multisensory, fantasy, and emotive aspects of a product experience. Thus, consumers can approach brands that evoke any combination of sensory pleasure (visual, auditory, gustatory, tactile, olfactory, thermal and/or synesthetic) or aesthetic pleasure (design of a product) (Park et al., 2013).

The second, enabling the self, acts through functional benefits. For Grewal, Mehta, and Kardes (2004), functional or utilitarian aspects are seen merely as a means to an end, derived from the functions performed by the product. Thus, a brand enables the self when it creates an effective and capable self-feeling that allows the consumer, through the performance of products and services, to perform the task reliably, thus approaching his/her desired goal (Park et al., 2013).

The last element, enriching the self, reinforces the self through symbolic benefits represented by at least three ways: representation of the ideal past, present, and future self. Specifically, brands can serve as an anchor to symbolically represent a core of the past self, providing a basis from which current selves are viewed, and future ones are framed (Park, MacInnis, & Priester, 2006). Also, they can enrich the self by symbolically representing the current "I," reflecting what one is and what one believes (Park et al., 2013).

The attachment-to-brand model expands the perspective of relationships in the context of consumption by proposing important mechanisms that build the consumer-brand relationship.

However, as observed by Schmitt (2013), this model does not specifically predict the determinants of the relationship, since it is psychological, with respect to internal constructs and processes, and does not specify the components of the commercial marketing entity called the brand, that stimulate the elements that reinforce the self. For this author, the determinants of marketing of the relationship with the brand should be explored more rigorously; he suggests that consumer experience, that is, the behavioral responses evoked by brand stimuli, can be a determinant of the relationship (Schmitt, 2013).

Based on the arguments proposed by Schmitt (2013) and considering that the elements of the brand that entice, enable, and enrich the self cater to a personally relevant and meaningful self-identity of the consumers and positively impact the self-brand connection (Park et al., 2013; Oh et al., 2017), it is proposed that each of these elements will mediate the effect of brand heritage on self-brand connection. That said, the following hypotheses are proposed:

H2a: The relationship between brand heritage and the self-brand connection will be mediated by enticing the self.

H2b: The relationship between the brand heritage and the self-brand connection will be mediated by enabling the self.

H2c: The relationship between the brand heritage and the self-brand connection will be mediated by enriching the self.

METHOD

Data collection and sampling

A survey was conducted in the United States and Brazil to test the proposed hypotheses. In view of the characteristics and needs of the study, the sample was non-probabilistic for convenience, composed according to the accessibility of participants in these two countries; 309 consumers (148 in the Brazilian context and 161 in the American context), including students from the University of Florida (USA) and the Business Administration department of a university in Southern Brazil, participated in the study. The respondents' ages ranged from 18 to 60 years ($M = 24.61$, $SD = 7.46$), and the sample predominantly consisted of women (61.17%).

Data were collected online and by paper questionnaire. Invitations to participate in the online survey were sent by email, which provided a direct link to a specific section of a web page. In Brazil, the students answered the paper questionnaire.

To respond to the survey, participants were asked to choose their “favorite brand” of clothing, shoes, or accessories. A total of 139 brands were cited, with the most frequent being Nike (20.39%), Zara (3.88%), Forever 21 (3.24%), All Star (2.91%) and Vans (2.27%). The other brands (134) were mentioned below 2% each. Still, respondents ranked the brand chosen in three categories: luxury (14.9%), authentic (53.7%), and fashion (31.4%).

Measures

The indicators used to measure the variables of the proposed model were based on previous studies and adjusted to the context of our research. The reliability of all constructs was analyzed using Cronbach's alpha (α).

The brand heritage variable ($\alpha = 0.778$) was measured using four indicators adapted from Napoli, Dickinson, Beverland, and Farrelly (2014) (This brand reflects a sense of tradition; this brand reflects a timeless design); Bruhn, Schoenmüller, Schäfer and Heinrich (2012) (I think this brand offers continuity over time); and Urde et al. (2007) (This brand strengthens and builds on its heritage). All indicators were measured on a 7-point scale, ranging from 1 = “strongly disagree” to 7 = “strongly agree.”

The items for the enticing the self ($\alpha = 0.853$), enabling the self ($\alpha = 0.811$) and enriching the self ($\alpha = 0.858$) were adapted from Park et al. (2013) and measured on a 7-point scale, ranging from 1 = “nothing” to 7 = “much”.

Finally, the indicators of the model-dependent variable, self-brand connection ($\alpha = 0.797$), were also adapted from Park et al. (2013) and measured on a 7-point scale, ranging from 1 = “away” to 7 = “very close” and 1 = “disconnected” to 7 = “connected”. Details of all indicators can be seen in Table 1.

RESULTS

Measurement model

In addition to the Cronbach alpha (α) calculation, the average variance extracted (AVE) and the composite reliability (CR) were also calculated to verify the internal consistency and discriminant and convergent validity of the proposed model. The results presented in Table 1 demonstrate that the model is consistent, even considering the value of the AVE of the brand heritage below the recommended one (0.50), but within the tolerable limits. Additionally, it is observed that the adjustment statistics of the model met the standard criteria for a structural equation model.

Table 1. Measurement indicators, internal consistency, and model validity

Indicators	Stand. Loading	α	CR	AVE
Brand Heritage		0.778	0.786	0.483
I think this brand offers continuity over time	0.632 *			
This brand reflects a sense of tradition	0.779 *			
This brand reinforces and builds on heritage	0.771 *			
This brand reflects a timeless design	0.577 *			
Enticing the Self		0.853	0.857	0.666
To what extent is this brand attractive to you?	0.834 *			
To what extent is this brand appealing to you?	0.829 *			
To what extent is this brand pleasing to your senses?	0.784 *			
Enabling the Self		0.811	0.816	0.691
To what extent does this brand help how you manage problems in your daily life?	0.763 *			
To what extent does this brand enable you to deal with problems confidently?	0.894 *			
Enriching the Self		0.858	0.861	0.673
To what extent does this brand represent who you are as a person?	0.829 *			
To what extent does this brand express who you want to be?	0.843 *			
To what extent does this brand reinforce your values?	0.789 *			
Self-Brand Connection		0.797	0.807	0.677
Brand X is far away from me and who I am/Brand X is very close to me and who I am	0.841 *			
I am personally disconnected from Brand X/I am personally connected with brand X	0.804 *			

Note: α = Cronbach's Alpha, CR = Composite reliability, AVE = Average Variance Extracted

$X^2 = 162.264$, $gI = 67$, $p < 0.000$, $X^2/gI = 2.422$, $NFI = 0.922$, $IFI = 0.953$, $CFI = 0.952$ and $RMSEA = 0.068$

* $p < 0.001$

Two procedures were used to confirm the discriminant validity: correlation between the constructs and the square root of the AVE. Table 2 shows the results obtained, together with the descriptive statistics of the model.

Table 2. Descriptive statistics and correlation between the latent variables of the model

		Average	SD	1	2	3	4	5
1	Brand heritage	5.05	1.25	0.695				
2	Enticing the self	5.55	1.30	0.349 **	0.816			
3	Enabling the self	3.65	1.81	0.215 *	0.340 **	0.831		
4	Enriching the self	4.45	1.53	0.443 **	0.637 **	0.581 **	0.821	
5	Self-brand connection	5.21	1.44	0.410 **	0.578 **	0.290 **	0.444 **	0.823

Note: Entries below the main diagonal are correlations between the latent variables; the main diagonal is the square root of AVE; square root of the AVE being greater than the correlation coefficient implies sufficient discriminant validity,

* $p < 0.05$

** $p < 0.001$

After these validation steps, the structural model and the discussion of the results are presented.

Evaluation of the structural model

Table 3 presents the results of the structural model, tested based on the distributive properties of the elements of a covariance matrix. The estimated ratios, the respective standard regression coefficients (γ), and the significance associated with these values (p-value) are highlighted. The multigroup analysis showed that the model tested was the same for the two countries (Brazil and the United States). The free and fixed chi-square difference test (in which all structural coefficients and factor loads were fixed), taking into account the same parameters estimated for the two groups, was not significant. Even considering that the sample size (less than 200 cases per group) could lead to a type II error, this analysis was performed with the objective of testing the invariability of the entire model in the samples of the two countries and demonstrating that it remained stable regardless of the sample ($X^2 = 87.68$; $gl = 70$, $p = 0.075$).

Table 3. Estimated standardized coefficients of proposed model relationships

Paths of Regression	Standardized Coefficients (γ)	
Brand Heritage	Self-brand connection	0.27 *
Brand Heritage	Enticing the self	0.48 **
Brand Heritage	Enabling the self	0.35 **
Brand Heritage	Enriching the self	0.56 **
Enticing the self	Self-brand connection	0.42 **
Enabling the self	Self-brand connection	0.04
Enriching the self	Self-brand connection	0.04

Notes: $X^2 = 299.832$, $gl = 70$, $p < 0.000$, $X^2/gl = 4.283$, $NFI = 0.855$, $IFI = 0.885$, $CFI = 0.884$ and $RMSEA = 0.103$,

* $p < 0.05$

** $p < 0.001$

The first estimated relationship between the brand heritage and the self-brand connection was positive and significant, with $\gamma = 0.27$ ($p < 0.05$), corroborating hypothesis H1. These results are in agreement with the studies by Merchant and Rose (2013) and Rose et al. (2016), which demonstrated that brand heritage provides positive emotions that promote brand attachment and is generated, according to Park, MacInnis, Priester, Eisengerich, and Iacobucci (2010), when consumers feel connected to a brand.

The relationship between the brand's heritage and the self-reinforcing elements was also positive and significant for the three attributes, enticing ($\gamma = 0.48$, $p < 0.001$), enabling ($\gamma = 0.35$, $p < 0.001$), and enriching the self ($\gamma = 0.56$, $p < 0.001$). However,

the impact of these elements on the self-brand connection was significant only for the enticing the self ($\gamma = 0.42$, $p < 0.001$) attribute, thus corroborating only hypothesis H2a. Hypotheses H2b and H2c, which also predicted positive and significant effects of the enabling and enriching self attributes on the self-brand connection, although following the expected theorization, were not confirmed.

GENERAL DISCUSSIONS AND IMPLICATIONS

The focus of this research was to develop a model for a better understanding of how aspects related to brand heritage affect consumer aspirations to reinforce their selves, thus increasing the self-brand connection. The study's findings demonstrated that brand heritage is one of the determinants of the self-reinforcing elements, and its overall effect on the self-brand connection is processed through enticing the self.

The results found in this study differ from the findings of Park et al. (2013), which demonstrated a positive and significant effect for the three elements, with greater influence of enriching the self. It is worth noting, however, that in the model proposed by these authors, self-reinforcing elements are the determinants of the distance (connection) between the brand and the self and of the prominence of the brand, which represents the AA relationship of the consumer with the brand. It is believed that this particularity may have influenced the results. The context of data collection may also have led to this differentiation. This study was conducted in the fashion industry, and respondents were asked to choose their "favorite brand" of clothing, shoes or accessories to respond to the survey. In the study by Park et al. (2013), the brands Manchester United, Apple iPhone, and a large grocery store were used in the research. Another factor to be taken into account is the age of the respondents, since the sample of this study was characterized by young respondents (mean age 24.61 years) and, as in the study by Park et al. (2013), when tested for the moderating effect of age, younger consumers were more sensitive to the advantages and benefits provided by enticing the self.

This research contributes to the theoretical construction of consumer-brand relationships by expanding the AA model proposed by Park et al. (2013). Although this model broadens the perspective of relationships in the context of consumption, proposing important mechanisms that build the consumer-brand relationship, the real components of the brand that enhance this relationship have not been tested. The empirical evidence from

this study has demonstrated that the historical aspects of the brand may be one of the mechanisms that determine whether a brand entices, enables or enriches the self. Additionally, the respective contribution of each element of the self-reinforcing in the self-brand connection when stimulated by marketing mechanisms (brand heritage) has been demonstrated. Finally, this research also extends the theoretical value of brand heritage by demonstrating that consumers process aspects related to brand history through the three self-reinforcing elements, but their overall effect on the self-brand connection only occurs through the sensorial and aesthetic pleasure that the brand offers (enticing the self).

The results of this research also have implications for strategic brand management, providing a basis for the perceived value that brand heritage and self-reinforcing elements can deliver to the consumer. Thus, when applicable, managers can differentiate the positioning of their brands and trigger consumer preference by emphasizing the historical aspects of the brand through elements that entice the self. Starbucks is a successful example that combines its history and tradition in specialty coffees with a branded experience on a variety of sensorial channels, ranging from the aroma of coffee to the sound of the barista working the machine to store design.

Brands with heritage can also activate their past using aesthetic and sensory stimuli in their advertising and communication strategies, grounded by a narrative that emphasizes the brand's past or by a timeline of its historical facts. Implementing marketing actions that emphasize its founding date, such as the phrase *Fondé en 1743* (Established 1743) on the labels of the Moët et Chandon champagne bottles, or *since 1873* on Levi's labels, is also a way of reinforcing the historical aspects of the brand that, consequently, promote self-brand connection and impact the attitudes and behavior of consumers.

In future studies, the scope of this research may be widened, replicating it in other contexts. Also, one can test other attributes of the brand, such as brand authenticity or its specific dimensions as preceding the self-reinforcing elements. Carrying out a causal study also applies when testing the proposed model.

REFERENCES

- Aaker, D. A. (2004). *Leveraging the corporate brand*. *California Management Review*, 46(3), 6-18. doi:10.2307/41166218
- Balmer, J. M. T., Greyser, S. A., & Urde, M. (2006). *The crown as a corporate brand: Insights from and monarchies*. *Journal of Brand Management*, 14(1-2), 137-161. doi:10.1057/palgrave.bm.255003
- Banerjee, S. (2008). *Strategic brand-culture fit: A conceptual framework for brand management*. *Journal of Brand Management*, 15(5), 312-321. doi:10.1057/palgrave.bm.2550098
- Belk, R. W. (1988). *Possessions and the extended self*. *Journal of Consumer Research*, 15(2), 139-168.
- Beverland, M. B. (2005). *Crafting brand authenticity: The case of luxury wines*. *Journal of Management Studies*, 42(5), 1003-1029. doi:10.1111/j.1467-6486.2005.00530.x
- Bruhn, M., Schoenmüller V., Schäfer, D., & Heinrich, D. (2012). *Brand authenticity: Towards a deeper understanding of its conceptualization and measurement*. *Advances in Consumer Research*, 40, 567-576.
- Escalas, J. E., & Bettman, J. R. (2003). *You are what they eat: The influence of reference groups and consumers' connections to brands*. *Journal of Consumer Psychology*, 13(3), 339-348. doi:10.1207/S15327663JCP1303_14
- Escalas, J. E., & Bettman, J. R. (2005). *Self-construal, reference groups, and brand meaning*. *Journal of Consumer Research*, 32(3), 378-389. doi:10.1086/497549
- Fournier, S. (1998). *Consumers and their brands: Developing relationship theory in consumer research*. *Journal of Consumer Research*, 24(4), 343-373. doi:10.1086/209515
- Grewal, R., Mehta, R., & Kardes, F. R. (2004). *The timing of repeat purchases of consumer durable goods: The role of functional bases of consumer attitudes*. *Journal of Marketing Research*, 41(1), 101-115. doi:10.1509/jmkr.41.1.101.25090
- Hakala, U., Lätti, S., & Sandberg, B. (2011). *Operationalising brand heritage and cultural heritage*. *Journal of Product & Brand Management*, 20(6), 447-456. doi:10.1108/10610421111166595
- Hirschman, E. C., & Holbrook, M. B. (1982). *Hedonic consumption: Emerging concepts, methods and propositions*. *Journal of Marketing*, 46(3), 92-101. doi:10.2307/1251707
- Hudson, B. T. (2007). *Longevity among leading brands* [Working Paper]. Boston, MA: Boston University.
- Interbrand (2007). *Best Global Brands*. Retrieved from Interbrand at <https://www.interbrand.com/best-brands/best-global-brands/2007/ranking/>
- Kates, S. M. (2004). *The dynamics of brand legitimacy: An interpretive study in the gay men's community*. *Journal of Consumer Research*, 31(2), 455-464. doi:10.1086/422122
- Merchant, A., & Rose, G. M. (2013). *Effects of advertising-evoked vicarious nostalgia on brand heritage*. *Journal of Business Research*, 66(12), 2619-2625. doi:10.1016/j.jbusres.2012.05.021
- Napoli, J., Dickinson, S. J., Beverland, M. B., & Farrelly, F. (2014). *Measuring consumer-based brand authenticity*. *Journal of Business Research*, 67(6), 1090-1098. doi:10.1016/j.jbusres.2013.06.001
- Oh, H., Prado, P. H. M. P., Korelo, J. C., & Frizzo, F. (2017). *The effect of brand authenticity on consumer-brand relationships* [Working Paper]. Curitiba, PR: Universidade Federal do Paraná.
- Park, C. W., Eisingerich, A. B., & Park, J. W. (2013). *Attachment-aversion (AA) model of customer-brand relationships*. *Journal of Consumer Psychology*, 23(2), 229-248. doi:10.1016/j.jcps.2013.01.002
- Park, C. W., MacInnis, D. J., & Priester, J. (2006). *Beyond attitudes: Attachment and consumer behavior*. *Seoul Journal of Business*, 12(2), 3-36.

- Park, C. W., MacInnis, D. J., Priester, J., Eisengerich, A. B., & Iacobucci, A. (2010). **Brand attachment and brand attitude strength: Conceptual and empirical differentiation of two critical brand equity drivers.** *Journal of Marketing*, 74(6), 1-17. doi:10.1509/jmkg.74.6.1
- Rose, G. M., Merchant, A., Orth, U. R., & Horstmann, F. (2016). **Emphasizing brand heritage: Does it work? And how?** *Journal of Business Research*, 69(2), 936-943. doi:10.1016/j.jbusres.2015.06.021
- Schmitt, B. (2013). **The consumer psychology of customer-brand relationships: Extending the AA relationship model.** *Journal of Consumer Psychology*, 23(2), 249-252. doi:10.1016/j.jcps.2013.01.003
- Urde, M., Greyser, S. A., & Balmer, J. M. T. (2007). **Corporate brands with a heritage.** *Journal of Brand Management*, 15(1), 4-19. doi:10.1057/palgrave.bm.2550106
- Wiedmann, K. P., Hennigs, N., Schmidt, S., & Wuestefeld, T. (2011). **Drivers and outcomes of brand heritage: Consumers' perception of heritage brands in the automotive industry.** *Journal of Marketing Theory and Practice*, 19(2), 205-220. doi:10.2753/MTP1069-6679190206
- Wuestefeld, T., Hennigs, N., Schmidt, S., & Wiedmann, K.-P. (2012, February). **The impact of brand heritage on customer perceived value.** *Der Markt: International Journal of Marketing*, 51(2-3), 51-61. doi:10.1007/s12642-012-0074-2

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INTEGRATION BETWEEN RESEARCH AND DEVELOPMENT: A DYNAMIC CAPABILITIES PERSPECTIVE

Integração entre pesquisa e desenvolvimento: Uma perspectiva de capacidades dinâmicas

Integración entre investigación y desarrollo: Una perspectiva de capacidades dinámicas

ABSTRACT

Integration between research (R) and development (D) activities when they are organized separately in companies as specific departments is crucial for innovation performance and for the firm's adaptation and growth. Although this is of utmost importance, paradoxically, very few studies have focused on it. Considering this integration as a dynamic capability, through a systematic literature review on integration models and dynamic capabilities, we discuss distinctive views of the concept and the ways in which they can be applied. This study leads to the systematization of this knowledge field and to the identification of gaps in the literature on the integration between R and D. A research agenda is also proposed.

KEYWORDS | Dynamic capabilities, integration, research, development, conciliatory model.

RESUMO

A integração entre as atividades de pesquisa (P) e desenvolvimento (D), quando são organizadas separadamente nas empresas como departamentos específicos, é crucial para o desempenho da inovação e para a habilidade de adaptação e crescimento das empresas. Embora seja de extrema importância, paradoxalmente, muito poucos estudos focaram esse tema. Considerando integração uma capacidade dinâmica, por meio de uma revisão sistemática da literatura de modelos de integração e capacidades dinâmicas, discutimos diferentes visões do conceito e de que formas pode ser aplicado. Este estudo contribui para a sistematização desse campo de conhecimento, para identificação de lacunas na literatura de integração entre P e D. Uma agenda de pesquisa também é proposta.

PALAVRAS-CHAVE: Capacidades dinâmicas, integração, pesquisa, desenvolvimento, modelo conciliatório.

RESUMEN

La integración entre las actividades de investigación (I) y de desarrollo (D), cuando se organizan separadamente, como departamentos específicos en las empresas, es crucial para el desempeño de la innovación y para la capacidad de adaptación y crecimiento de las empresas. Aunque sea de suma importancia, paradójicamente, muy pocos estudios se han centrado en este tema. Considerando esta integración como una capacitación dinámica, realizamos una revisión bibliográfica sistemática sobre los modelos de integración y de capacitaciones dinámicas, discutimos los puntos de vista distintivos del concepto y cómo se puede aplicarlo. Este estudio contribuye a la sistematización de este campo de conocimiento, para la identificación de lagunas en la literatura de integración entre I y D. También se propone una agenda de investigación.

PALABRAS CLAVE: Capacidades dinámicas, integración, investigación, desarrollo, modelo conciliatorio.

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INTRODUCTION

Research and development (R&D) are typically seen as a single organizational function (department). Several studies have related R&D integration with marketing or with production. However, Chiesa (1996) points out that in terms of culture, organizational arrangements and behaviors, and characteristics of people, research is quite different from development (Chiesa, 1996). Little is known about the complex integration between “R” for “research” and “D” for “development” when these functions are separated inside an organization (Iansiti, 1995a).

Integration between the activities of R and of D is crucial for organizations with a clear strategic intent for innovation. In brief, research must develop new technologies that leverage new businesses platforms and development has to design successfully new products and processes or new versions of existing ones. Research is more attached to science and general technological principles and development relates more to marketing, consumers, and forms of product use. Problems in the integration of the two may imply research working and delivering technology platforms that do not fit development objectives or development ignoring possibilities set by research output. The disintegration may also imply friction, mistrust, waste of resources, and loss of opportunities for new businesses and products or not adapting to market changes. In this sense, the integration between R and D can be seen as a dynamic capability (DC).

Some studies have characterized and differentiated R from D, including identifying more sub-divisions, for example, the Frascati Manual (OECD, 2015) and the classification made by the U.S. Department of Defense (Amsden & Tschang, 2003). This study adopts a simpler division: “R” for “Research” responsible for the development of new technologies, and “D” for “Development” responsible for materializing this technology in the form of new products (Boutellier, Gassmann, & Von Zedtwitz, 2000).

One researcher who studied the integration between R and D in depth was Marco Iansiti in the 1980s and in the onset of the 1990s. He, in partnership with Kim Clark, wrote in 1994, a paper evaluating the problem of integration between R and D from the perspective of DCs, an approach still in formation (Iansiti & Clark, 1994). At that time, the most relevant work available was a working paper—the study of 1992 by Teece, Pisano, and Shuen—which evolved into the seminal paper written by these authors in 1997 (Teece, Pisano, & Shuen, 1997).

The DC approach is not a fully unified theory given the number of definitions that have been proposed over the past 25 years. Some authors have sought to elucidate the reasons for the non-consolidation of the concept. Specifically, we believe that

Di Stefano, Peteraf, and Verona (2014) were able to combine the distinctions into one model, which we explore later in this paper.

One area where there is consensus is that departmental (organizational function) integration is one of the basic mechanisms for the formation, maintenance, and deployment of a given DC in an organization. This mechanism will be explored in the case of the technological integration between R and D.

Therefore, our research question is: how can the DC approach be used to analyze the integration between R and D when they are separated departments? To find the answer, we conducted a systematic literature review in order to organize the field and identify gaps, culminating with the proposition of a research agenda which is presented in the following sections of this paper.

METHODOLOGY

The literature review was divided into three groups: the first relates to the understanding of the relationship between R and D, the second relates to the evolution of the DC field, and the third is the intersection of the first two.

For the first group, we followed three techniques suggested by Levy and Ellis (2006): keyword searching, backward searching, and forward searching. For other authors, for example, Ridley (2012), the backward and forward searching is known as the “snowball” technique. Using two main available databases, Web of Science® and Scopus®, we did keyword searching in February of 2018 and chose Scopus® to continue the literature review process as subject area was broader than in the Web of Science®. The initial search used “research”, “development” and “integration” as strings in articles titles, abstracts, and keywords. The vast majority of articles considered R and D as a single department and the problem of integration related to departments such as marketing. i.e., this search did not fit with our main characteristic, which considered R and D as different departments.

Therefore, we eliminated “integration” from the search field and added “split or separation” as a new string. The database returned more than 12,800 documents so we restricted the subject area to “business, management and accounting” in the available subject list. This new cycle brought 392 documents, which were classified by citation order. By reading the titles and abstracts, and the full article to see whether it fit our interest, we found the article by Chiesa (1996), which we believed was the one that best fit our research.

We conducted another search round with “research”, “development” and “technology integration” in the business

subject. This resulted in 1133 documents; we added a new string “product” to reduce this number to 379 documents. Using the same steps of the previous search, we selected the article of [lansiti \(1995a\)](#).

Assuming that the keywords for our study are widely used in different fields of science, using two articles that closely fit our research aim, we began the “snowball” technique through the references cited by [Chiesa \(1996\)](#) and/or [lansiti \(1995a\)](#) – backward searching, and in publications that referenced at least one of these articles – forward searching.

Starting from the research question, we looked for theoretical approaches we could use to study it. We chose the DC concept owing to its relationship with the field of strategy and also due to the possibility of evaluating the problem of integration in the face of the evolution that this approach has seen in the last 25 years. This led us to the second grouping in our literature review.

In this field of DCs, the studies of [Teece et al. \(1997\)](#) and [Eisenhardt and Martin \(2000\)](#) are the two most cited studies but present divergent ideas, which we explore later in this paper. By searching the database with the aim of understanding other references that could better explain the differences between these studies in more depth, and ordering the number of citations, we identified studies by [Wang and Ahmed \(2007\)](#) and the set of papers by [Peteraf, Verona, and Di Stefano \(2013\)](#) and [Di](#)

[Stefano, Peteraf, and Verona \(2010; 2014\)](#). Using the “snowball” technique, we also found a book edited by Helfat in 2007 and other conceptual studies in other fields related to DCs. Special issues from the *California Management Review* in 2016 and *RAE-Revista de Administração de Empresas* in 2017 were also included in this literature review, which, based on their recent publication dates, did not appear among the most cited, adding relevant references based on their contribution to our subject.

For the third grouping of our literature review, we looked for references that integrated the first and second groups. The most relevant study was from [lansiti and Clark \(1994\)](#), which had “integration” and “dynamic capability” in its title. From this key paper, we did a forward search to find other references, which we discuss later such as [Woiceshyn and Daellenbach \(2005\)](#) and [Helfat and Campo-Rembado \(2016\)](#).

INTEGRATION BETWEEN RESEARCH AND DEVELOPMENT

The result of the first group of the literature review is an understanding of the relationship between Research and Development as synthesized in Exhibit 1.

Exhibit 1. References in the interface between research and development/integration of new technologies and product development/internal technology transfer

Author(s)	Overview	Departmental separation	Examples of integration mechanisms	Context
White (1977)	Overlap of the technology and development phases with the transfer of personnel among departments and, occasionally, just one leader reporting directly to senior management.	Explicit: “Research personnel and development personnel normally continue to report to their respective managements during the cooperative transfer period” (p. 33).	Process to stimulate personnel interaction, e.g., technological forecasting	Medical equipment company, author was director of research
Cohen, Keller, & Streeter (1979)	Existence of primary factors (e.g., complete technical knowledge, comprehension of the potential of growth of technology), and secondary elements (e.g., timeliness/ opportunity, senior leadership involved), which affect the technology transfer.	Explicit: “transfer of technology from research to development” (p. 11).	Joint programs (e.g., development people in research laboratories and research activities in development laboratories) are two of primary factors	Study based on 18 projects in IBM published by three of its executives.

(continue)

Exhibit 1. References in the interface between research and development/integration of new technologies and product development/internal technology transfer

Author(s)	Overview	Departmental separation	Examples of integration mechanisms	Context
Iansiti (1995a, 1995b)	Proposition of a framework based on information processing model to evaluate development speed and R&D productivity considering three stages: exploration, integration and product development. Two approaches are considered: elements focused and system-focused approach (more productive and faster).	Explicit (for the two illustrative cases): focus on “importance of processes linking activities in applied science to those in product development” (1995a, p. 259).	Existence integration group in the system focused approach.	Mainframe companies, 27 projects, longitudinal study (10 years).
Chiesa (1996)	Detail on the differences of management of research department and development department, based on culture (e.g. R – freedom to express scientific opinions, D – clear-cut priority setting), organization (e.g., R – specialized core teams, D – teamwork among different technical specialists), and people (e.g., R – right place for “single stars”, D – teamwork).	Explicit: “separation of the ‘research’ and ‘development’ activities organisationally and sometimes physically” (p. 638).	Not explicit.	Nine pharmaceutical companies, case study. ⁽¹⁾
Eldred & McGrath (1997a, 1997b)	Technology and product development typically require a bridge step called technology transfer that needs three basic elements: program synchronization, technology equalization, and technology transfer management.	Explicit: “technology transfer process requires individuals from both research and development to work effectively together” (1997b, p. 30).	Formation of a technology transfer group.	Not specified, number of cases and industries. ⁽²⁾
Drejer (2002)	Integration must consider three dimensions: different aspects of the department involved, the activities related to technology transfer, and time horizons.	Explicit organizational separation for three of four cases: focus on “integration between product development and technology development” (p.124).	Integrated discussion using models/tools, e.g., Quality Function Deployment.	Different industries, Four cases.
Nobelius (2004)	Based on Eldred and McGrath’s model, considers three elements: strategic and operational synchronization, transfer scope, and transfer management – bridging the gap.	Explicit: “applied researchers have been working in more functional departments than product developers” (p. 332).	Design responsibilities for the transfer phase.	Automobile company, internal survey.

(continue)

Exhibit 1. References in the interface between research and development/integration of new technologies and product development/internal technology transfer

Author(s)	Overview	Departmental separation	Examples of integration mechanisms	Context
Lakemond Johansson, Magnusson, & Safsten (2007)	Six situational factors must be taken into account: complexity and degree of change in the product complexity and degree of change in the production process; technology uncertainty; geographical and organization dispersion of technology development and product project development; geographical and organizational dispersion of project product development and production; and market uncertainty.	Explicit: “interfaces between technology development, product development and production must be managed” (p. 317).	Assignment of a full-time integrator is suggested to have an effective transfer.	Five industries, two projects in each, longitudinal three years.
Magnusson & Johansson (2008)	A contingency framework must guide the internal technology transfer. Uses the elements presented by Nobelius (2004) to evaluate the technology transfer process. Unit cost and production volumes are important dimensions, and how the new technology affects existing product architecture.	Explicit. “transfer of new technology from technology development to product development” (p. 349).	Prototypes and engineers “spanning between technology development and product development” (p. 361).	Electrical equipment & telecommunication systems, three cases.
Karlsson Taylor, & Taylor (2010)	Considering a matrix of (1) technological advancement of the product, which arises from technology integration process and (2) level of expertise and prior experience with new technology integration; the combination of the four integration categories needs to be different to effectively integrate each quadrant of the matrix; integration mechanisms.	Focus on the integration of software technology into mechanical products. Separation is not explicit for all cases.	Structure, processes, resources, and culture.	Twelve industries, multiple case-study.
Kurumoto, de Oliveira, & Amaral (2012)	Investigation of integration strategies in small and medium enterprises (SMEs) in technologies and product projects.	Unclear separation of R and D for 9 of 22 cases: “The results show that many SMEs often do not recognize differences between technology and product projects” (p. 100).	No specified mechanisms but they describe some issues in sequential projects approach: “lack of human resources, unskilled employees, and partners” (p. 100).	Twenty-two SMEs, case-study.

(continue)

Exhibit 1. References in the interface between research and development/integration of new technologies and product development/internal technology transfer

(conclusion)

Author(s)	Overview	Departmental separation	Examples of integration mechanisms	Context
Schuh & Apfel (2014)	Reference exhibit where each project can plan its transfer project, considering: transfer process, transfer object, situational context, requirements, transfer elements, and type-based configuration.	Explicit: "transfer processes between technology development and product development" (p. 357).	Not explicit.	Experience from consultancy projects.

(1) In the article, Chiesa refers to a survey based on a literature analysis and interviews. We consider this a case study.

(2) The authors were directors of a management consulting firm for technology-based companies. We assume that the model proposed was based on this experience.

We analyzed two factors looking for similarities: organizational separation and examples of integration mechanisms described in the studies. Even when not naming R and D as separated functions, the majority of the models indicate that technology is developed by one organizational unit and product development is conducted by another. As examples of integration mechanisms, we highlight the importance of integration/technology transfer groups as a mechanism that facilitates the application of new technologies into products.

The literature shows some diverse studies concerning the models for integration between R and D, ranging from abstract models to pragmatic ones, from in-depth case studies to surveys, varying industries, and author backgrounds (executives, consultants, academics). There is no consensus on the theoretical basis that should be utilized to discuss how new technologies could be better integrated into new product development; the two oldest studies do not even present any theoretical foundation.

To address this, we anchor our study in a broad theoretical approach to allow for a high degree of generalization, considering the contingency factors that must be considered when applying this approach to a company's reality. Our theoretical basis is the DC concept, which we detail in the next section.

DYNAMIC CAPABILITIES

Definitions

The concept of the DC achieved relevance in the 1990s as an extension of the resource-based view (RBV) since this theory has static elements (Eisenhardt & Martin, 2000). In addition, the RBV does not explain how resources can be recreated or reconfigured (Ambrosini & Bowman, 2009) or the reasons why some firms have a competitive advantage in situations of rapid change (Teece et al., 1997). The DC concept enhances the RBV because it shows the evolution of organizational resources and capabilities in

the face of changes in the environment and also allows for the identification of specific processes in these organizations that evolve (Wang & Ahmed, 2007).

DCs are especially relevant for companies in competitive environments with certain characteristics. Specifically, where technological changes are systematic and where various inventions need to be combined to create products and/or services that meet consumers' needs (Teece, 2007), preventing organizations from creating internal rigidities and from hindering the development of innovation (Leonard-Barton, 1992).

Despite a considerable amount of publications on DCs, the discussions have not always been unified (Teece, 2014). The development of the theory, dissociated from empirical research, has focused on individual cases without searching on common aspects, contributing to the lack of consensus (Wang & Ahmed, 2007), similar to other theoretical approaches in the field of strategy that were developed in a fragmented way (Takahashi, Bulgacov, Bitencourt, & Kaynak, 2017).

The seminal works in this field are those of Teece, Pisano, and Shuen, in 1997 and of Eisenhardt and Martin in 2000 (Peteraf et al., 2013). Their definitions of DCs are as follows:

We define dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997, p. 516).

The firm's processes that use resources - specifically the processes to integrate, reconfigure, gain and release resources - to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as the markets emerge, collide, split, evolve, and die. (Eisenhardt & Martin, 2000, p. 1107)

In an attempt to unify this concept, Helfat (2007) defined DC as follows: “A dynamic capability is the capacity of an organization to purposefully create, extend, or modify its resource base” (p. 1). Thus, this means that DCs consist of practical and in a certain degree of standardized sets of intentional activities rather than sources of chance or luck (Helfat, 2007).

Another definition that seeks the unification of concepts but is based on the literature review is that of Wang and Ahmed (2007):

We define dynamic capabilities as a firm's behavioral orientation to constantly integrate, reconfigure, renew and recreate its resources and capabilities, and most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage. (p. 35)

Dynamic capabilities foundations and organizational processes

DCs are directly related to intentional changes and the processes used are associated with searching, decision-making, and management of these changes (Maritan & Peteraf, 2007). These processes connect action and evolution using the knowledge acquired through the effective execution of the problem-solving process (Iansiti & Clark, 1994). Teece et al. (1997) argue that competitive advantage relates to the market position of each firm's organizational and its managerial processes, considering its “positions” (specific intellectual assets) and paths (strategic choices) by which these can be developed, including path dependence.

DCs are not resources but processes that act on resources, building the future basis of these resources and renewing or adapting existing resources to the changes that the environment demands (Ambrosini & Bowman, 2009). These processes are in a certain extent process embedded in the “traditional” processes of the organization and require more than a process design; rather, they require a high involvement of leadership and tacit knowledge of the organization (Wang & Ahmed, 2007).

Maritan and Peteraf (2007) argue that processes are mechanisms by which DCs are put into practice and mechanisms by which dynamic capacities are developed. Consequently, processes play the role of development and deployment for DCs.

Organizational and managerial processes have three main functions: coordination/integration of activities for the correct delivery of products and services; acquisition of knowledge from these activities so they can be carried out more efficiently; and

reconfiguration of resources needed to respond to changes in the environment (Teece et al., 1997). Together, they can be thought of as “asset orchestration processes” and, as far as the most valuable assets are concerned, which are knowledge-related, they cannot be easily transferred to another organization. The coordination and integration of these assets create value that cannot be replicated in the market (Teece, 2007).

Teece (2007) explores the concept of micro-foundations of dynamic capacities to differentiate the elements that support the capabilities of the dynamic capability itself. The micro-foundations are the “distinct skills, processes, procedures, organizational structures, decision rules, and disciplines – which undergird enterprise-level sensing, seizing, and reconfiguring capacities are difficult to develop and deploy” (p. 1319). These micro-foundations can be grouped into three categories: (1) sensing, (2) seizing, and (3) managing/transformation of opportunities and threats. Sensing, which also considers the formatting of opportunities and threats, encompasses activities related to searching, creating, learning, and interpretation. Seizing involves activities related to the selection of the opportunities and threats identified in the sensing stage and this includes decision-making activities and the subsequent execution of marketing or technological opportunities (or threat mitigating actions) made tangible in products and services for consumers and receiving high investment by the organization. Finally, in managing/transformation, the activities are related to the combination, reorganization, and protection of existing assets in the company (Teece, 2007).

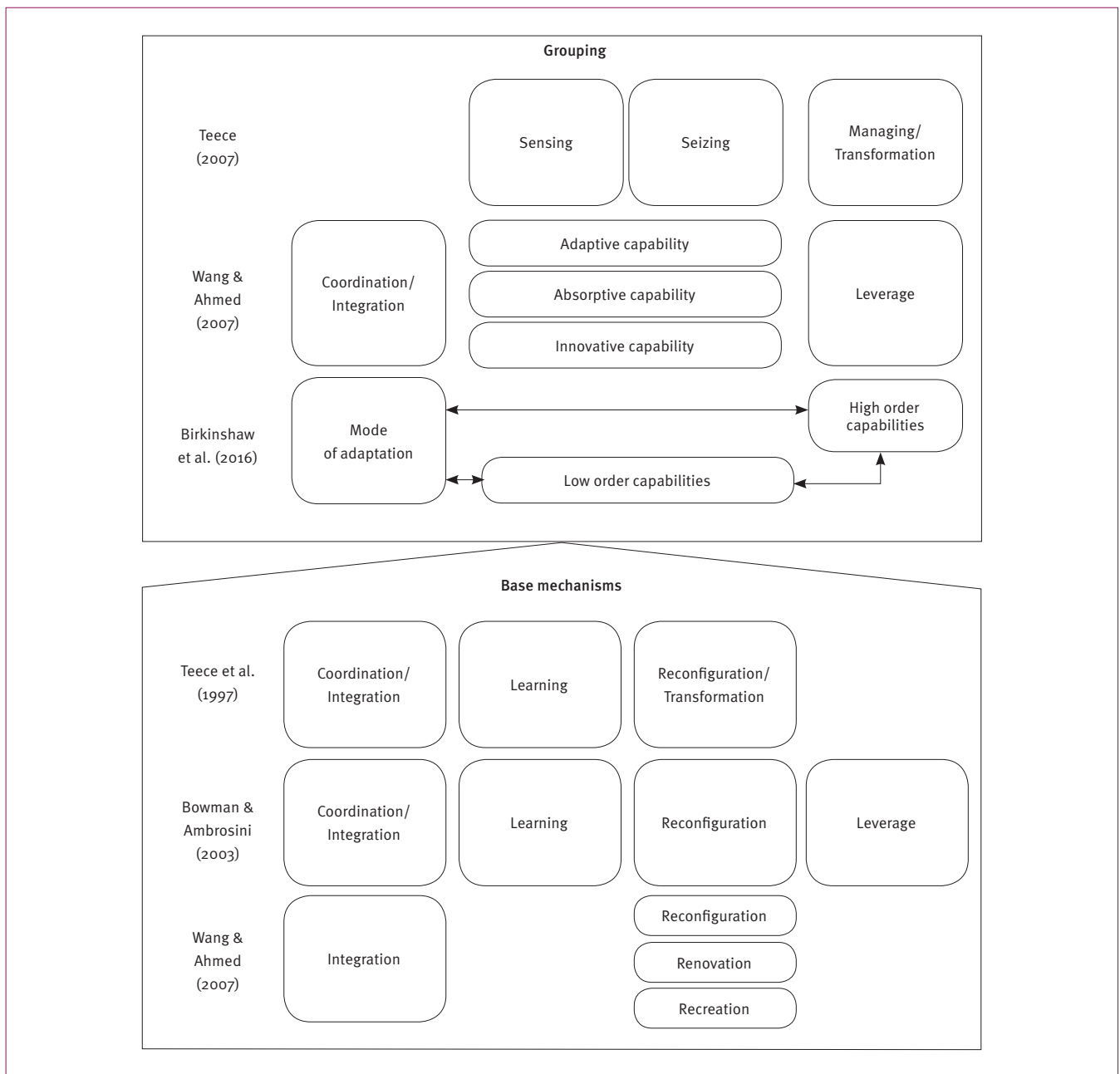
In accordance with Teece et al. (1997), Bowman and Ambrosini (2003) emphasize that dynamic capabilities are built/developed and cannot be purchased. These authors propose four types of processes for creating new resources and assets: reconfiguration, leverage, learning, and integration. Reconfiguration refers to the transformation and recombination of assets and resources whether they are from supporting activities or core processes; leverage refers to the process replication or extension of existing resources in new domains or units; learning refers to the most efficient and most effective performance of the activities obtained by repetition and experimentation through a culture that supports such learning or through rigid controls over activities; and integration refers to the ability to coordinate and integrate resources and assets from different sources in a coherent way.

Wang and Ahmed (2007) also present the concept of aggregation. As stated by these authors, DCs are supported by three types of common factors: adaptive capability, absorptive capability, and innovative capability along with the underlying processes of integration/adaptation, reconfiguration, renewal,

and recreating of resources. Adaptive capability refers to the identification of and capitalization on emerging market opportunities and knowing how to balance exploration and exploitation strategies; absorptive capability refers to the company's ability to recognize the opportunity derived from external knowledge and to apply it for commercial purposes; and innovative capability refers to the organization's ability to develop

products and markets through strategic alignment with innovative processes and behaviors. These three types of capabilities are correlated but conceptually distinct: the adaptive focus is on internal flexibility; the absorption focus is on internalization of external knowledge; and the innovation focus is on the link between the use of resources in products/services generated by the organization (Wang & Ahmed, 2007).

Figure 1. Equivalence of DC concepts among authors



Birkinshaw, Zimmermann, and Raisch (2016), studying organizational ambidexterity, specifically three forms of a firm's modes of adaptation (structural separation, behavioral integration, and sequential alternation), proposed a modification to Teece's (2007) linear view of sensing, seizing, and managing/transformation. Sensing relates to the exploration and seizing relates to the exploitation of opportunities and are viewed as low-order capabilities typically involving front-line managers. Managing/transforming refers to a high-order capability developed and implemented by top executives and involving choosing a mode of adaptation, allowing exploration and exploitation to occur, and managing/transforming are complementary assets needed for the (ambidexterity) mode of adaptation chosen.

Figure 1 visually presents the alignment among these concepts.

Different views on the DCs approach

There is no general consensus around the DCs concept in the academic community, as confirmed in our review presented in the "Definitions" section above. They are seen as a source of competitive advantage for organizations by some authors but others do not even acknowledge their existence (Winter, 2003).

Collis (1994) uses the concept of organizational capabilities and argues that the competitive advantages based on such capabilities are vulnerable to the actions of competitors with a higher order capability. According to this author, the first capability (static) is related to the basic activities of the organization; the second capability (dynamic) is related to the improvements in these activities; and the third (creative) is related to the strategic insights that allow the firms to recognize the value of their resources or develop new strategies ahead of the competition. A more valuable qualification is the "ability to innovate the structures that produce better product innovation" (Collis, 1994, p. 144).

Exemplifying this classification, Alves, Barbieux, Reichert, Tello-Gamarra, and Zawislak (2017) propose an assessment model of innovation. They conclude that operational capabilities are ordinary because they have little influence on innovation performance, management, and development. Whereas, transactional capabilities are in fact DCs that can explain better the firm's innovative performance.

As stated by other scholars, the real influential factors on DCs are different: Teece et al. (1997) stated that DCs represent the skills to achieve a new form of competitive advantage, whereas

according to Eisenhardt and Martin (2000), DCs are necessary conditions but not sufficient for competitive advantage; therefore, they are not the only source of this advantage because, in the long term, competitors tend to arrive, even if by different paths, to the same level of capabilities. Moreover, the two seminal studies differ profoundly in terms of their conceptual basis, boundary conditions, and applicability in rapidly changing markets (Peteraf et al., 2013).

In a set of three papers published in 2010, 2013, and 2014, researchers Di Stefano, Peteraf, and Verona conducted a bibliometric evaluation of DCs to understand the divergence in this field of study. Seeking a solution to the existing theoretical conflicts, they proposed a form of unification (Di Stefano et al., 2010). They concluded that researchers in the field of technology and organizational performance and strategy used the study of Teece et al. (1997) as a main reference, while researchers in organizational processes and information systems used the study of Eisenhardt and Martin (2000) as a theoretical basis (Peteraf et al., 2013).

According to Teece (2014), the reason for this divergence lies in the capability class that each study used as a reference: whether the capabilities are ordinary capability or whether they are dynamic. Ordinary capabilities are those related to the current performance of organizations and DCs are those directing ordinary activities towards high-return challenges. This aligns with the concept of Collis (1994), however, considers any superior order of capability as dynamic.

Continuing this discussion, Teece, Peteraf, and Leih (2016) affirm that ordinary capabilities cannot help an organization create volatility and/or surprise, positive or negative, while DCs give an organization agility. In this context, management must equilibrate agility and efficiency (minimizing operational cost to a particular agility level) requiring long-term commitment and avoid short-term cost cutting, for example, to support innovation strategy.

According to Teece (2014), there has been a misinterpretation/reformulation of Eisenhardt and Martin's study (2000) on the DC framework, claiming that all types of capabilities can become best practices.

As a point of conciliation between these views, Peteraf et al. (2013) argue that under certain contingencies it is possible that DCs are sources of sustainable competitive advantage in cases of rapidly changing technological environments. These authors propose the conciliation based on: (1) the ability of organizations to continuously create and deploy rules and simple routines from more complex capabilities; (2) the broad applicability of these rules and simple routines; and (3) the consideration that simple

rules and routines are a bundle of resources and capabilities of the organization, although not the whole portfolio of capabilities. Consistent with Peteraf et al. (2013), Wang and Ahmed (2007) argue that the heart of the DC is the ability to apply resources and capabilities quickly and astutely and fortuitously, changing these into products and services that deliver more value to customers.

Di Stefano et al. (2014) argue that the main reason for these differences in the various definitions of DCs is due to the theoretical bases used: the most relevant is the RBV but other theories have also influenced this field such as the knowledge-

based view, behavioral theory, evolutionary economics, network theory, transaction cost economics and, finally, the positioning view. In considering the seminal studies, Eisenhardt and Martin's (2000) is closer to behavioral and organizational theory than that of Teece et al. (1997), which is based on the RBV but also uses economic logic (Di Stefano et al., 2014). This study of 2014 also extends bibliometric analysis through a content analysis of the existing definitions of DC made by several researchers. Five domains are listed where different approaches are used to define this concept. Exhibit 2 lists these differences.

Exhibit 2. Differences between DC definitions

Field	Approach	Difference
Nature	(1) processes/routines	What a DC really is and how it is evident: (1) daily/short-term actions or (2) long-term results
	(2) ability/capacity/enabling device	
Agent	(1) Managers	Who puts the DC into practice: (1) specific roles or (2) a broader view considering the whole organization
	(2) Organizations/firms	
Action	(1) Change	How the DC affects the capabilities base: (1) change current or (2) creation of new
	(2) Creation	
Object of action	(1) Competencies/resources	How the DC acts: (1) current conditions or (2) enable to "see the new"
	(2) Opportunities	
Aim	(1) Adapt to changing conditions	For what purpose the DC exists: (1) remain competitive or (2) have a better performance than competitors
	(2) Reach a competitive advantage	

Source: Adapted from Di Stefano et al. (2014)

A conciliatory model

The discussion of DCs will eventually evolve as the different approaches in this field are combined (Takahashi et al., 2017). One proposal is the model of Di Stefano et al. (2014) that considers the two seminal conceptual bases as parts of a larger interconnected system, using a metaphorical analogy of a bicycle's drivetrain. Figure 2 in the next section presents this analogy with modifications proposed for the study of the integration between research and development.

According to these authors, simple rules and complex routines co-exist within organizations. The crankset represents the simplest rules, where top managers select and control them

(in the bicycle metaphor is the rider that moves the pedals on the crankset). Complex routines, represented by the freewheel, are the mechanisms by which organizations use to deploy and manage changes. The chain connects these two types of actions, coordinating the dynamic movement between them and the derailleur represents the coupling and decoupling mechanisms of these devices, which allows flexible adjustments for environmental changes (Di Stefano et al., 2014).

Therefore, as stated by Di Stefano et al. (2014), regarding the point of views of Teece et al. (1997) and Eisenhardt and Martin (2000), if the DCs are complex routines or, if they are simple rules, these are not opposing or contradictory visions but

rather complementary visions. The achievement of competitive advantage is not explained by a single factor but by a series of interconnected components.

INTEGRATION BETWEEN RESEARCH AND DEVELOPMENT THROUGH THE LENS OF DYNAMIC CAPABILITIES: A NEW APPROACH

Felin and Powell (2016) affirm that companies that differentiate (in terms of organizational structure) and do not integrate may create organizational chaos with a lot of ideas but a lack of implementation. The combination of highly differentiated and highly integrated mechanisms allows the optimal design for DCs.

As pointed out in the Methodology section, a key study that addresses the intersection of DCs and integration is that of Iansiti and Clark (1994). They use longitudinal research to study the product development process at two companies, one in the computer industry and the other in the automobile industry, between 1980 and 1990.

These authors indicate that integration with consumers and technological integration are more related to the development of concepts that respond to new external contingencies. Whereas, the capability for implementation is essentially an internal integration of the organization involving specific skills, knowledge bases, and technical and managerial systems, which directly relate to the performance of the company. They define internal integration as “the capacity for extensive coordination between different specialized subunits within an organization, and explicitly targets the implementation of a given project concept” (Iansiti & Clark, 1994, p. 568). Technological integration is defined as “the capacity to link the evolving basis of technical knowledge (both inside and outside the firm) to the existing basis of capability within the organization” (Iansiti & Clark, 1994, p. 570).

A key role in this process is performed by the “integrators.” For the computer company, this role was performed by engineers who, based on their experience (manufacturing environment, and system architecture) and understanding of the possibilities of the new technologies, proposed superior products and implemented them in a very efficient way. At the automobile company, the product managers were the integrators, combining their knowledge of the customer environment and aspects of the development process and were empowered to conceptualize future products and implement them. The integrators merged the existing environment with the new possibilities that the new

technologies offered and they shaped the organization with new competencies, evolving the capability base.

The authors also argue that the ability to integrate different knowledge by solving problems in response to several contingencies is the basic foundation for knowledge creation, which then leads to the generation of new capabilities in the organization. The results of the longitudinal research show that the performance of organizations, according to the perspectives of product quality, productivity, and lead times, is directly associated with their capacity for technological integration. The study also shows that knowledge generation, fusion, and accumulation are the essence of integration, uniting knowledge of new technology with the existing capability base in the organization, similar to what Kogut and Zander (1992, p. 392) called “combinational capacities:” “the interest of the capability of the firm to exploit its knowledge and the unexplored potential of the technology”. Even being limited to product development, Iansiti and Clark (1994) suggest that “our conceptual message has general application in capability building process (p. 602).”

According to Helfat and Campo-Rembado (2016), the integration capability, and its maintenance over time, is an enabler that allows companies that remain vertically integrated to innovate systematically and avoid accruing sunk costs for reintegration when needing to reconfigure linkages between departments/areas of the organization. This constant integration allows knowledge and skills developed in past projects to be exploited in new projects (Marsh & Stock, 2006).

This knowledge-based integration, which reduces uncertainties related to the transformation of technical knowledge into market products, such as the availability of complementary technologies, among other uncertainties, is a dynamic capability that organizations develop. It is also a source of competitive advantage, leveraging existing capabilities and creating, at the same time, new capabilities in order to build a platform for future product development (Marsh & Stock, 2006). These capabilities are complex and time-consuming to develop and are the result of an accumulation of many small actions and decisions over the years (Henderson, 1994).

Some activities, such as audits and dissemination of this knowledge through memos and presentations, contribute to the withholding and dissemination of this knowledge, thus contributing to the development and maintenance of integration (Marsh & Stock, 2006). Iansiti (1995b) emphasizes the importance of specific groups in the integration involved in the routine of the project who may not have the knowledge to perform all project tasks but have a view of the relationship between existing and new technologies/resources. Such personnel make the

effort to integrate them along with the presence of “T” shaped professionals: deep knowledge of a specific area but are also capable of understanding the project as a whole. Verona and Ravasi (2003) also emphasize that not only are formal mechanisms fundamental but so are informal mechanisms.

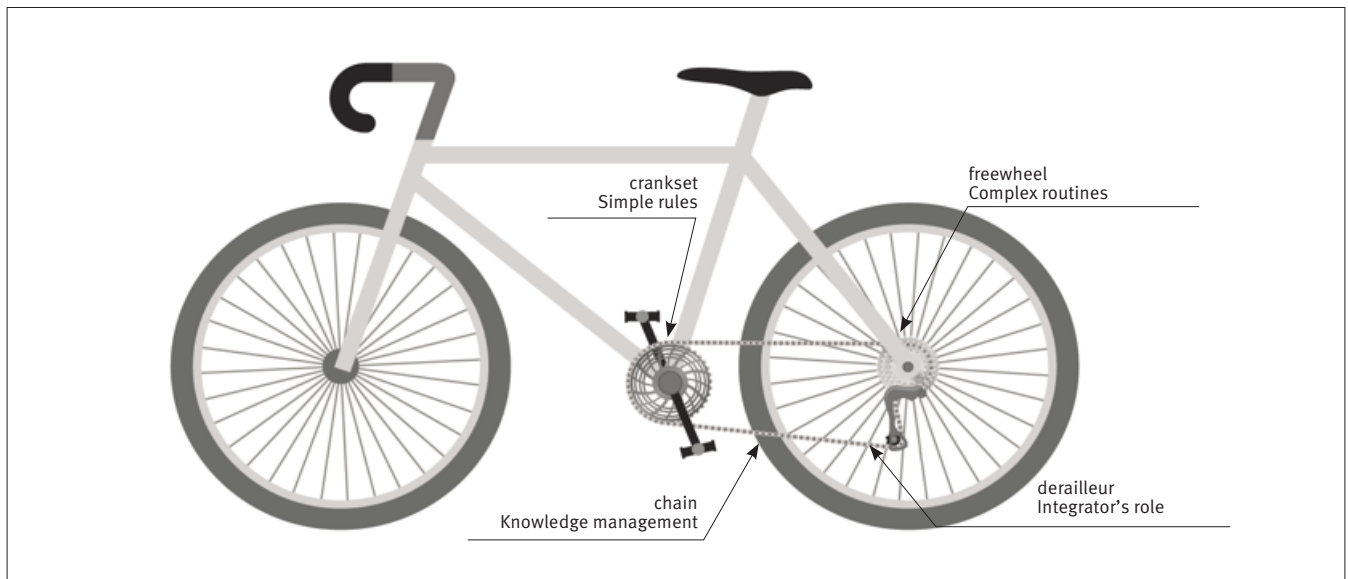
In the context of high uncertainty, this internal capability is especially critical because any competitive advantage is temporary and integration is a key factor for the effective adoption of new technologies quickly, before competitors (Woiceshyn & Daellenbach, 2005), specially in complex products and systems (Chagas Junior, Leite, & Jesus 2017). In a study of the oil industry, Woiceshyn and Daellenbach (2005) state that internal integration is a factor that also enables the external integration of the company. Moreover, even companies that are adopters, which have more external knowledge available about a new technology, fail to adopt due to a low capacity of internal integration. They also emphasize that it is essential that the development of technology be done while already considering how this technology will be used. In an Embraer case study, Chagas Junior et al. (2017) affirm that some technologies cannot be outsourced because they are so complex and mastering the whole development (technology and product) reduces the systemic uncertainty.

Alves et al. (2017) consider an organization’s ability to design its own products and its ability to adapt technology in use for its own needs as measures in their model that evaluates the innovation capabilities of an organization.

Based on the arguments presented in this section and applying the conciliatory model of DCs by Di Stefano et al. (2014), we propose two refinements to this model. The first relates to the importance of generation, fusion, and accumulation of knowledge; what we call in a broad form “knowledge management”.

The second refinement correlates to the key role of integrators as presented by Iansiti and Clark (1994). We argue that the derailleur that represents the coupling and decoupling mechanisms in the original model, can be replaced by the role of integrators because this role connects simple and complex rules using the firm’s knowledge (the chain in the metaphor) to adapt to environmental changes. In the bicycle’s drivetrain, the derailleur makes possible to shift the gears needed for better performance in different types of environments (e.g., in the metaphor, a light gear to reduce the power needed by the rider to climb hills or a heavy gear on the flats to gain speed). Figure 2 presents these refinements.

Figure 2. Analogy of a bicycle’s drivetrain for integration between R and D



Source: Adapted from Di Stefano et al. (2014)

FINAL REMARKS AND FUTURE RESEARCH

Our intention in this study was neither to exhaust the discussion on DCs nor solve the problems of the integration between Research and Development. Rather, our aim was to further discuss how this integration problem could be analyzed from the perspective of this still-evolving approach in the field of management.

We present different models from the literature for the integration between Research and Development. These models have few elements in common and lack robust theoretical support for the most part, which would have helped in generalization.

We demonstrate how the DC approach evolved, from the establishment of the concept in the 1990s, its different definitions, and through the agreement and divergence in this field of study, clarifying the factors behind the divergence as well as the importance of integration that is one of the few elements of consensus in this field. It may be possible that the model presented by Di Stefano et al. (2014) could unite this field of study.

Regarding the integration between R and D, we propose refinements in the DC conciliatory model, changing “linking mechanisms” to “knowledge management” and “coupling and uncoupling mechanisms” to “integrator’s role”. These refinements are justified by the nature of this integration, which is based significantly on knowledge, experience, and path dependence. For other kinds of integrations, there could be other refinements.

Future research, especially multiple case studies, may be able to differentiate the simple rules from the complex mechanisms of this interdepartmental interaction, and the role of integrators and knowledge management in this interaction. This, then, may lead to the proposition of new forms of integration and the ways these forms could be better managed, with the ultimate objective is to increase the use of new technologies produced by research in new products generated by development. Our focus here has been on the intra-firm integration of R and D, but we suggest that studies could be conducted to apply our proposition to open innovation and networks/ecosystems perspectives. We believe that the integrators’ role and knowledge management will be very similar to what we describe in this paper and will involve adapting the simple and complex rules to fit with other kinds of integration.

NOTE

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REFERENCES

- Alves, A. C., Barbieux, D., Reichert, F., Tello-Gamarra, J., & Zawislak, P. A. (2017). *Innovation and dynamic capabilities of the firm: Defining an assessment model*. *RAE-Revista de Administração de Empresas*, 57(3), 232-244. doi:10.1590/S0034-759020170304
- Ambrosini, V., & Bowman, C. (2009). *What are dynamic capabilities and are they a useful construct in strategic management?* *International Journal of Management reviews*, 11(1), 29-49. doi:10.1111/j.1468-2370.2008.00251.x
- Amsden, A. H., & Tschang, F. T. (2003). *A new approach to assessing the technological complexity of different categories of R&D (with examples from Singapore)*. *Research Policy*, 32(4), 553-572. doi:10.1016/S0048-7333(02)00080-X
- Birkinshaw, J., Zimmermann, A., & Raisch, S. (2016). *How do firms adapt to discontinuous change? Bridging the dynamic capabilities and ambidexterity perspectives*. *California Management Review*, 58(4), 36-58. doi:10.1525/cmr.2016.58.4.36
- Boutellier, R., Gassmann, O., & Von Zedtwitz, M. (2000). *Managing global innovation: uncovering the secrets of future competitiveness* (2nd ed.). Berlin, Germany: Springer-Verlag.
- Bowman, C., & Ambrosini, V. (2003). *How the resource-based and the dynamic capability views of the firm inform corporate-level strategy*. *British Journal of Management*, 14(4), 289-303. doi:10.1111/j.1467-8551.2003.00380.x
- Chagas Junior, M. de F., Leite, D. E. S., Jesus, G. T. de. (2017). *“Coupled processes” as dynamic capabilities in systems integration*. *RAE-Revista de Administração de Empresas*, 57(3), 245-257. doi:10.1590/S0034-759020170305
- Chiesa, V. (1996). *Separating research from development: Evidence from the pharmaceutical industry*. *European Management Journal*, 14(6), 638-647. doi:10.1016/S0263-2373(96)00060-6
- Cohen, H., Keller, S., & Streeter, D. (1979). *Transfer of technology from research to development*. *Research Management*, 22(3), 11-17. doi:10.1080/00345334.1979.11756535
- Collis, D. J. (1994). *Research note: How valuable are organizational capabilities?* *Strategic Management Journal*, 15(S1), 143-152. doi:10.1002/smj.4250150910
- Di Stefano, G., Peteraf, M., & Verona, G. (2010). *Dynamic capabilities deconstructed: A bibliographic investigation into the origins, development, and future directions of the research domain*. *Industrial and Corporate Change*, 19(4), 1187-1204. doi:10.1093/icc/dtq027
- Di Stefano, G., Peteraf, M., & Verona, G. (2014). *The organizational drivetrain: A road to integration of dynamic capabilities research*. *The Academy of Management Perspectives*, 28(4), 307-327. doi:10.5465/amp.2013.0100
- Drejer, A. (2002). *Integrating product and technology development*. *International Journal of Technology Management*, 24(2-3), 124-142. doi:10.1504/IJTM.2002.003048
- Eisenhardt, K. M., & Martin, J. A. (2000). *Dynamic capabilities: What are they?* *Strategic Management Journal*, 21(10-11), 1105-1121. doi:10.1002/1097-0266(200010/11)21:10<1105::AID-SM-1133>3.0.CO;2-E

- Eisenhardt, K. M., & Sull, D. N. (2001). Strategy as simple rules. *Harvard Business Review*, 79(1), 106-119. Retrieved from <https://hbr.org/2001/01/strategy-as-simple-rules>
- Eldred, E., & McGrath, M. (1997a). Commercializing new technology – I. *Research Technology Management*, 40(1), 41-47. doi:10.1080/08956308.1997.11671102
- Eldred, E., & McGrath, M. (1997b). Commercializing new technology – II. *Research Technology Management*, 40(2), 29-33. doi:10.1080/08956308.1997.11671114
- Felin, T., & Powell, T. C. (2016). Designing organizations for dynamic capabilities. *California Management Review*, 58(4), 78-96. doi:10.1525/cmr.2016.58.4.78
- Helfat, C. E. (2007). Dynamic capabilities: Foundations. In C. Helfat, S. Finkelstein, W. Mitchell, M. Peteraf, H. Singh, D. Teece, & S. Winter (Eds.), *Dynamic capabilities: Understanding strategic change in organizations* (pp. 30-45). Oxford, UK: Blackwell Publishing.
- Helfat, C. E., & Campo-Rembado, M. A. (2016). Integrative capabilities, vertical integration, and innovation over successive technology lifecycles. *Organization Science*, 27(2), 233-504. doi:10.1287/orsc.2015.1045
- Henderson, R. (1994). The evolution of integrative capability: Innovation in cardiovascular drug discovery. *Industrial and Corporate Change*, 3(3), 607-630. doi:10.1093/icc/3.3.607
- Iansiti, M. (1995a). Technology development and integration: An empirical study of the interaction between applied science and product development. *IEEE Transactions on Engineering Management*, 42(3), 259-269. doi:10.1109/17.403744
- Iansiti, M. (1995b). Technology integration: Managing technological evolution in a complex environment. *Research Policy*, 24(4), 521-542. doi:10.1016/S0048-7333(94)00781-0
- Iansiti, M., & Clark, K. B. (1994). Integration and dynamic capability: Evidence from product development in automobiles and mainframe computers. *Industrial and Corporate Change*, 3(3), 557-605. doi:10.1093/icc/3.3.557
- Karlsson, C., Taylor, M., & Taylor, A. (2010). Integrating new technology in established organizations: A mapping of integration mechanisms. *International Journal of Operations & Production Management*, 30(7), 672-699. doi:10.1108/01443571011057290
- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383-397. doi:10.1287/orsc.3.3.383
- Kurumoto, J. S., de Oliveira, M. G., & Amaral, D. C. (2012). Technology-product integration in SMEs: The unclear separation between the technology and product development. *Product: Management & Development*, 10(2), 95-103. doi:10.4322/pmd.2013.003
- Lakemond, N., Johansson, G., Magnusson, T., & Safsten, K. (2007). Interfaces between technology development, product development and production: Critical factors and a conceptual model. *International Journal of Technology Intelligence and Planning*, 3(4), 317-330. doi:10.1504/IJTIP.2007.016303
- Leonard Barton, D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13(S1), 111-125. doi:10.1002/smj.4250131009
- Levy, Y., & Ellis, T. J. (2006). A systems approach to conduct an effective literature review in support of information systems research. *Informing Science*, 9, 181-212. doi:10.28945/479
- Magnusson, T., & Johansson, G. (2008). Managing internal technology transfer in complex product development. *European Journal of Innovation Management*, 11(3), 349-365. doi:10.1108/14601060810889008
- Maritan, C. A., & Peteraf, M. (2007). Dynamic capabilities and organizational processes. In C. E. Helfat, S. Finkelstein, W. Mitchell, M. Peteraf, H. Singh, D. Teece, & S. Winter, *Dynamic Capabilities: Understanding Strategic Change in Organization* (pp. 30-45). Oxford, UK: Blackwell Publishing.
- Marsh, S. J., & Stock, G. N. (2006). Creating dynamic capability: The role of intertemporal integration, knowledge retention, and interpretation. *Journal of Product Innovation Management*, 23(5), 422-436. doi:10.1111/j.1540-5885.2006.00214.x
- Nobelius, D. (2004). Linking product development to applied research: Transfer experiences from an automotive company. *Technovation*, 24(4), 321-334. doi:10.1016/S0166-4972(02)00073-1
- OECD (2015). *Frascati Manual 2015: Guidelines for collecting and reporting data on research and experimental development*. Paris, France: OECD Publishing.
- Peteraf, M., Di Stefano, G., & Verona, G. (2013). The elephant in the room of dynamic capabilities: Bringing two diverging conversations together. *Strategic Management Journal*, 34(12), 1389-1410. doi:10.1002/smj.2078
- Ridley, D. (2012). *The literature review: A step-by-step guide for students*. London, UK: Sage.
- Schuh, G., & Apfel, K. (2014). Framework to design type-based transfer processes between technology and product development. *Management Studies*, 2(6), 357-372. doi:10.17265/2328-2185/2014.06.001
- Takahashi, A. R. W., Bulgacov, S., Bitencourt, C. C., & Kaynak, H. (2017). Expanding the dynamic capabilities view: Special contributions. *RAE-Revista de Administração de Empresas*, 57(3), 209-214. doi:10.1590/S0034-759020170302
- Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319-1350. doi:10.1002/smj.640
- Teece, D. J. (2014). The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms. *The Academy of Management Perspectives*, 28(4), 328-352. doi:10.5465/amp.2013.0116
- Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 60(4), 13-35. doi:10.1525/cmr.2016.58.4.13
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. doi:10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z
- Verona, G., & Ravasi, D. (2003). Unbundling dynamic capabilities: An exploratory study of continuous product innovation. *Industrial and Corporate Change*, 12(3), 577-606. doi:10.1093/icc/12.3.577

- Wang, C. L., & Ahmed, P. K. (2007). *Dynamic capabilities: A review and research agenda*. *International Journal of Management Reviews*, 9(1), 31-51. doi:10.1111/j.1468-2370.2007.00201.x
- White, W. (1977). *Effective transfer of technology from research to development*. *Research Management*, 20(3), 30-34. doi:10.1080/00345334.1977.11756416
- Winter, S. G. (2003). *Understanding dynamic capabilities*. *Strategic Management Journal*, 24(10), 991-995. doi:10.1002/smj.318
- Woiceshyn, J., & Daellenbach, U. (2005). *Integrative capability and technology adoption: Evidence from oil firms*. *Industrial and Corporate Change*, 14(2), 307-342. doi:10.1093/icc/dth053

ARTICLES

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SERVITIZATION AND ORGANIZATIONAL PERFORMANCE IN THE MACHINERY AND EQUIPMENT SECTOR

A servitização e o desempenho organizacional no setor de máquinas e equipamentos

La servitización y el desempeño organizacional en el sector de maquinaria y equipos

ABSTRACT

The role of manufacturing in value chains has become less dominant given the trend of stagnating demand, commoditization of products, and declining profitability. Confronted with this challenging scenario, a growing number of companies seek to add value to their businesses by adopting the approach of “servitization” (offering product-service solutions). However, literature on this subject is divided on the effectiveness of this approach since the intended outcome is not always achieved (service paradox). As such, this study quantitatively evaluates this relationship in manufacturing firms within the machinery and equipment industry. Data on different service categories developed by these firms and their corresponding impacts were collected. It was verified that there is a positive and significant relationship between the majority of these service categories and organizational performance, which indicates that identifying and developing a consistent service bundle may serve as an effective servitization strategy.

KEYWORDS | Servitization, Organizational performance, Service paradox, Machinery and Equipment, Product-service system.

RESUMO

O papel da indústria manufatureira nas cadeias de valor tem se tornado menos expressivo diante da tendência de estagnação da demanda, comoditização dos produtos e diminuição da lucratividade. Diante desse cenário desafiador, um número crescente de empresas busca adicionar valor a seus negócios pela vertente da “servitização” (oferta de soluções produto-serviço). Contudo, a literatura dessa temática encontra-se dividida quanto à efetividade dessa abordagem, dado que, nem sempre, traz o impacto esperado no desempenho organizacional (paradoxo do serviço). Diante disso, o trabalho avaliou quantitativamente essa relação em empresas industriais do setor de Máquinas e Equipamentos. Dados sobre as diferentes categorias de serviços por elas desenvolvidas e seus impactos foram coletados. Verificou-se que há uma relação positiva e relevante entre a oferta da maioria dessas categorias e o desempenho organizacional, o que indica que, identificando e desenvolvendo uma composição de serviços consistente, é possível conduzir uma efetiva estratégia de servitização.

PALAVRAS-CHAVE | Servitização, paradoxo do serviço, desempenho organizacional, máquinas e equipamentos, sistema produto-serviço.

RESUMEN

El papel de la industria de manufactura en la cadena de producción se ha vuelto menos significativo debido a la tendencia de estancamiento de la demanda, a la comoditización de productos de consumo masivo y a la disminución de la rentabilidad. Ante este panorama desafiante, un número creciente de empresas ha añadido valor a sus negocios a través de la vertiente de la “servitización” (oferta de soluciones producto-servicio). Sin embargo, la literatura sobre este tema se encuentra dividida en cuanto a la efectividad de este abordaje puesto que, no siempre, genera el impacto esperado en el desempeño organizacional (paradoja del servicio). Debido a lo explicado anteriormente, este trabajo ha evaluado cuantitativamente esta relación en empresas industriales del sector de Maquinaria y Equipos. Se recolectaron datos sobre las categorías de servicios desarrollados por ellas y sus impactos. Se ha verificado que existe una relación positiva y relevante entre la oferta de la mayoría de las categorías y el desempeño organizacional, lo que indica que, identificando y desarrollando una composición de servicios consistente, es posible conducir una estrategia efectiva de servitización.

PALABRAS CLAVE | Servitización, desempeño de la organización, paradoja del servicio, maquinaria y equipos, sistema producto-servicio.

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INTRODUCTION

To remain competitive, traditional industries in industrialized countries have adopted various strategies; for example, an efficient product development system to meet market demands, supplying high-quality products that satisfy customers, and reducing production costs that enable them to compete on price (Bikfalvi, Lay, Maloca, & Waser, 2013). Recent changes in the business environment, such as the increasing competitiveness of developing countries, globalization of markets, and new customer requirements, have made it more challenging to maintain these traditional strategies (Bikfalvi et al., 2013). In response to these new challenges, a growing number of industrial companies have sought to add value to their businesses by providing services (Bikfalvi et al., 2013; Vandermerwe & Rada, 1988) to achieve potential economic and competitive gains (Oliva & Kallenberg, 2003). This transition from a manufacturer of goods to a supplier of product-service solutions is called servitization (Vandermerwe & Rada, 1988).

Several studies point to the potential positive impacts for supporters of this change, which have stimulated the supply of integrated goods and services promoted by servitization. Oliva and Kallenberg (2003) highlight that the main impacts are economical, since services generally allow higher margins than goods and provide a more stable source of revenue, as they are more resistant to oscillations in economic cycles that drive investment and the purchase of equipment. Furthermore, as services are less visible and more dependent on human labor, they are more difficult to imitate, and therefore, constitute a sustainable source of competitive advantage.

Conversely, some studies indicate that this transition may not be as advantageous. For example, Bascavusoglu-Moreau and Tether (2011) have found evidence that servitized industrial companies may not achieve superior performance than traditional ones in terms of survival rates, although they do achieve higher productivity. These authors observe positive impacts only in industries that have attained a higher degree of servitization. Other studies by Gebauer, Fleisch, and Friedli (2005) revealed that considerable investment in services could temporarily reduce profit margins. These authors call this phenomenon a “service paradox” in that the investments in services often do not produce better financial results. Thus, the literature contains reports of both successful and failed transitions of industrial companies into servitization and those that have chosen to de-servitize by reducing or abandoning service businesses (Valtakoski, 2017).

Recent literature reviews on servitization theory, such as the one by Baines, Bigdeli, Bustinza, Shi, Baldwin, and Ridgway

(2017), verified that authors still find it difficult to understand how industrial companies can transform efficiently and effectively to take advantage of servitization opportunities. In this context, topics such as the impact of different servitization strategies on the performance of industrial companies and evaluating the profitability of supplying additional services are still under development and deserve more attention.

In another study, Zhang and Banerji (2017) evaluated ProQuest, Scopus, and Science Direct, as the main databases for servitization research, and identified more than 1000 articles on this topic. They selected a sample of 48 highly relevant articles in B2B contexts (business to business), such as in the present study. The authors emphasize the need to develop more quantitative studies so that the research agenda may progress in this field. Furthermore, they highlight the challenge of developing business models and operating processes that ensure the implementation of an effective service strategy. This implies seeking a better understanding of the connections between achieving the potential benefits of servitization and improving organizational performance through mechanisms like the allocation and efficient use of resources (productivity) and an appropriate system for both financial and operational indicators.

In this context, studies can examine the value or gains that servitization can provide. This work aims to explore this gap and poses the following research question: What is the relationship between servitization and the organizational performance of industrial companies? Therefore, the general objective of this work is to evaluate the impact of servitization on the organizational performance of industrial companies.

THEORETICAL DEVELOPMENT

Servitization can be defined as the transition process wherein companies embrace service orientation and/or develop more and better services to satisfy customer needs, achieve competitive advantage, and enhance firm performance (Ren & Gregory, 2007). As a complement, servitization can be seen as developing the innovative capabilities of an organization whose strategy is limited to supply of products, to begin offering product-service systems, thus, leading to better customer satisfaction and a lower risk of the commoditization trap (Kastalli & Looy, 2013).

There are various reasons why an industrial company begins providing services. For example, studies highlight the benefits of this strategy in facilitating product sales (Brax, 2005), increasing customer loyalty (Brax, 2005; Karlsson, 2007; Prester,

2011), creating growth opportunities in mature markets (Brax, 2005), and developing more stable revenue streams by combining business cycles with different cash flows (Brax, 2005; Wise & Baumgartner, 1999).

Since it was first mentioned by Vandermerwe and Rada (1988), research on servitization has been continuous and consolidated (Baines et al., 2017). Several nomenclatures have been used to refer to integrated products and services, such as product-service system (PSS), integrated solution and functional products (Park, Geum, & Lee, 2012). In this study, the term “integrated product-service (IPS)” (Park et al., 2012) refers to any offer in which products and services are integrated, regardless of their type, objective(s), and characteristic(s).

Park et al. (2012) have found several examples of services that can be integrated into products, such as installation, training, operation, repair, maintenance, documentation, and consulting. Ultimately, an industrial company can sell the use of equipment, but not the product itself (Schmenner, 2009). Rolls-Royce, for instance, seems to be advancing towards this (Bascavusoglu-Moreau & Tether, 2011). It still sells aircraft engines, but earns an increasing share of its revenues from providing “total care” maintenance services based on the concept of offering enhanced predictability and reliability for a fixed cost charging. Some manufacturers of products like water purifiers that require regular services – e.g., Woongin Coway from Korea – have already moved further and offer them by lease or rent assuming their maintenance, repair, and control (Park et al., 2012).

Given the diversity of services that can be integrated into products, the literature is not emphatic on the existence of different servitization levels among industries or about measuring the integration of services and products. However, some authors seem to find a consensus on the mechanism of this integration, and present ways to measure it. Among the classification models evaluated, the models of Parida, Sjödin, Wincent, and Kohtamäki (2014) and Oliva and Kallenberg (2003) seem to be the most congruent. This evaluation is based on the following aspects: i) the two models are characterized by four stages, having been given similar names, ii) they express the same understanding regarding business stages, both at the initial (product-oriented, due to a greater emphasis on products rather than services) and final stages (user-related and result-oriented, due to a greater focus on services, and greater responsibility assumed by the supplier), iii) they contemplate similar services to exemplify each stage.

As for the effect of servitization focused in this work, the organizational performance, the literature addressing the

effectiveness in ascertaining the potential benefits from the implementation of servitization strategy has considered a wide array of factors for evaluation. The perspectives vary from those based on the use of more conventional management indicators (e.g., Baines and Lightfoot (2013); Bascavusoglu-Moreau and Tether (2011); Goffin (1999); Kastalli and Looy (2013); Neely (2008)) to those that suggest more complex constructs, such as “service success in manufacturing companies” (Raddats, Burton, & Ashman, 2015) or even “survival,” which is the ultimate measure of organizational performance (Benedettini, Swink, & Neely, 2017).

Hypotheses and conceptual model

The effectiveness of servitization is still a matter of debate. Thus, to elucidate some characteristics identified by qualitative studies and examine them within the context of Brazil, the following central research hypothesis was defined:

H1: There is a positive and significant relationship between servitization and organizational performance in the machinery and equipment industries.

This hypothesis examines the relationship between two constructs: servitization and organizational performance, which are referred to in the literature based on different multidimensional models. For a more specific understanding of the nature of servitization and its multiple components, the following secondary hypothesis was derived from H_1 :

H2: The degree of servitization is formed by the offer of basic services, maintenance services, research and development services, and functional services in the Brazilian machinery and equipment industry.

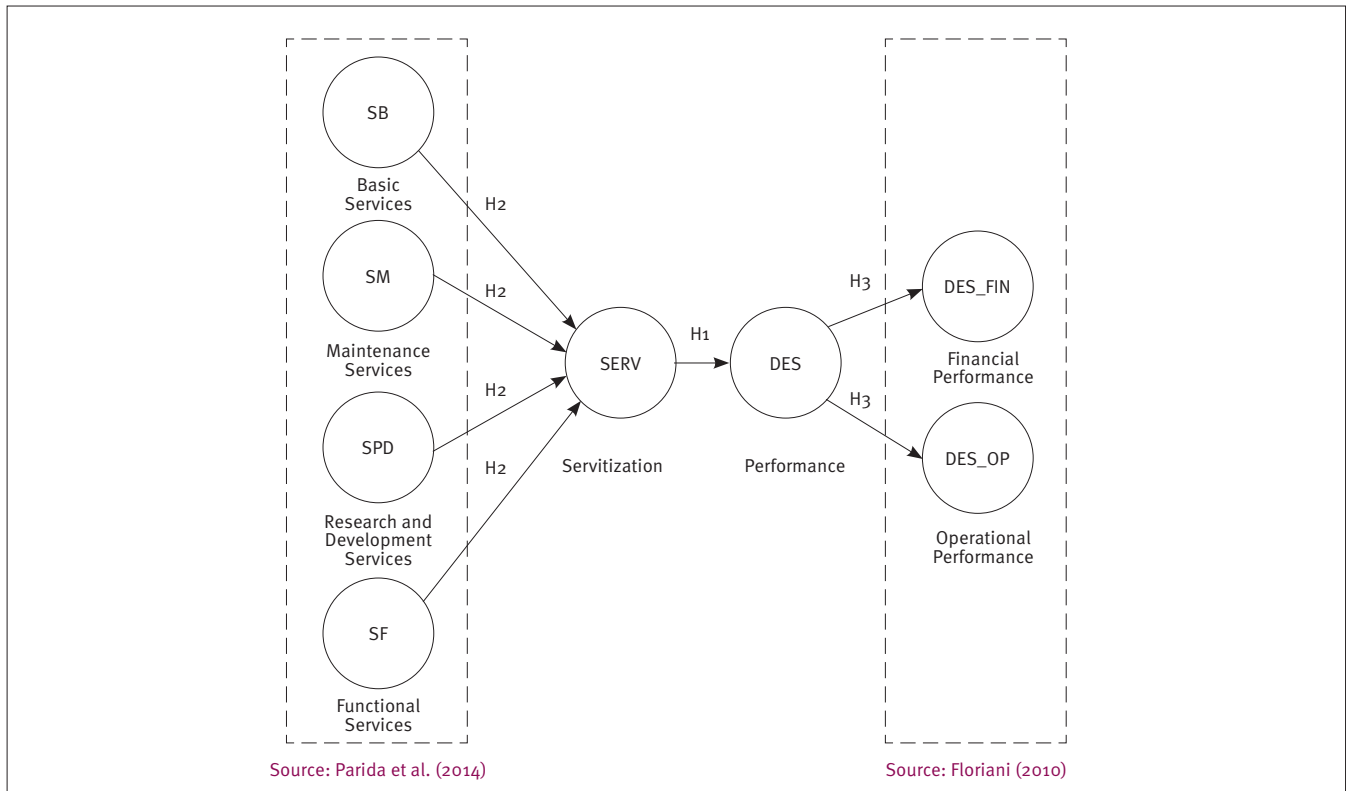
Similarly, to further analyze the effects of servitization on different dimensions of organizational performance, a second secondary hypothesis was derived as follows:

H3: Performance is reflected in financial performance and operational performance.

The examination of the relationships among the two focused constructs and between them and the components considered in hypotheses H_1 , H_2 , and H_3 , led to the construction of the structural model in Figure 1.

An analysis of the whole set of constructs addressed in the theoretical development was conducted as follows, evidencing the associations among them.

Figure 1. Relational hypothetical model with the research hypotheses



METHODOLOGY

Validating the theoretical model in this study required information about an industry that is already predominantly servitized. Thus, to determine the relationship considered in this model, Brazilian companies operating in the machinery and equipment sector were chosen as the population of interest, as they represent a mature industry characterized by low market growth and little technological innovation. This has induced the segment to try to improve profitability by offering services (Oliva & Kallenberg, 2003).

The data collection procedure to assess the research hypotheses was the direct survey of a target audience (i.e., machinery and equipment industries). Notably, in the sample of papers selected by Zhang and Banerji (2017) in their systematic literature review, only three were classified as surveys. Thus, there remains a lack of theoretical and empirical studies based on primary data collected directly from machinery and equipment manufacturers.

To examine the validity of the theoretical model in this research, multivariate analysis methods based on the structural equation modeling technique (SEM) were adopted. Specifically, to operationalize SEM, the partial least squares estimation (PLS-SEM) method was adopted, which is supported by SmartPLS

3.0 software. This approach was chosen rather than the covariance-based method (CB-SEM), as it is preferable in case of less-developed theories, especially when the main objective is to predict and explain target constructs (Hair, Hult, Ringle, & Sarstedt, 2014, p. 14), as in this study.

Operational definitions for the variables

The variables considered for measuring the inherent aspects of a servitized company are defined below.

Servitization construct

The service categorization model proposed by Parida et al. (2014) was used to analyze servitization. This model considered 14 types of services within four service categories, allowing them to be treated individually or as composites to represent different servitization levels or intensities.

- a. Basic services: These include IPSs designed to educate customers about products. These specific types of offers are intended to add marketing value to the product.

- b. Maintenance services: These IPSs are generally offered to minimize the cost of durable goods, to ensure their proper functioning, and even to take responsibility for those at the end of life through product improvement. Its focus remains on the product, but its attractiveness is generally strengthened through the aggregation of maintenance services.
- c. Research and development services: As industries interact with distinct customers, they need to develop internal know-how of their customers' products and processes. Over time, this understanding can be explored to develop a set of advanced IPSs that would reduce the challenges faced by customers in research and development and improve their profitability.
- d. Functional services: These include result-oriented services, such as operating the customer process, or the product sold to them. The purpose of this business model is to sell certain results or capabilities instead of a physical product.

Parida et al. (2014) propose that the constructs listed above be measured using four, three, five, and two manifest variables, respectively, as described in Exhibit 1.

To meet the model's evaluation requirements, a general variable was used for servitization. This construct was operationalized through a single-item variable, as explained below in the Results section (Stage 1). Its operationalization was based on Oliva and Kallenberg (2003), who argue that as the companies incorporate more product-related services, they evolve along increasing servitization levels. Thus, the servitization construct is measured as shown in Exhibit 1.

Exhibit 1. Servitization construct indicators

First-order Construct	Abbreviation	Definition
Basic Services (SB)^a	CB	Cost-benefit calculation services (ex.: helping the customer choose the product with the best cost-benefit ratio for their case)
	CONS	Consulting services for the customer and support by telephone
	INFO	Written information material (ex.: manuals)
	TREI	Technical training services for users
Maintenance Services (SM)^a	MANUT	Maintenance services (ex.: corrective, preventive)
	UPG	Product upgrading services (ex.: updates, upgrades)
	SUP	Technical support services for similar products by other manufacturers
Research and Development Services (SPD)^a	MANUF	Services for analyzing product manufacturability (ex.: calculation and optimization of the design for products that are easier to manufacture)
	AP	Services for analyzing problems (ex.: a system that monitors operation data of the product sold to the customer and alerts when potential problems might occur)
	VIAB	Feasibility study services (ex.: feasibility analysis for personalized products requested by the customer)
	DESEN	Prototype design and development services
	PESQ	Research services (ex.: study and development of new Technologies, products)
Functional Services (SF)^a	OPC	Service for operating customers' process (ex.: The manufacturer uses the product that it produces to operate the customer's process, but does not sell it. The product is only part of the solution.)
	OPV	Service for operating the product sold to the customer (ex.: The manufacturer sells the product that it produces to the customer but operates the customer's process using this purchased product.)
Servitization^b	GERAL	Company's level of service orientation considering that the main objective of a "completely service-oriented" firm is to offer services to its customers, with the product being just a part of the solution.

^a Parida et al. (2014)

^b Oliva & Kallenberg (2003)

Performance construct

To evaluate firm performance within the context of servitization, we sought to examine the nature of conventional managerial indicators, which have been addressed in the literature, as they can be easily understood, and managers are generally more familiar with such data. A greater emphasis was on considering financial indicators, especially for measuring business results and the performance of factors that enable servitization (internal efficiency), and the effectiveness of operations that support servitization (external effectiveness).

Requesting performance data from companies through surveys can greatly reduce the response rate, as managers typically treat this information as confidential. Thus, we searched for measurement models in the literature that evaluate performance indirectly (i.e., managers' perception). However, we did not find any study that presented a validated measurement model to evaluate the performance of servitized industries with structural equation modeling. Thus, we directed the search toward studies that had already validated a form to measure this construct in other contexts indirectly.

Floriani (2010) evaluated the performance of Brazilian companies after internationalization from the perspective of managers and pointed to good results in her measurement model. In this study, the author represented the performance construct by two exogenous constructs: financial performance, and operational performance, as follows:

- i. Financial performance: A construct defined by the following indicators – Return on Assets (ROA), which reflects the company's overall performance, its potential for generating profits, that is, its net profit with respect to total investment (Net Profit/Total Assets); General Profit, which indicates the net profits divided by sales; and Net Profitability, which indicates the percentage of return on the capital invested in the company (Net Profit/Total Investment).
- ii. Operational Performance: A construct defined by the following indicators – General Sales Volume of the company, which is the overall sales; Market Share, which indicates the percentage share of the market (total number of units sold by the company in relation to the total units sold in the segment in which it operates); and Operational Productivity, which evaluates efficiency and effectiveness, the former applying to the performance measure of the conversion process from input to output and the latter

to measuring the degree to which the output meets the requirements.

This approach follows the recommendation to not base the performance measurement of organizations purely on financial indicators, when the purpose is to evaluate the development of long-term strategies (Kaplan & Norton, 1996). It also reflects—although partly and very briefly—evaluating organizational performance through a more integrated set of indicators, considering different perspectives, such as financial, non-financial, internal, and external (Neely et al., 2000).

Thus, the two constructs detailed above are measured by three manifest variables, as illustrated in Exhibit 2, which characterizes their perspectives and connects them to several studies on servitization, which consider them (the variable itself or the associated logic) in the discussion or analysis of the potential benefits of this business strategy.

Although considered in a different context, these variables align with perspectives of studies within the context of servitization of industrial companies, as well as with the aspects that may influence the effects of servitization mentioned in the literature. Therefore, we adopted this measurement model in this study.

Data collection procedures

As a unit of analysis, Brazilian machinery and equipment builders were considered, and the questionnaire was designed to collect data on a company's experience in promoting servitization.

The respondent profiles sought were executives from Service, Operations, or Commercial areas, as the information sought, especially on performance, is usually restricted to the management of these areas. Thus, the survey asked this target audience to evaluate the degree to which the company in question could meet customer needs in providing services within each of the four categories. The following response options were made available: (1) Not at all, (2) Meets very little, (3) Meets a little, (4) Meets partially, (5) Meets moderately, and (6) Fully meets. For the general servitization variable (SERV), they were asked to evaluate the service-orientation of the company in question. The answers were gathered using a 5-point scale ranging from (1) "Not oriented" to (5) "Fully Oriented." For the performance variables (DLG, DRA, DRENT, DPM, DPO, DVEND), the survey asked whether they had increased after initiating the service offer. A 5-point Likert scale was used, ranging from (1) "Strongly Disagree" to (5) "Strongly Agree," in addition to a "Not Applicable" alternative for companies that did not offer any of the mentioned services.

Exhibit 2. Financial construct indicators based on Floriani's study (2010)

First-order construct	Abbreviation	Indicator	Nature of indicator	Referential frameworks that associate the Indicator with servitization
Financial performance (DES_FIN)	DLG	General profitability	Financial result measure	Wise & Baumgartner (1999); Allmendinger & Lombreglia (2005); Karlsson (2007); Neely (2008); Prester (2011); Kastkalli & Looy (2013).
	DRA	Return on assets (net profit/total assets)	Financial result measure	Wise & Baumgartner (1999); Lindström (2014).
	DRENT	Net profitability (net profit/total investment)	Financial result measure	Wise & Baumgartner (1999); Goffin (1999); Allmendinger & Lombreglia (2005).
Operational performance (DES_OP)	DPM	Market share	External operational effectiveness measure	Goffin (1999); Vandermerwe & Rada (1988)
	DPO	Operational productivity	Internal measure of operational efficiency and effectiveness	Neely (2008); Bascavusoglu-Moreau & Tether (2011); Baines & Lightfoot (2012)
	DVEND	Sales volume	External operational effectiveness measure	Goffin (1999); Brax (2005); Prester (2011); Kastalli & Looy (2013).

To characterize the sample considered, in addition to the questions about elements of the theoretical model, others were added to the questionnaire to obtain data about the respondent and the company, such as location (state), sector of operation, main type of manufactured machinery/equipment, and size.

All the manufacturers identified in the portal of the Brazilian Machinery Builders' Association (Abimaq) were catalogued to obtain access to the target audience. The sample size was scaled considering the most conservative recommendation to take the maximum number of independent variables for reference in the measurement models and/or structural model. As this number is four (four predictors for the servitization construct), it was necessary to obtain a sample with at least 65 observations to ensure a statistical power of 80% and to have coefficient of determination R^2 values of at least 0.25, with a 5% error probability (Hair et al., 2014, p. 21).

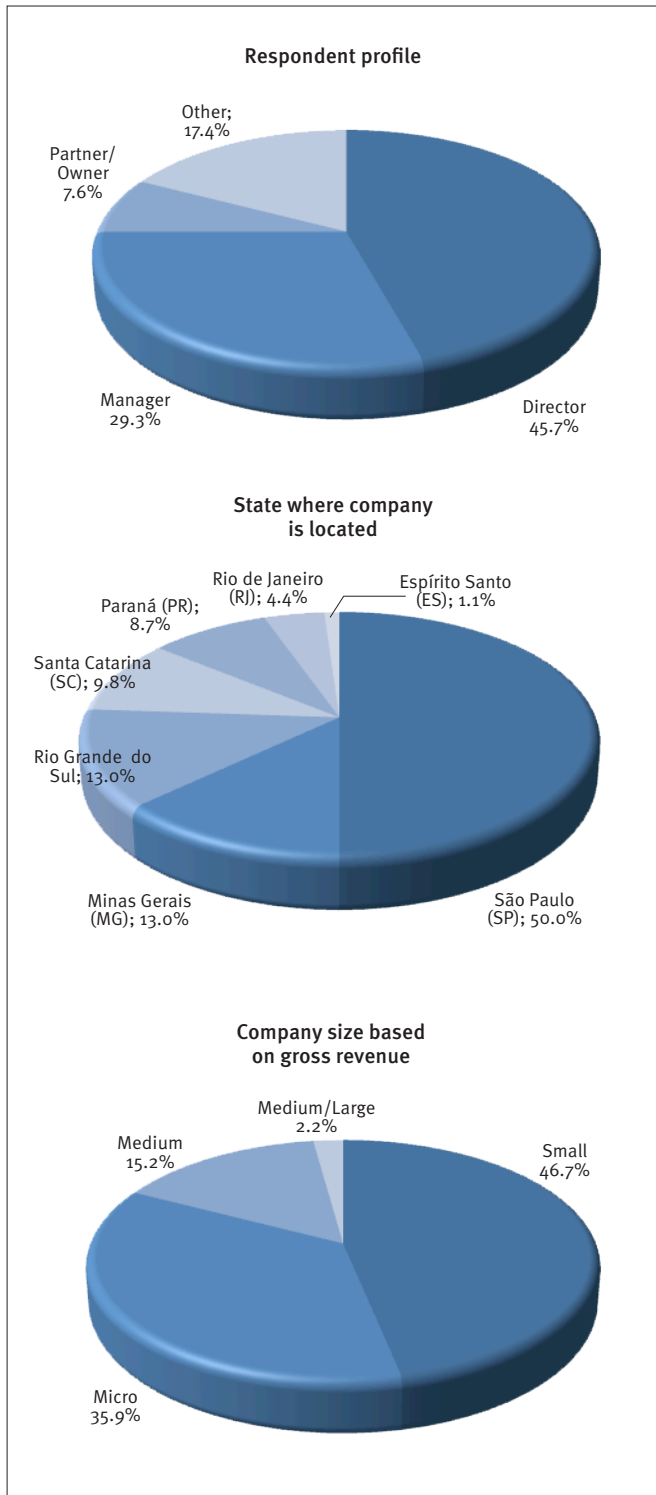
To check the semantic appropriateness of the indicators proposed for the constructs measured in the theoretical model

delineated in Figure 1, it was submitted to a pre-test composed of six rounds of evaluation by guest researchers, business consultants, and managers of companies with the desired profile for this study. After the rounds of evaluations, an invitation letter was sent by e-mail to the catalogued companies.

RESULTS

Initially, Graph 1 presents a characterization of the companies that make up the sample in terms of geographic distribution, size, and the profile of the respondents. The size was considered based on classification criteria from the Brazilian Development Bank (BNDES) at the time of data collection. It was based on the annual gross operating revenue: micro (less than or equal to BRL 2.4 million); small (between BRL 2.4 million and BRL 16 million); medium (between BRL 16 million and BRL 90 million); medium/large (between BRL 90 million and BRL 300 million), and large (over BRL 300 million).

Graph 1. Respondent profile, state, and company size



The sector of operation and the main type of machinery/equipment built by the companies from this sample are shown in Graph 2.

To test the hypotheses, the collected data was analyzed by applying the PLS-SEM, as recommended by Hair et al. (2014). These authors propose that modeling by this method be conducted through the following stages: i) specification of the structural model, ii) specification of the measurement models, iii) data collection and analysis, iv) evaluation of the path model by the PLS-SEM method, v) evaluation of the measurement models, vi) evaluation of the structural model by the PLS-SEM method, and vii) interpretation of the results. The following sub-stages provide further explanations.

Stage 1: Specification of the structural model

The exogenous first-order constructs in the model are basic services (SB), maintenance services (SM), research and development services (SPD), and functional services (SF), which form the second-order construct for servitization. This model's endogenous constructs are servitization (SERV), which is formed by the four exogenous constructs mentioned above; performance (DES), which is a second-order construct; and two first-order constructs that reflect performance: financial performance (DES_FIN) and operational performance (DES_OP). The structural model has two higher order components (HOCs), one to represent the four service categories and another to represent the two performance categories.

For the relationship between constructs SB, SM, SPD, and SF, which are lower order components (LOCs), and the SERV (HOC) construct, formative modeling was adopted, acknowledging the first ones as "causes" of the second concept. Moreover, as advised by Hair et al. (2014), this HOC was chosen to make the PLS path modeling more parsimonious, that is, with a smaller number of relationships.

The portion of the model related to measuring servitization in this study follows the type of hierarchical component model referred to as "reflexive-formative," which indicates formative relationships between the LOCs and the HOC, while each construct is measured by reflexive indicators, as detailed in the following subsection.

Stage 2: Specification of the measurement model

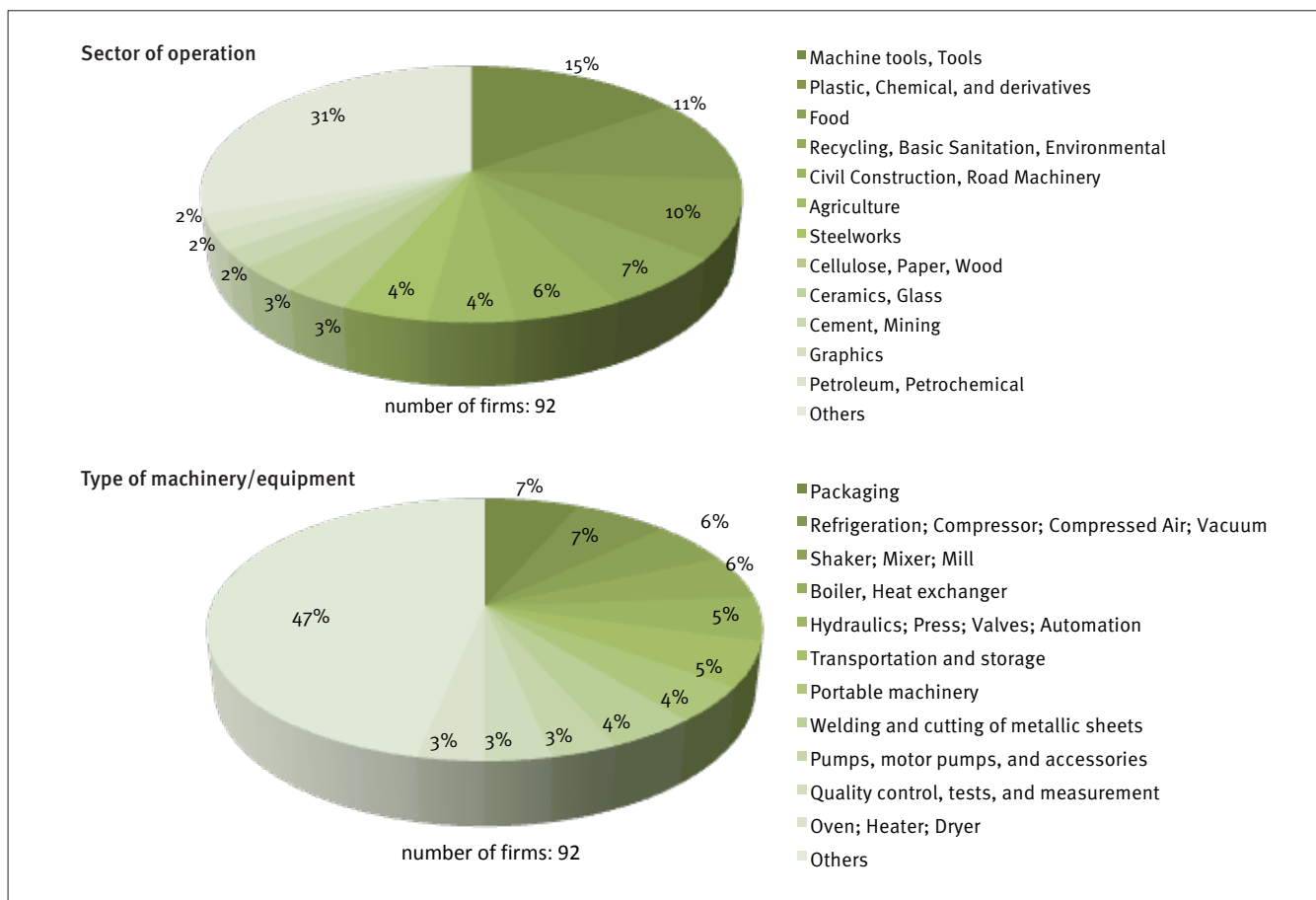
Each first-order construct was defined by a specific measurement model and was reflexive. To define which of the model's constructs would have a formative or reflexive nature, a careful analysis was made on the content of the questions (indicators) with regard to

the domain of the constructs, as suggested by Hair et al. (2014). The exogenous latent variables, “basic services,” “maintenance services,” “research and development services,” and “functional services” were defined to have a formative nature, as servitization is represented by a construct that combines the concepts of the cited variables, which cannot be mutually interchangeable. The financial performance and operational performance constructs were defined to have a reflexive nature, in that they treat variables that represent consequences (manifestations) of the respective construct.

The second-order constructs followed the measurement nature of the first-order constructs and are also reflexive. For the performance construct, the repeated indicators approach was used, according to which all the LOC indicators were attributed

to the HOC measurement model. To apply such an approach, Hair et al. (2014) emphasize that the number of indicators must be similar throughout all the LOCs, which was observed in this case for DES_FIN and DES_OP. However, for the servitization construct, the number of indicators for each LOC was not the same, varying from two to five. In this case, the same authors underscore that the relationships between the HOC and LOCs may be significantly influenced by the inequality in the number of indicators. Therefore, to obtain a formative measurement model for the servitization construct, it was considered an endogenous single-item construct. For this purpose, an overall variable named GERAL was defined, which sums up the essence of the servitization construct, and whose nature was defined to be reflexive, as established for single-item construct (Hair et al., 2014).

Graph 2. Sector of operation and the main type of machinery/equipment of the companies



Stage 3: Data collection and analysis

Data collection began at the start of 2015. The invitation letter was sent through the *MailChimp* tool, which enables tracking the opening of and clicks on the links in the e-mail. In total, 5,489 companies received the e-mail. As there were 123 respondents, this represents a response rate of 2.24%. As data collection applied an electronic mechanism for data entry (docs.google.com), all

questions required answers, which prevented the occurrence of omitted data. Information from 29 respondent companies was discarded because they either explicitly declared not being service-oriented or that the services offered are not associated with their products, or answered “does not apply” to questions about one or more of the six evaluated performance variables, thus, making it impossible to include them in the structural model. Consequently, 94 cases remained. Among these, a case suspected of straight lining the answers—checking off the same answer for a large proportion of questions (Hair, Black, Babin, Anderson, & Tathan, 2009)—was detected and discarded. Finally, the analysis for outliers employing univariate and multivariate approaches, as suggested by Kline (2011), resulted in identifying only one case with an absolute z value over 4 (-4.144). In the end, upon the removal of these observations, we obtained a sample of 92 cases for analysis.

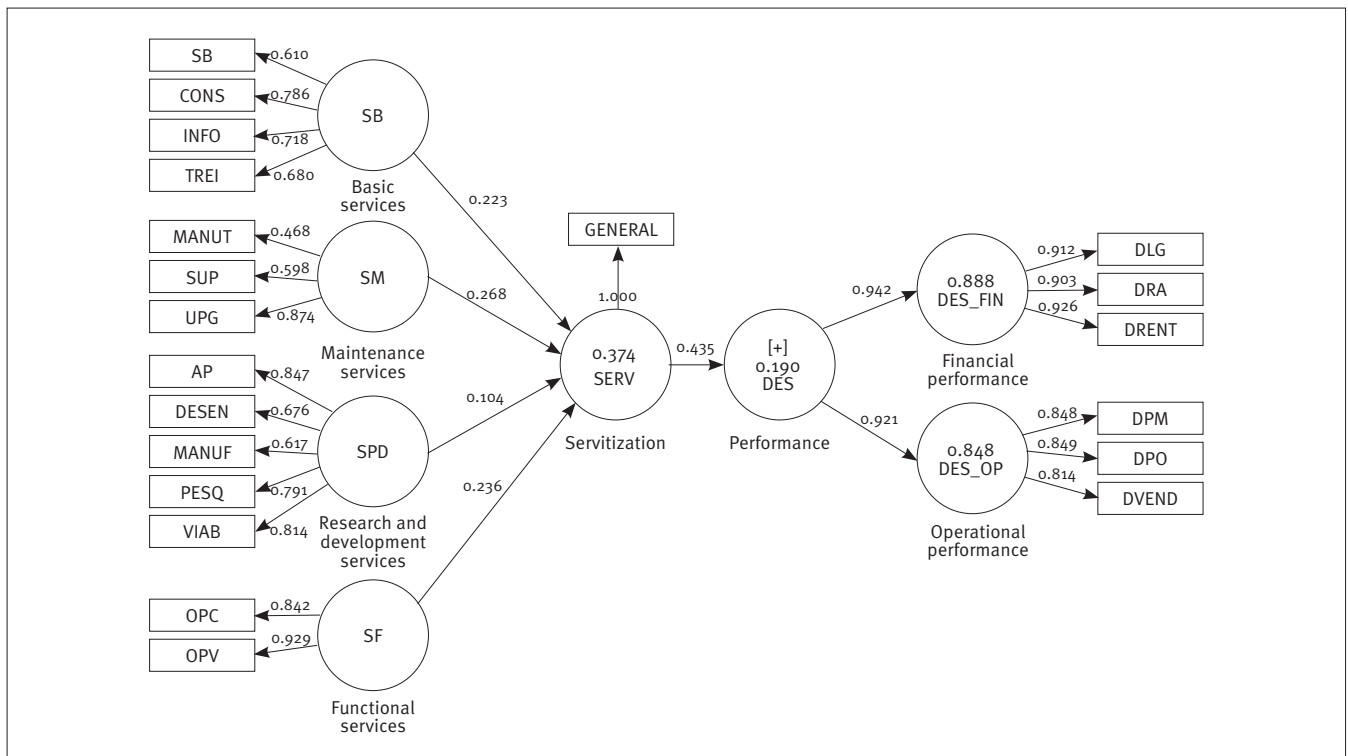
Data distribution was also verified. For this purpose, we tested normality by using the Kolmogorov-Smirnov test, as the sample size was greater than 50 (Mooi & Sarstedt, 2011). All the variables presented significance equal to 0.00, and thus, the normality assumption was rejected using the Kolmogorov-Smirnov test. As the distribution of none of the study’s variables is normal, it reinforces the decision to adopt the PLS-SEM, because it is a

statistical model that does not require the normal distribution of data (Hair et al., 2014).

Stage 4: Evaluation of the path model by PLS-SEM method

The results from the structural model (Figure 2) show that the exogenous first-order constructs have a servitization effect, varying between 0.104 and 0.268. Maintenance services have the most impact and research and development services the least. Together, the first-order constructs, basic services, maintenance services, research and development services, and functional services, explain 37.4% of the variance of the second-order servitization construct. This, in turn, has an effect of 0.435 on the endogenous performance construct and explains 19% of its variance, which could not be greater due to other factors that also influence organizational performance, which were not contemplated in this study. The second-order performance construct had a direct effect of 0.942 on financial performance and 0.921 on operational performance, and explained 88.8% of the former’s variance and 84.8% of the latter’s variance.

Figure 2. Structural model with results from PLS-SEM



Stage 5: Evaluation of the measurement models

Initially, the model's composite reliability was assessed. The parameters for evaluating composite reliability indicated by Hair et al. (2014) are usually interpreted similarly to those of Cronbach's Alpha, with the appropriate limit between 0.70 and 0.90, although values between 0.60 and 0.70 are acceptable in exploratory research. Table 1 reveals the results of these indices for the constructs considered in this study.

Table 1. Evaluation of the measurement models

Construct	Cronbach's Alpha	Composite reliability
SERV	1.000	1.000
SB	0.658	0.793
SM	0.433	0.694
SPD	0.812	0.867
SF	0.736	0.880
DES	0.899	0.923
DES_FIN	0.901	0.938
DES_OP	0.786	0.875

All the values for composite reliability are above the threshold value to be considered satisfactory, except the index for the maintenance services construct, which nevertheless, was considered to be sufficiently close to 0.7 for acceptance. However, two values referring to the performance and financial performance constructs were found to be between 0.90 and 0.95 and were not desirable. Nevertheless, as this is not a deterrent criterion, which prevents analyses, and most of all, considering the validity of the content supported by Parida et al. (2014), we decided to proceed with the analyses without excluding these items' variables.

Subsequently, convergent validity was examined. To establish convergent validity, at the indicator level, the values of their loadings (also referred to as outer loadings or "the indicator's reliability" as a function of the reflexive measurement model) and communality (outer loadings squared) were considered. At the construct level, the average variance extracted (AVE) calculated for each construct based on the average of the commonalities of its variables is considered for being a metric equivalent to communality at the indicator level. All the indicators' outer loadings must be statistically significant. Therefore, as a "golden rule," the standardized value of the outer loadings must be equal to or greater than 0.708 (Hair et al., 2014). Communality at the indicator level represents the extent of variation in one item

explained by the construct. In this case, a latent variable must explain a substantial part of each indicator's variation, which is generally at least 50%. All the results for convergent validity are presented in Table 2.

Table 2. Convergent validity measure (Indicators)

Latent Variable	Indicator	Outer loading	Communality
SB	CB	0.61	0.372
	CONS	0.786	0.618
	INFO	0.718	0.515
	TREI	0.68	0.462
SM	MANUT	0.468	0.219
	UPG	0.874	0.763
	SUP	0.598	0.357
SPD	MANUF	0.618	0.381
	AP	0.847	0.718
	VIAB	0.814	0.663
	DESEN	0.676	0.457
	PESQ	0.791	0.626
SF	OPC	0.842	0.709
	OPV	0.929	0.862
DES_FIN	DLG	0.912	0.831
	DRA	0.903	0.815
	DRENT	0.926	0.858
DES_OP	DPM	0.848	0.719
	DPO	0.849	0.721
	DVEND	0.814	0.662

Observing the outer loadings for six indicators revealed values under 0.7 (CB, TREI, MANUT, SUP, MANUF, and DESEN). Hair et al. (2014) highlight that researchers frequently observe weaker outer loadings in social science studies, especially when using recently developed scales, such as in this study. Therefore, Hair et al. (2014) suggest that instead of automatically eliminating the indicators when the outer loading is below 0.70, researchers must carefully examine the effects of the item's removal on composite reliability and the construct's content validity. In general,

indicators with outer loadings between 0.40 and 0.70 must be considered for removal from the scale only when their exclusion leads to an increase in composite reliability over the suggested threshold value (between 0.60 and 0.90 for exploratory studies) or to an AVE greater than 0.50 (as presented in the following).

Another point to consider in excluding an indicator is evaluating the effects of its removal on content validity. Indicators with weaker outer loadings are sometimes withheld based on their contribution to content validity. However, indicators with very low outer loadings (lower than 0.40) must always be eliminated from the scale. Thus, before any alteration to the indicators, we analyzed the constructs' convergent validity.

A common measure for establishing convergent validity at the construct level is AVE. According to Hair et al. (2014), an AVE equal to or greater than 0.50 indicates that, on average, the construct explains more than half of the variation of its indicators. Netemeyer, Bearden, and Sharma (2003) suggest that AVE estimates should be over 0.45. The AVE results for the constructs of this study are displayed in Table 3 (Netemeyer et al., 2003).

Table 3. Results of the Average Variance Extracted (AVE) for the constructs

Construct	Average Variance Extracted (AVE)
SERV	1.000
SB	0.492
SF	0.786
SM	0.446
SPD	0.569
DES	0.667
DES_FIN	0.835
DES_OP	0.701

An AVE value less than the limit recommended by Netemeyer et al. (2003) was found for only one construct (SM), while the remaining constructs were verified to have convergent validity (0.492 for SB was considered to be sufficiently close to 0.5).

Investigating further into the possibility of excluding indicators, we analyzed the influence of the exclusion of indicators with outer loading values between 0.4 and 0.7 (CB, TREI, MANUT, SUP, MANUF, and DESEN). Table 4 shows the values for AVE, composite reliability, and the adjusted R^2 value before and after the exclusion of indicators. This last coefficient (adjusted R^2) is considered because it is also a criterion used to decide the exclusion of indicators. It is used to compare results in the PLS-SEM involving models with different numbers of exogenous latent variables. In modeling studies, it is important to look for models that are good at explaining data, but that also have fewer exogenous constructs, that is, which are more "parsimonious." The adjusted R^2 value may be utilized as a criterion to prevent bias toward complex models. Thus, when it increases after exclusion, it suggests that the model has become more parsimonious.

Considering Hair et al.'s (2014) suggestion to remove variables, based on Table 4, only two indicators were assessed: MANUT and SUP, which make up the SM construct, as all other indicators make up constructs (SB and SPD) with AVE and composite reliability values already above the threshold value. Considering the AVE values from Table 4, the MANUT and SUP indicators would be candidates for removal, as this would result in values above the 0.5 limit for both. Nevertheless, in observing the composite reliability value that they compose for the SM construct, we notice that it is already within the limit suggested for exploratory studies (0.6 and 0.9), which meant keeping these indicators. Moreover, the exclusion of SUP would worsen the adjusted R^2 value, making the model less parsimonious. Because of these points and the application of the same set of indicators in a previous study (Parida et al., 2014) that corroborates the content validity, we resolved not to remove any indicators from the model.

Table 4. Evaluation of the removal of indicators

Construct	Indicator	AVE		Composite Reliability		Adjusted R^2	
		Before	After	Before	After	Before	After
SB	CB	0.492	0.567	0.793	0.797	0.345	0.352
SB	TREI	0.492	0.550	0.793	0.784	0.345	0.355
SM	MANUT	0.446	0.582	0.694	0.729	0.345	0.357
SM	SUP	0.446	0.591	0.694	0.722	0.345	0.325
SPD	MANUF	0.569	0.626	0.867	0.869	0.345	0.348
SPD	DESEN	0.569	0.611	0.867	0.861	0.345	0.347

Furthermore, the model's discriminant validity was verified by adopting the Fornell-Larcker criterion, as it was the most conservative (Hair et al., 2014). According to this criterion, discriminant validity is evidenced when the AVE of each latent variable is greater than the square of the largest correlation with another latent variable (Henseler, Ringle, & Sinkovics, 2009). As shown in Table 5, the data certifies the model's discriminant validity.

Table 5. Squared values of the correlations and AVE to apply the Fornell-Larcker Criterion

Construct	DES_FIN	DES_OP	SERV	SB	SM	SPD	SF
DES_FIN	0.914						
DES_OP	0.737	0.837					
SERV	0.350	0.471	1				
SB	0.221	0.377	0.454	0.701			
SM	0.204	0.318	0.507	0.473	0.763		
SPD	0.241	0.368	0.459	0.519	0.489	0.754	
SF	0.292	0.236	0.393	0.185	0.261	0.442	0.886

Note: AVE values in bold

Stage 6: Evaluation of the structural model by the PLS-SEM method

Initially, the occurrence of multicollinearity in the structural model was analyzed. Tolerance levels under 0.20, which correspond to the Variance Inflation Factor (VIF) above 5, in the predicting constructs point to collinearity (Hair et al., 2014). The results presented in Table 6, calculated with the IBM SPSS® version 20 software, do not reveal any multicollinearity issues.

Table 6. Results of the multicollinearity evaluation

Construct	Tolerance	Variance Inflation Factor (VIF)
SB	0.652	1.535
SM	0.664	1.505
SPD	0.559	1.788
SF	0.798	1.254

Subsequently, the structural model's relevance and significance were evaluated by obtaining the values for the path coefficients through the two-tailed Student's *t*-test. The results of the statistics for *t* and *p* evidenced that the path coefficients were considered to be valid at a significance level α of at least 5% for all the relationships examined in Table 7, except the relationship between SPD and SERV.

Table 7. Results of the bootstrapping procedure to calculate *t* statistics

Hypothesis	Relationship	Path coefficient	<i>t</i> Statistics	<i>P</i> -value	Evaluation
H1	SERV → DES	0.435	3.908	.000	Significant at 1%
H2	SB → SERV	0.223	2.239	.025	Significant at 5%
	SM → SERV	0.268	2.581	.010	Significant at 5%
	SPD → SERV	0.104	1.057	.290	Not Significant
	SF → SERV	0.236	2.595	.009	Significant at 1%
H3	DES → DES_FIN	0.942	89.608	.000	Significant at 1%
	DES → DES_OP	0.921	52.084	.000	Significant at 1%

Finally, the coefficient of determination R^2 for the endogenous constructs was examined. This varies between 0 and 1, with elevated levels indicating more predictive precision. According to Hair et al. (2014), in general, R^2 values in the order of 0.25, 0.50, and 0.75 for the target constructs are considered to be weak, average, and substantial, respectively. Chin (1998) describes R^2 values

of 0.19, 0.33, and 0.67 in PLS path models as weak, moderate, and substantial, respectively. The evaluation of R^2 based on these authors' criteria is summarized in Table 8.

Table 8. Evaluation of the coefficient of determination

Construct	Coefficient of Determination R^2	Evaluation by Hair et al.'s Criteria (2014)	Evaluation by Chin's Criteria (1998)
SERV	0.374	Weak	Moderate
DES	0.190	Weak	Weak
DES_FIN	0.888	Substantial	Substantial
DES_OP	0.848	Substantial	Substantial

Stage 7: Interpretation of the results

Table 10 contains the evaluations of the hypotheses. As can be observed from the values of the impact of SERV on DES, the study's main hypothesis (H_1) on the existence of a positive and significant relationship between servitization and performance was corroborated (significant at 1%).

Moreover, H_1 was analyzed by applying another method. Thus, we sought to understand whether financial and operational performances differ as a function of the degree of servitization. For this analysis, based on the general variable of servitization (SERV), the firms from the sample were divided into three groups of companies distinguished by the degree of servitization (Group A – Strongly or fully service-oriented companies, Group B – Reasonably service-oriented companies, and Group C – Poorly service-oriented companies). The proportion of firms in each group that agreed that servitization had significantly increased organizational performance was calculated for each of the six measurement variables for organizational performance. To assess whether that proportion varies among the three groups, the Chi-Squared test was conducted, whose results are in Table 9, evidencing that all the performance variables analyzed were influenced differently by the degree of servitization ($\chi^2_{calculated} > \chi^2_{critical}$) (Levine, Stephan, & Szabat, 2016). Thus, Cramer's V was computed to examine the degree of association between these two variables. The results around 0.30 point to a moderate relationship between organizational performance and degree of servitization (Cooper & Schindler, 2016).

The Marascuilo Procedure was used to identify groups with significant differences (Levine et al., 2016). The data demonstrate that the proportion of companies agreeing to a significant increase in operational and financial performance dimensions is greater in strongly or fully service-oriented firms (Group A) than

in poorly service-oriented firms (Group C). These findings confirm the main hypothesis (H_1) and corroborate the results obtained with structural equation modeling.

Hypotheses H_2 and H_3 were also corroborated, as the empirical criteria of the PLS-SEM method were met. For H_3 , the performance of the researched machinery/equipment builders is strongly reflected in the financial performance and operational performance indices (significant at 1%). Notably, H_2 was partially corroborated, as the exogenous research and development services construct was evaluated to be non-significant in the formation of servitization, while the first-order exogenous basic services, maintenance services, and functional services constructs had a relevant effect on the formation of servitization.

The research and development services construct may not be significant due to challenges faced by the firms. As it is a service category considered to be more complex than others (Oliva & Kallenberg, 2003), firms may be encountering difficulties in meeting their clients' expectations. Moreover, the volume of research and development demanded by the client companies may not be sufficient to justify further investments from Brazilian machinery/equipment builders. This may be the consequence of these firms' position within the context of a developing country (International Monetary Fund, 2014), which still lacks a more stimulating environment for innovation. We also underscore the fact that the sample was mostly composed of micro and small firms (Graph 1). The fact that these firms do not possess established research and development capabilities and belong to a sector with a slow pace of technological innovation (Oliva & Kallenberg, 2003) also does not favor the creation and supply of research and development services in a more intense way to their clients.

On the other hand, it is worth mentioning that the variables used to assess the research and development services construct (i.e., analysis of the products' manufacturability – MANUF, analysis of problems – AP, feasibility study – VIAB, prototype design and development – DESEN, and research – PESQ) are more heterogeneous services. For example, MANUF and VIAB do not seem to be closely related to DESEN and PESQ, although there was alignment in composite reliability. It is possible that these variables, being the outcome of a study developed within a different context (Parida et al., 2014), might have influenced the lack of relevance of the research and development services construct observed in this study. Moreover, machinery and equipment builders in Brazil may be offering other types of services characterizing the research and development services construct, which this study did not examine.

Besides the direct relationships among the constructs examined in the sub-section of Stage 6, the indirect effects of each exogenous construct on the endogenous constructs of the model were analyzed (Table 10). By this assessment, the impact of research and development services was also considered to be non-significant. All the other relationships were significant at a minimum level of 10%, which may be assumed appropriate for an exploratory study such as this one, as suggested by Hair et al. (2014). Therefore, based on the model validated in this study, it is possible to infer part of the organizational performance of a machinery/equipment builder by knowing the level with which it meets its clients' needs in the provision of the contemplated service categories, and thus, formulate more consistent servitization strategies that reduce the risk of the service paradox. For example, this suggests that investments to develop maintenance services, a service category with the highest path coefficient (0.11) along with financial performance, may provide a better financial return than other categories. In the industrial sector analyzed, investments to develop research and development services can be ineffective and may give rise to the service paradox.

Table 9. Analysis of the degree of servitization regarding operational and financial performance

Performance Indicator	Proportion of companies that agree that performance increases with servitization				χ^2	P-Value	Cramer's V	Result of the Marascuilo Procedure
	Strongly or fully service-oriented firms (Group A)	Reasonably service-oriented firms (Group B)	Poorly service-oriented firms (Group C)	Entire sample				
Financial Performance	Overall Profitability	36/42 85.7%	24/35 68.6%	7/15 46.7%	67/92 72.8%	9.03 < .05	.0109 0.31	Significant difference between Groups A and C
	Return on Assets	30/42 71.4%	17/35 48.6%	5/15 33.3%	52/92 56.5%	7.98 < .05	.0185 0.29	Significant difference between Groups A and C
	Net Profitability	36/42 85.7%	25/35 71.4%	7/15 46.7%	68/92 73.9%	8.92 < .05	.0116 0.31	Significant difference between Groups A and C
Operational Performance	Sales Volume	38/42 90.5%	23/35 65.7%	7/15 46.7%	68/92 73.9%	12.97 < .01	.0015 0.38	Significant difference between Groups A and B and Groups A and C
	Operational Productivity	36/42 85.7%	20/35 57.1%	6/15 40.0%	62/92 67.4%	13.21 < .01	.0014 0.38	Significant difference between Groups A and B and Groups A and C
	Market Share	37/42 88.1%	24/35 68.6%	8/15 53.3%	69/92 75.0%	8.37 < .05	.0152 0.30	Significant difference between Groups A and C

Table 10. Evaluation of the indirect effects among the model's constructs

Relationship between constructs	Path coefficient	t Statistics	P-Value	Evaluation
SERV → DES_FIN	0.410	3.892	.000	Significant at 1%
SERV → DES_OP	0.401	3.833	.000	Significant at 1%
SB → DES	0.097	1.810	.070	Significant at 10%
SB → DES_FIN	0.092	1.806	.071	Significant at 10%
SB → DES_OP	0.090	1.795	.073	Significant at 10%
SM → DES	0.116	2.186	.029	Significant at 5%
SM → DES_FIN	0.110	2.186	.029	Significant at 5%
SM → DES_OP	0.107	2.174	.030	Significant at 5%
SPD → DES	0.045	0.952	.341	Not Significant
SPD → DES_FIN	0.043	0.950	.342	Not Significant
SPD → DES_OP	0.042	0.946	.344	Not Significant
SF → DES	0.103	2.119	.034	Significant at 5%
SF → DES_FIN	0.097	2.110	.035	Significant at 5%
SF → DES_OP	0.095	2.100	.036	Significant at 5%

As for the impact of servitization on financial performance, in general, the results are congruent with previous studies that observed benefits such as greater profitability (Karlsson, 2007; Prester, 2011; Wise & Baumgartner, 1999), and more elevated margins and less demand for assets than the manufacture of products (Wise & Baumgartner, 1999), reinforcing that the service paradox may be prevented with well-planned servitization. Notably, in their transversal study on the effects of servitization in firms from different segments of the French industry, Crozet and Milet (2017) confirmed that the impact on profitability varies considerably throughout the segments considered and that the gains were greater in the manufacturing segments of mechanical machinery, and electric, optical, and transportation equipment. On the impact of servitization on operational performance, overall, the results revealed to be also congruent with previous studies that observed benefits such as increased productivity, new opportunities for growth, and greater competitiveness (Bascavusoglu-Moreau & Tether, 2011; Brax, 2005; Goffin, 1999; Johnston, 1994; Prester, 2011; Vandermerwe & Rada, 1988; Wise & Baumgartner, 1999).

As all firms in the sample have less than 500 employees, the results corroborate the finding by Neely (2008) that smaller servitized firms (with less than 3,000 employees) tend to generate

higher net profit with servitization. For a better understanding of the relation between company size and the financial and operational performance in the sample considered, an analysis with greater granularity was conducted. Based on their number of employees, the companies from the sample were divided into three groups of companies distinguished by size (Group A – up to 19 employees; Group B – from 20 to 99; and Group C – from 100 to 499). The proportion of firms in each group that agreed that organizational performance had significantly increased with servitization was computed for each of the six measurement variables for organizational performance. To substantiate whether this proportion varies throughout the three groups, the Chi-squared test was performed (Levine et al., 2016), whose results, as exhibited in Table 11, evidence that all the contemplated performance variables were not influenced differently by size ($\chi^2_{calculated} > \chi^2_{critical}$). Therefore, the benefits of servitization for performance do not seem to differ significantly among firms with fewer than 500 employees, both in financial and operational terms. These results are congruent with the finding of Neely (2008) and point out that servitization seems to have a positive impact on organizational performance in the universe of micro, small, and medium-sized companies.

Table 11. Analysis of firm size regarding financial and operational performance

Performance Indicator		Proportion of companies that agree that performance increases with servitization				χ^2	P-Value
		Up to 19 employees (Group A)	20 to 99 employees (Group B)	100 to 499 employees (Group C)	Entire sample		
Financial	Overall Profitability	27/38	33/45	7/9	67/92	0.18	.9150
		71.1%	73.3%	77.8%	72.8%		
	Return on Assets	22/38	24/45	6/9	52/92	0.59	.7437
		57.9%	53.3%	66.7%	56.5%		
	Net Profitability	27/38	34/45	7/9	68/92	0.29	.8633
		71.1%	75.6%	77.8%	73.9%		
Operational	Sales Volume	26/38	37/45	5/9	68/92	3.78	.1512
		68.4%	82.2%	55.6%	73.9%		
	Operational Productivity	24/38	32/45	6/9	62/92	0.60	.7425
		63.2%	71.1%	66.7%	67.4%		
	Market Share	24/38	37/45	8/9	69/92	5.02	.0813*
		63.2%	82.2%	88.9%	75.0%		

*Significant difference at 10%

Of the four categories considered to form the servitization construct, maintenance services, and functional services presented more significant indirect effects on performance, which is similar to the results obtained by Parida et al. (2014).

CONCLUSION

This study allowed for further reflection on the service paradox and identified a positive relationship between servitization and performance. This result contrasts with that of Bascavusoglu-Moreau and Tether (2011), who affirmed that servitized industries do not perform better than traditional industries, although they get increased productivity level of manufacturing. Additionally, this study contrasts with Gebauer et al. (2005) because it relies on questions about the perceived changes in financial and operational performance variables after the firm began to offer services, in order to compare its situation before (when still a traditional manufacturer) and after the transition to servitization. However, the non-significant statistical result of research and development services on financial and operational performance is congruent with the hypothesis of the existence of a service paradox, as indicated by Bascavusoglu-Moreau and Tether (2011). On the other hand, this study identified a positive relationship between the adoption of basic services and financial performance

(Table 10), which opposes the findings of Parida et al. (2014), as they verified that such basic services diminish a firm's revenue prospects.

The empirical results corroborate the strategy of machinery/equipment builders to invest in the provision of services. Specifically, the analyses summarized in Table 10 suggest that, in view of the investment alternatives in different service categories, such effort should focus on improving the indicators of the maintenance services and functional services constructs. The potential it has to cause a positive impact on performance in both the financial and operational dimensions is significant. Conversely, within the context of the Brazilian machinery and equipment industry, investments in the provision of research and development services do not seem to have clearly contributed to boosting organizational performance. This suggests that the service paradox phenomenon may cause frustration depending on how the servitization strategy is implemented. One of the research fronts suggested by Baines et al. (2017) is the study of factors that influence the successful adoption of services by manufacturing companies. The results discussed above contribute in this sense.

The results of this study hint at the development of future studies on servitization with the following aims:

- Evaluation of others measurement models to assess the servitization construct;

- Consideration of larger samples that allow comparing the experience of companies from different regions or countries with servitization, as well as ascertain results or patterns with a greater degree of generalization;
- To examine whether the investment volume for the creation and provision of services by industrial firms affects their performance.

This study has some limitations. It is important to note that the results refer to the servitization experience of firms from a particular industrial segment. Moreover, this study does not contemplate the technological stage in which both the manufacturing companies and customers in question find themselves, thereby, restricting a greater generalization of the findings. Regarding the theoretical constructs in assessing the effectiveness in accomplishing the economic benefits of servitization, it is worth mentioning authors such as Baines et al. (2017), Valtakoski (2017), and Zhang and Banerji (2017) who sought to develop a more holistic view of the phenomena that influence the relationships involved in this challenge. Based on an extensive literature review, they identified that it is fundamental to contemplate a marketing perspective encompassing elements such as the value proposition offered, the customers' value perception, and the interaction between the customer and the firm, which were not examined in this study. As Valtakoski (2017) underscores, in order for servitization to be successful, it is necessary to conceive it acknowledging the dyadic nature of the relationship between the solution provider and each customer's organization and to search means for value co-creation.

REFERENCES

- Allmendinger, G., & Lombreglia, R. (2005). *Four strategies for the age of smart services*. *Harvard Business Review*, 83, 131-145.
- Baines, T., Bigdeli, A. Z., Bustinza, O. F., Shi, V. G., Baldwin, J., & Ridgway, K. (2017). *Servitization: Revisiting the state-of-the-art and research priorities*. *International Journal of Operations and Production Management*, 37(2), 256-278. doi:10.1108/IJOPM-06-2015-0312
- Baines, T., & Lightfoot, H.W. (2013). *Servitization of the manufacturing firm: Exploring the operations practices and technologies that deliver advanced services*. *International Journal of Operations & Production Management*, 34(1), 2-35. doi:10.1108/IJOPM-02-2012-0086
- Bascavusoglu-Moreau, E., & Tether, B. (2011). *Servitization, survival and productivity: A longitudinal study of UK manufacturing firms. DRUID 2011 – Innovation, Strategy, and Structure – Organizations, Institutions, Systems and Regions*. Copenhagen, Denmark.
- Benedettini, O., Swink, M., & Neely, A. (2017). *Examining the influence of service additions on manufacturing firms' bankruptcy likelihood*. *Industrial Marketing Management*, 60, 112-125. doi:10.1016/j.indmarman.2016.04.011
- Bikfalvi, A., Lay, G., Maloca, S., & Waser, B. R. (2013). *Servitization and networking: Large-scale survey findings on product-related services*. *Service Business*, 7(1), 61-82. doi:10.1007/s11628-012-0145-y
- Brax, S. (2005). *A manufacturer becoming service provider: Challenges and a paradox*. *Managing Service Quality: An International Journal*, 15(2), 142-155. doi:10.1108/09604520510585334
- Chin, W. W. (1998). *The partial least squares approach to structural equation modeling*. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295-358). Mahwah, NJ: Lawrence Erlbaum Associates.
- Cooper, D. R., & Schindler, P. S. (2016). *Métodos de pesquisa em administração* (12th ed.). Porto Alegre, RS: Editora Bookman.
- Crozet, M., & Milet, E. (2017). *Should everybody be in services? The effect of servitization on manufacturing firm performance*. *Journal of Economics & Management Strategy*, 26(4), 820-841. doi:10.1111/jems.12211
- Floriani, D. E. (2010). *O grau de internacionalização, as competências e o desempenho da PME brasileira*. São Paulo, SP: Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo – USP.
- International Monetary Fund (2014). *IMF World Economic Outlook (WEO): Recovery strengthens, remains uneven*. Washington, DC 20090, U.S.A.
- Gebauer, H., Fleisch, E., & Friedli, T. (2005). *Overcoming the service paradox in manufacturing companies*. *European Management Journal*, 23(1), 14-26. doi:10.1016/j.emj.2004.12.006
- Goffin, K. (1999). *Customer support: A cross-industry study of distribution channels and strategies*. *International Journal of Physical Distribution & Logistics Management*, 29(6), 374-398. doi:10.1108/09600039910283604
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tathan, R. L. (2009). *Análise multivariada de dados* (6th ed.). Porto Alegre, RS: Editora Bookman.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, CA: Sage Publications, Inc.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). *The use of partial least squares path modeling in international marketing*. In Rudolf R. Sinkovics, & Pervez N. Ghauri (Eds.), *New Challenges to International Marketing* (Advances in International Marketing, vol. 20, pp. 277-319). Bingley, UK.
- Johnston, R. (1994). *Operations: From factory to service management*. *International Journal of Service Industry Management*, 5(1), 49-63. doi:10.1108/09564239410051902
- Kaplan, R. S., & Norton, D. P. (1996). *Using the balanced scorecard as a strategic management system*. *Harvard Business Review*, 74(1), 75-85.
- Karlsson, U. (2007). *Service Based manufacturing strategies implication for product development, production and service operations in global companies*. *POMS College of Service Operations and EurOMA Conference*. London, UK.

- Kastalli, I. V., & Looy, B. Van. (2013). **Servitization: Disentangling the impact of service business model innovation on manufacturing firm performance.** *Journal of Operations Management*, 31(4), 169-180. doi:10.1016/j.jom.2013.02.001
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: The Guilford Press.
- Levine, D. M., Stephan, D. F., & Szabat, K. A. (2016). *Estatística: Teoria e aplicações usando o Microsoft Excel em português* (7ª ed.). Rio de Janeiro, RJ: LTC – Livros Técnicos e Científicos.
- Lindström, J. (2014). **A model for value-based selling: Enabling corporations to transition from products and services towards further complex business models.** *Journal of Multi Business Model Innovation and Technology*, 1, 67-98.
- Mooi, E. A., & Sarstedt, M. (2011). *A concise guide to market research: The process, data, and methods using IBM SPSS Statistics*. Berlin, Germany: Springer Berlin Heidelberg.
- Neely, A. (2008). **Exploring the financial consequences of the servitization of manufacturing.** *Operations Management Research*, 1(2), 103-118. doi:10.1007/s12063-009-0015-5
- Neely, A., Mills, J., Platts, K., Richards, H., Gregory, M., Bourne, M., & Kennerley, M. (2000). **Performance measurement system design: Developing and testing a process based approach.** *International Journal of Operations & Production Management*, 20(10), 1119-1145. doi:10.1108/01443570010343708
- Netemeyer, R. G., Bearden, W., & Sharma, S. (2003). *Scaling procedures: Issues and applications*. London, UK: Sage Publications, Inc.
- Oliva, R., & Kallenberg, R. (2003). **Managing the transition from products to services.** *International Journal of Service Industry Management*, 14(2), 160-172. doi:10.1108/09564230310474138
- Parida, V., Sjödin, D. R., Wincent, J., & Kohtamäki, M. (2014). **A survey study of the transitioning towards high-value industrial product-services.** *Procedia CIRP*, 16, 176-180. doi:10.1016/j.procir.2014.01.019
- Park, Y., Geum, Y., & Lee, H. (2012). **Toward integration of products and services: Taxonomy and typology.** *Journal of Engineering and Technology Management*, 29(4), 528-545. doi:10.1016/j.jengtecman.2012.08.002
- Prester, J. (2011). Servitization as a strategy for survival: Evidence from a small European country. *18th International Annual EurOMA Conference*. Cambridge, UK.
- Raddats, C., Burton, J., & Ashman, R. (2015). **Resource configurations for services success in manufacturing companies.** *Journal of Service Management*, 26(1), 97-116. doi:10.1108/JOSM-12-2012-0278
- Ren, G., & Gregory, M. J. (2007). Servitization in manufacturing companies: A conceptualization, critical review, and research agenda. *Frontiers in Service Conference 2007*. San Francisco, USA.
- Schmenner, R. W. (2009). **Manufacturing, service, and their integration: Some history and theory.** *International Journal of Operations & Production Management*, 29(5), 431-443. doi:10.1108/01443570910953577
- Valtakoski, A. (2017). **Explaining servitization failure and deservitization: A knowledge-based perspective.** *Industrial Marketing Management*, 60, 138-150. doi:10.1016/j.indmarman.2016.04.009
- Vandermerwe, S., & Rada, J. (1988). **Servitization of business: Adding value by adding services.** *European Management Journal*, 6(4), 314-324. doi:10.1016/0263-2373(88)90033-3
- Wise, R., & Baumgartner, P. (1999). **Go downstream: The new profit imperative in manufacturing.** *Harvard Business Review*, 77(5), 133-141.
- Zhang, W., & Banerji, S. (2017). **Challenges of servitization: A systematic literature review.** *Industrial Marketing Management*, 65, 217-227. doi:10.1016/j.indmarman.2017.06.003

ARTICLES

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THE IMPACT OF E-BOOKS ON THE BRAZILIAN PUBLISHING SUPPLY CHAIN: AN EXPLORATORY ANALYSIS

Impacto dos e-books na cadeia editorial brasileira: Uma análise exploratória

El impacto de los e-books en la cadena editorial brasileña: Un análisis exploratorio

ABSTRACT

This work aims to analyze the main effects of the emergence of electronic books within the context of the Brazilian publishing supply chain. Interviews with executives from publishing groups in the country have made it possible to identify that e-books still play a minor role in the publishing supply chain, and are more likely to thrive in specific book genres. Electronic books have not made this chain leaner. Since e-books did not replace physical books and instead coexisted with them, publishers were obliged to develop a new set of activities within the existing publishing supply chain. Disintermediation is one of the most striking features of this new production process. In order to adapt to this new scenario, the publishing sector needs to implement adjustments that extend beyond its typical operations, which also implies the need for a redefinition of resources and development of requisite competencies.

KEYWORDS | e-books, publishers, publishing supply chain, disintermediation, digitization.

RESUMO

Este trabalho tem como objetivo analisar os principais efeitos do surgimento dos livros eletrônicos na configuração da cadeia editorial brasileira. Entrevistas com executivos de grupos editoriais instalados no País permitiram identificar que os e-books ainda desempenham um papel secundário na cadeia editorial, tendo maiores chances de prosperar em alguns segmentos específicos de livros. Os livros eletrônicos não tornaram essa cadeia mais enxuta. Uma vez que os e-books não substituíram os livros físicos, mas passaram a coexistir com estes, cabe às editoras desenvolver um novo conjunto de atividades dentro da cadeia editorial existente. A desintermediação é uma das características mais marcantes desse novo processo produtivo. Para se adequar a esse novo cenário, o setor editorial necessita de ajustes que vão além de suas operações, implicando também a redefinição dos recursos e competências que precisa desenvolver.

PALAVRAS-CHAVE | e-books, editoras, cadeia de suprimentos editorial, desintermediação, digitalização.

RESUMEN

Este trabajo tiene como objetivo analizar los principales efectos del surgimiento de los libros electrónicos en la configuración de la cadena editorial brasileña. Entrevistas con ejecutivos de grupos editoriales instalados en el país permitieron identificar que los e-books todavía desempeñan un papel secundario en la cadena editorial, y tienen mayores posibilidades de prosperar en algunos segmentos específicos de libros. Los libros electrónicos no debilitaron esta cadena. Puesto que los e-books no reemplazaron a los libros físicos, sino que pasaron a coexistir con estos, les correspondió a las editoras desarrollar un nuevo conjunto de actividades dentro de la cadena editorial existente. La desintermediación es una de las características más destacadas de este nuevo proceso productivo. Para adecuarse a este nuevo escenario, el sector editorial necesita ajustes que van más allá de sus operaciones, y que implican también la redefinición de los recursos y competencias que necesita desarrollar.

PALABRAS CLAVE | e-books, editorial, cadena editorial, desintermediación, digitalización.

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INTRODUCTION

Electronic books or e-books are becoming an increasingly viable and attractive source of culture and entertainment. Despite existing for over 20 years, e-books have become popular only from 2007 on, since the introduction of the Kindle, the first electronic reading device to achieve commercial success (Lin, Chou, & Huang, 2013). The introduction of Kindle and other reading devices with electronic paint displays (e-ink) renewed interest in digital reading (Tonkin, 2010), which went beyond just text. With the incorporation of video, audio, data, and other content, reading has transformed into a multimedia learning and cultural memory experience (Nálium & Bidarra, 2014).

In this new framework, e-books may assist the time-constrained reader by offering the convenience of buying the book of his or her choice from home, reading it anywhere on a mobile device, and not carrying any weight. With so much convenience added to other positive aspects (paper saving, exclusive devices, facilitated logistics distribution, the possibility of expansion, and lower prices), e-books have several technical advantages over printed books.

The numbers seem to favor e-books. In 2016 alone, 9483 new e-book titles were launched in Brazil, and a total of 2,751,630 units were marketed (Censo do Livro Digital, 2017). The first year of the main international players' (e.g., Amazon, Apple, Google, and Kobo) operation in the country was marked by a steeper growth curve than that in the US market (Sabota, 2014). Moreover, evidence shows that the e-book market has consistently grown at an exponential rate in Brazil, belying the expectations from the sector (Cunha, 2016). However, the contribution of e-books to the total profits of the main publishing companies in the country is still insignificant (1.09% in 2016; Censo do Livro Digital, 2017).

Changes that affect all the links in a productive chain commonly accompany the introduction of modern technologies. The traditional modes of operation of each link must be reconsidered for an adjustment to this growing new market (Gilbert, 2015). New configurations emerge in the book supply chain, giving rise to the need for studies on their impact and management strategies.

Recently, academic research has expended significant effort to evaluate the potential of e-book adoption, as well as the mindset of their readers, by comparing the printed and digital versions of books (D'Ambra, Wilson, & Akter, 2013; Martin & Quan-Haase, 2013; Wang & Bai, 2016; Zhang & Kudva, 2014). However, few studies seek to understand the impact of e-books on the publishing chain. Some important exceptions are the

research studies conducted by Hua, Cheng & Wang (2011), Li, Lin, Xu & Swain (2015) and in the Brazilian sphere, by Mello, Nyko, Garavini & Zendrom (2016). However, these studies focus more on factors that affect the expansion of the publishing chain and are insufficient to fully understand the implications of the arrival of e-books on this chain.

To fill this gap, this study aims to evaluate the impact that the arrival of e-books has on the configuration of the publishing chain in Brazil. In specific terms, this study aims to: (I) present the current configuration of the publishing chain in Brazil, highlighting the main changes observed after the introduction of e-books on a commercial scale; (II) understand how the publishers structure their processes to meet the demands of the final consumer; (III) investigate the main trends in the Brazilian publishing industry; and (IV) point out the main adjustments needed for the sector to deal with the growing sales of e-books.

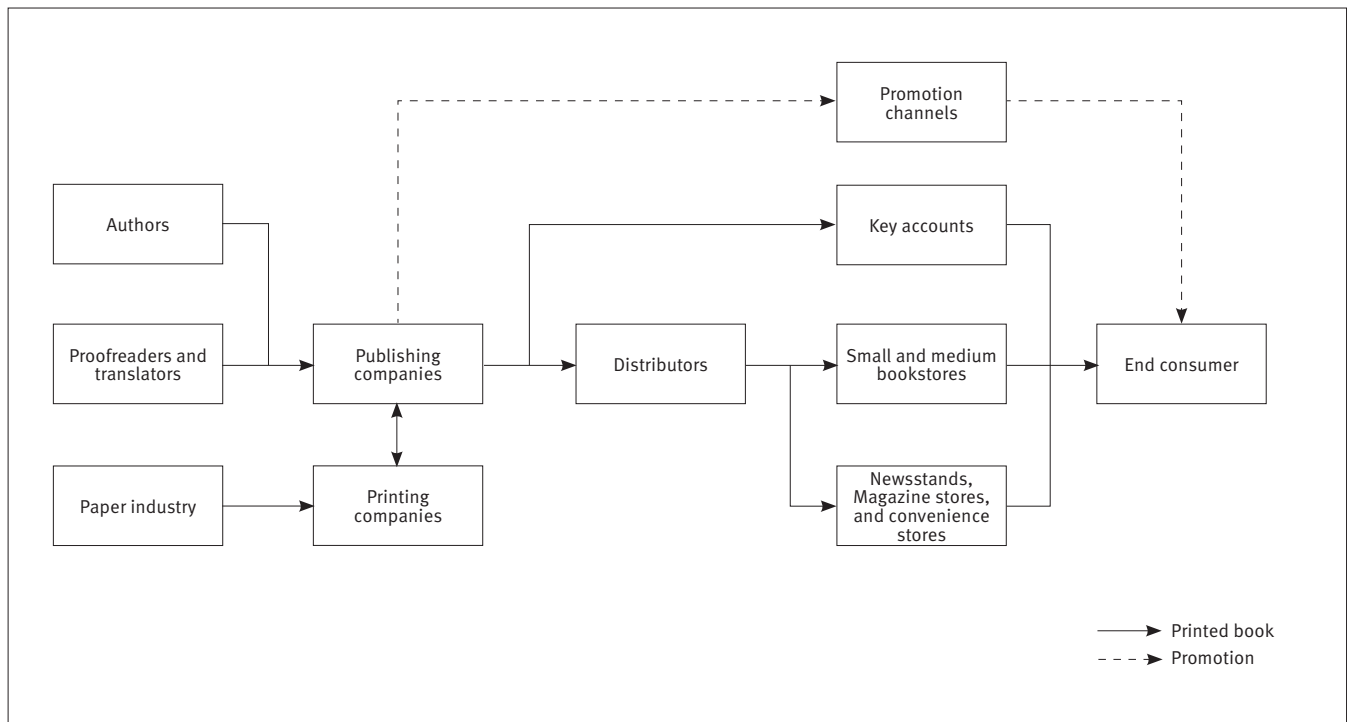
This study is organized as follows. After the introduction, a literature review is presented, where the book supply chain is described and discussed. This is followed by a description of the Brazilian publishing industry, and other scenarios that relate to this sector. The study methodology is subsequently described. Finally, the results of this study are presented, along with its implications and concluding remarks.

THEORETICAL FRAMEWORK

The Brazilian publishing chain

The book production chain is composed of several companies in the authorial, publishing, graphic, paper industry, distribution, bookselling and library sectors (Earp & Kornis, 2005; Mello et al., 2016). Figure 1 was prepared from Ramos (2013), who describes a chain where an authorial work passes on to proofreaders after being approved by the publishing company and (eventually) translators, for the printing process to begin. The printing process is carried out by printing companies, with the main supplier being the paper industry. After the books are printed, the publishing houses send out the books directly, often to key accounts (large bookstores). They may use the distributors to forward books to small and medium-sized bookstores and other sales outlets (newsstands, magazine stores, etc.). It is up to the bookstores and other sales outlets to sell and deliver the book to the final consumer. The publishing companies are responsible for promotion, by engaging the proper promotional channels. This strategy is very similar to that described by Shaver & Shaver (2003), Earp & Kornis (2005) and Fonseca (2013).

Figure 1. The book publishing chain



Source: Based on Ramos (2013).

The publishing company is one of the main links in this chain, because it determines the book cover price (Svaldi, 2010). The publishing company works as a kind of finance company throughout the production cycle of the book. When the rights to a project are acquired, the company pays for the author's rights and covers the publishing costs of translation, revision, printing, paper, etcetera. Being close to the final consumer, the bookstores are the main channel of book sales and often operate on a payroll-linked model (Lazzazari, 2012).

More recently, the Brazilian publishing chain has faced a new set of opportunities and challenges. One of the most striking changes in this new chain configuration is disintermediation (Caputo, 2012), that is, a reduction in the number of middlemen in the transactions and flow of information. This may lead to direct transactions between producer and consumer (Marszalek, 2016). Disintermediation began to occur in the publishing sector after the arrival of e-books, which do not require printing or physical distribution. On the one hand, book digitalization may reduce publishing costs and push up demand (Mello, 2004; Silva, 2013). On the other, it enables authors to bypass publishing companies, thereby freeing themselves (Walfog & Reimers, 2015).

Finally, this disintermediation is also observed as the authors become less dependent on publishing companies. This

gives them the opportunity to market their books independently, whether through direct sales via websites, or direct negotiations with retailers who sell digital books; this is known as self-publishing (Brooks & Fitz, 2015; Matulionyte, Pato, McIntyre, & Gleadhill, 2017).

The digital age: The emergence of the e-book

There is a broad range of definitions for what is known as an e-book, electronic book, or digital book. These cover the literal conversion of printed books through page scanning or PDF file creation, to complex digital books that cannot be converted into a printed form (Earp & Kornis, 2005; Vassiliou & Rowley, 2008).

In 2013, there was an impressive increase of 225% in digital book revenues, compared to those in 2012 (Rodrigues, 2014). In addition, digital books were expected to account for 10–15% of the revenues of publishing companies in Brazil and other Latin American countries (Bookwire, 2015). However, digital books accounted for only 1.09% of the turnover of the Brazilian publishing sector in 2016 (Censo do Livro Digital, 2017). The Digital Book Census (Censo do Livro Digital, 2017) was conducted through a partnership between the Economics Research Institute

Foundation (Fundação Instituto de Pesquisas Econômicas; FIEPE) and institutions representing the publishing sector, and showed that of the 794 publishing companies investigated, only 294 (37%) produce and market digital content. In a global context, Brazil—despite its economic size—has little relevance in the e-book market, wherein only six countries account for 67% of the global sales (Wischenbart, 2017).

Some of the factors responsible for the small size of this market are: (i) the limited number of e-books made available for sale; (ii) the high price, which is almost always close to, or even higher than, that of the printed book; (iii) there are few e-reader options with a competitive cost-benefit ratio; and (iv) the limitations imposed by publishing companies and bookstores on e-books (Nicolau & Virginio, 2012; Rao, Tripathi, & Kumar, 2016). Incompatibility between the different reading platforms, strict copyright control, and the lack of integration among content suppliers also seem to contribute to this poor performance (Chao & Lu, 2011; Chimenti, Nogueira & Salgado, 2009; Parry & Kawakami, 2017). This phenomenon is not restricted to the Brazilian market. Recent economic crises, such as those that occurred in Brazil and Mexico, have also contributed to reducing the dynamism of this market in the past few years (Wischenbart, 2017).

Another factor that also affects the e-book market in Brazil is the difficulty faced by small bookstores while they attempt to modernize. They face barriers, such as the high investment required to enter and remain in the digital market and the acquisition of e-books. Another issue would be related to adapting their management systems for the electronic commerce of e-books. Many bookstores do not have the maintenance budget or in-house developers, and end up using outsourced companies and professionals, leading to high implementation and integration costs.

Finally, piracy is also a major issue faced by the sector globally (Botelho & Scamuzza, 2012). In the United States alone, publishing companies are estimated to lose USD 315 million in book sales because of piracy (Digimarc, 2017). As a countermeasure, publishing companies have been using Digital Rights Management (DRM), a digital content encryption method to prevent the sharing of unlimited copies of e-books. However, there are several easy-to-use software packages, available on the Internet, used to “unlock” the DRM protection. In addition, this protection has brought some undesired effects, especially restrictions on the legitimate use of the product or license. This may reduce interest in the consumption or acquisition of digital media, especially books, among many consumers (Maxim & Maxim, 2012; Sun, Easley & Kim, Taylor & Smith, 2016).

METHODOLOGY

This study aims to understand the impact of the e-books on the dynamics and configuration of the Brazilian publishing chain. Therefore, a qualitative approach was considered more appropriate. This approach is fundamentally interpretative in nature (Cresswell, 2007), and fits the scope and objectives of this study because it offers the possibility of explaining or understanding a phenomenon, a process, or a combination of these (Marconi & Lakatos, 2009). It also describes a certain phenomenon, characterizing its occurrence, and relating it to other factors (Casarin & Casarin, 2011).

The case study is one of the main research strategies within the qualitative field, especially with regard to operations management (Ketokivi & Choi, 2014). In some studies, the quantitative approach is used equally well to describe phenomena that are not yet fully understood (Meredith, 1998). Case studies are a recommended strategy when one seeks to understand the general circumstances under which a contemporary event, such as the rise of e-books, affects reality (Yin, 2014).

After the research strategy was established, the Brazilian publishing chain was defined as the study unit by following Yin (2014). However, to understand the dynamics that have been occurring in this chain, instead of considering all its links, this research focused only on companies; in other words, the ones responsible for establishing rules, contacting consumers, and placing the products in the chain (Seuring & Müller, 2008). In the case of the publishing business, this role is predominantly that of the publishing companies.

The publishing companies comprising this study were selected according to a convenience criterion; thus, given the difficulty of accessing professionals in this branch, only those who could effectively contribute to the research question—a necessary condition in case studies—were selected (Cresswell, 2007; Miles, Huberman, & Saldaña, 2013; Stuart, McCutcheon, Handfield, McLachlin & Samson, 2002). To conduct the verification, research briefings that explain the purpose and main themes of the research were provided to the companies at the time of first contact. Then, the parties were informed of the conditions required to proceed to data collection during the clarification talks. If research requirements were met, data collection was finally scheduled. Four publishing companies, whose real names were omitted, were chosen: a large-sized one (publishing company A) and three small and medium-sized ones (publishing companies B, C, and D).

Interviews were considered the most appropriate data collection procedure to obtain the necessary information. This

was done by first preparing a semi-structured interview protocol to extract the visions and opinions of the participants, preceded by a header and an opening statement to identify the interview. The questions were prepared, grouped, and ranked according to the objectives established for the study, following Josselson (2013). A scheme of the sector's chain, with e-books as a part of the chain, was added to complement the protocol. This was done with the aim of validating it, as well as collecting information that would enable a better understanding of the dynamics between the links.

Four interviews were carried out from October to November 2014, one with each representative of the four publishing companies selected. The interviews were conducted by the authors of the study themselves; of these, three were in person and the fourth was by e-mail—a strategy that has the disadvantage of limiting the expression and perception of the parties (Cresswell, 2007).

The interviews focused exclusively on the people holding executive positions (presidents, directors, and managers) and considered the most appropriate to meet the research objectives. To support the “open” characteristic of the semi-structured design, press interviews were conducted to ensure flexibility for discussion of other themes that were not anticipated. Exhibit 1 shows the interviewees' job positions, the instrument used for data collection, and other information.

Exhibit 1. Description of the interviews conducted

Publishing company	Interviewee's job position	Date	Data collection instrument
Publishing company A	Manager	November 11, 2014	Recorder
Publishing company B	President	October 28, 2014	Recorder
Publishing company C	President	October 11 and 18, 2014	Recorder
Publishing company D	Director	October 6, 2014	E-mail

The data were analyzed and interpreted after data collection. First, the recordings were transcribed. After being transcribed and consolidated, interviews were pre-analyzed by reading the entire material to organize and systematize the idea, making them analyzable (Bardin, 2006). The objective is, thus, to extract from the recordings a general sense of the information and assess its global meaning (Cresswell, 2007).

The next stage, the detailed analysis of the collected material, consisted of “codification, categorization, and quantification”, seeking a separation between the material

obtained and the response provided to each objective (Bardin, 2006). In this study, the codification, understood as the organization of materials into groups before assigning them some meaning (Rossman & Rallis, 1998), was guided by a process suggested by Tesch (1990).

After the first reading of the interviews, a list containing the key topics was created. After that, a second reading helped to establish an association between the topics and sections from the interviews, leading to the emergence of new topics. After investigating all the topics, possible redundancies or similarities among topics were assessed to narrow them down to a definitive category list. The end of this process resulted in the following seven categories or codes: self-publication, supply chain, value chain, demand, disintermediation, just-in-time, trends. These categories were used to organize the information obtained from the interviews: the sections emphasized during the re-reading process were tabulated, and assigned the categories with which they were associated.

Once organized, the data finally enabled the interpretation and presentation of the results. A narrative approach was adopted to convey the results of the analysis, seeking to establish a connection among themes. This narrative was matched with the bibliographic references, seeking a validation of the models proposed in theory. This process culminated with arriving at the main theoretical and practical implications of this research, described in the final observations on this study.

ANALYSIS OF RESULTS

The results are presented according to their relation to the specific objectives. The configuration of the Brazilian publishing chain is first presented and discussed; then, the process of meeting market demand is investigated. Finally, the latent trends in the publishing business are presented and the impacts of the recent technologies on the publishing chain are described.

Configuration of the Brazilian publishing chain

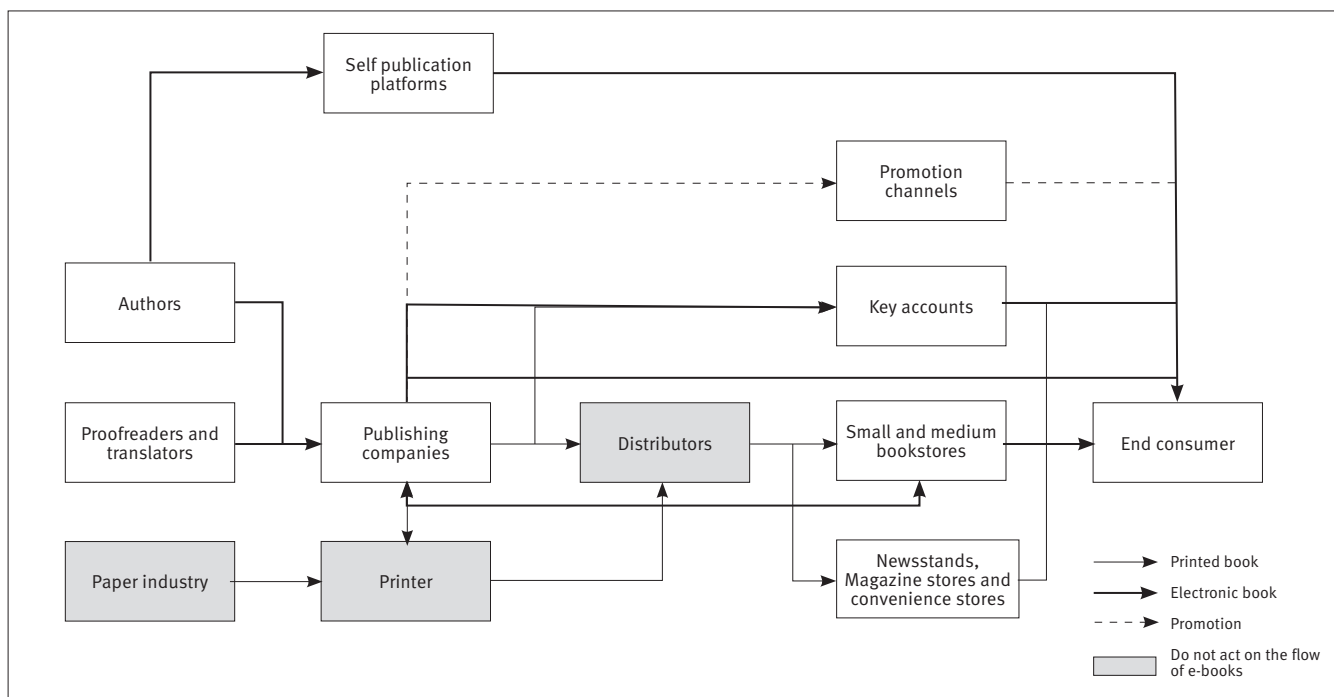
The interviews with the publishing companies enabled the mapping of a supply chain that incorporates both printed and e-books (Figure 2). In the publishing chain, as Vendrell-Herrero, Bustinza, Parry, and Georgantzis (2016) observed in their study of other sectors, the process of dematerialization of physical products caused major changes in how firms are located in the chain; this is owing to the reduced production and transport costs, and because of the ways in which companies are beginning

to relate to customers. In the following paragraphs, a brief description of this chain is presented.

Figure 2 is based on the interviews conducted with the representatives, and shows an overlap between printed and e-book flows; thus, it complements a model originally proposed

by Ramos (2013). Therefore, there was no simplification in the publishing chain, since e-books did not replace printed books (Carreiro, 2010). E-books have created a new market. The publishing chain had to adapt to respond to the demand of both printed books and e-books.

Figure 2. Productivity chain of the book incorporating electronic books



Source: Updated by the authors from Ramos (2013).

The interviews confirmed the focal role of publishing companies in the publishing chain, wherein the publisher assumes the role of a “market agent,” intermediating the relationships between authors and the succeeding links in the chain. As one of the interviewees reports,

there is a business called a production chain; without the publisher, it does not work. This publisher [...] is doing the entire process from within the chain. He contacts the author; he is the one who conducts the production process. After that, he needs the marketing channel, which may be a bookstore or a distributor; later, he needs retail, which are the sales outlets.

Two main changes took place with the emergence of e-books: a broad disintermediation and the expansion of sales channels. Regarding disintermediation, it can be concluded

that the introduction of self-publication eliminates several intermediaries between the author and the final consumer. This relationship is managed only by self-publishing platforms. E-books also eliminated the distributors' work because they can be directly supplied to the bookstores by the publishing company. The paper industry, printing companies, and distributors do not interfere in the e-books chain, as evidenced in the figure; however they are still a part of the printed book chain.

As for the sales channels, there is the possibility of publishing companies selling e-books directly; however, the traditional channels (bookstores) are also used to sell e-books through their respective websites.

The situation observed in the Brazilian publishing chain resembles that reported by Ho, Wang & Cheng (2011) for the American market, where the technological advance brought by e-books did not necessarily represent the disappearance of the existing links in the chain. However, the links had to undergo transformations to adapt to the advances.

The interviews also enabled an understanding—albeit partial—of the relationship between some links in the chain. For instance, in the shopping process, some of the larger publishing companies source the paper that will be used in book production. The responsibility for reducing production costs is usually that of printing companies. Others, such as publishing company B, carry out in-house some activities, such as layout and proofreading, which can be easily carried out by third parties.

The books may follow any of the following three paths after the graphic process—the most critical within the publishing chain—is completed (Julianelli, 2013): (1) the printer can send the book to the publishing company in case it works with stock; (2) the material may be sent directly to the distributor, which is a more common occurrence but tends to change with the growth of online sales; or (3) the bookstores receive the material directly from the printer.

The transport stage is one of the main financial bottlenecks. Publishing company C, for example, reduces costs by managing the deliveries to the main distribution centers of key accounts on its own. These are bookstores such as Saraiva, Cultura, and Martins Fontes, and publishing companies reduce costs by concentrating all receipts in a single storage center. However, this process changes when books that are past their peak sales are ordered online. The publishing company becomes responsible for producing them immediately and delivering them within the prescribed time. Such orders directly and negatively affect the production and transport costs, as reported by the Publishing company D.

The interviewees still consider the self-publication platforms a very restricted niche, without a representative market to date, although e-books provide a low-risk format for self-publishing, owing to low fixed costs, absence of stock, and ease of meeting demand (Gilbert, 2015).

All the publishing companies use multiple sales channels. They can either sell directly to the final consumer via the Internet and book release events, or, through their main source of revenue—the key accounts.

Responding to the demand in the publishing chain

Books, like films and music, are products whose demand is very difficult to predict (Caves, 2002), and this may have a slight impact on the results of the companies. As one of the interviewees pointed out, “it is our publisher’s mistake when he produces an excessive number of books. Unsold books are a financial loss. [...] If a publisher does not size up the market, he will incur losses and go out of business.” All the interviewees pointed out the clear intention of the publishing companies to adapt

the chain to their immediate needs and leverage trends with market dominance potential. For this reason, all the publishing companies interviewed have adapted to the production of e-books, while seeking to establish a leaner supply chain.

As to the ability to respond to new forms of demands, the real purpose of the publishing companies interviewed is to achieve “just-in-time” operations by establishing a rigid demand and maintaining the least level of stock, thus leading to a reduction in expenses. However, this production model is still far from the reality of publishing companies, who work with a hybrid model: push-based production during book introduction and growth stage followed by pull-based production in the decline stage.

The successful implementation of just-in-time requires efficient demand planning, something that is very complex in the book market. To predict demand in the book introduction stage, publishing company C uses quantitative and qualitative criteria, considering factors such as the book theme, the author’s potential, and the publisher’s feeling. This makes this scenario even more complex and difficult to manage. The number of copies to be printed out in the subsequent editions varies considerably, depending on the first market research results.

After the book sales decline, the production of large-volume editions is replaced by pull-based production, which is achieved through a print-on-demand process; this makes it possible to print a small number of books without much financial impacts on the publishing company. This is because the development costs (diagram, illustrations, formatting, and proofreading) are already calculated when the large editions of a book are marketed. This model is adopted especially when the copy becomes part of the “long tail” (Anderson, 2006), that is, books that do not have a large demand, but sporadic orders.

Trends in the publishing sector

The respondents from publishing companies A and C have stated that they joined the e-books production partly owing to pressure from their authors and the market. However, the publishers themselves pointed out that e-book sales are still meaningless. Publishing company D stated that such a low relevance can be linked to the low dissemination of e-readers in the current market, given the broad possibility of reading e-books on other platforms, such as cell phones and tablets. Precarious infrastructure, expensive and restricted internet, and bureaucracy also hinder the growth of this book style.

According to the interviewees, e-books would have a greater chance of success in the textbook segment, converging with the views of Jamali, Nicholas, and Rowland (2009) and Mello (2012).

Some of the reasons are the comfort of transporting e-books and the age of the target audience, who are more adaptable to changes and modern technologies. Furthermore, the dynamics of the textbook market, characterized by high speed in knowledge updates, makes the adoption of e-books much more convenient, fast, and financially viable. On the other hand, other segments of the publishing market, such as the religion segment, are extremely resistant to adopting e-books.

There does not seem to be a downward trend in the controversial matter of e-book prices. The interviewees argue that e-books do not have such smaller production costs. Skills change to produce e-books, as do inputs. That said, some costs do not change, such as the authors' compensation. As described by the interviewee of the publishing company C,

there is no deposit, but there is a data center. This data center [...] must have equipment, energy, excellent professionals. What is more, a professional who takes care of a data center earns ten times as much as a professional who tends to a warehouse. Business insurance for a data center is costlier than the insurance of a warehouse. The manpower required to convert and produce content is much more expensive.

Publishers point out that the e-book release process follows the same steps as a printed book, until the time when the printing process begins. At that time, e-book production really tends to be less costly, but not enough to generate a large price difference between them. Book pricing, whether electronic or digital, must be done cautiously, since book covers with prices that are too low culminate in an image risk to the author.

The interviewees also report that the establishment of online bookstores has significantly changed the role of two major links in the publishing chain: the distributors and physical bookstores. This is a trend that has also been observed by Maxim & Maxim (2012). Pressured by the competition, online bookstores have been trying to reduce their prices by directly negotiating with publishing companies, bypassing the distributors' interference in the process of acquiring copies. Many consumers have begun to use physical bookstores as a place for browsing through the books of their interest before proceeding to acquire them from an online player that is not necessarily owned by the physical store they visited. Thus, the traditional bookstores continue to be a part of the decision-making process, but not necessarily the purchase process.

E-commerce sales have also expanded the availability of authors' work in the publishing market. This happens because

bookstores upload the entire catalogue on their website, despite not having the physical space to store all the books listed. In case there is a very specific demand, they order from the publishing company.

Adaptations to the new publishing industry scenario

Based on the interviews, the likely configuration of the publishing value chain, after the introduction of e-books, can be established; this is presented in Figure 3.

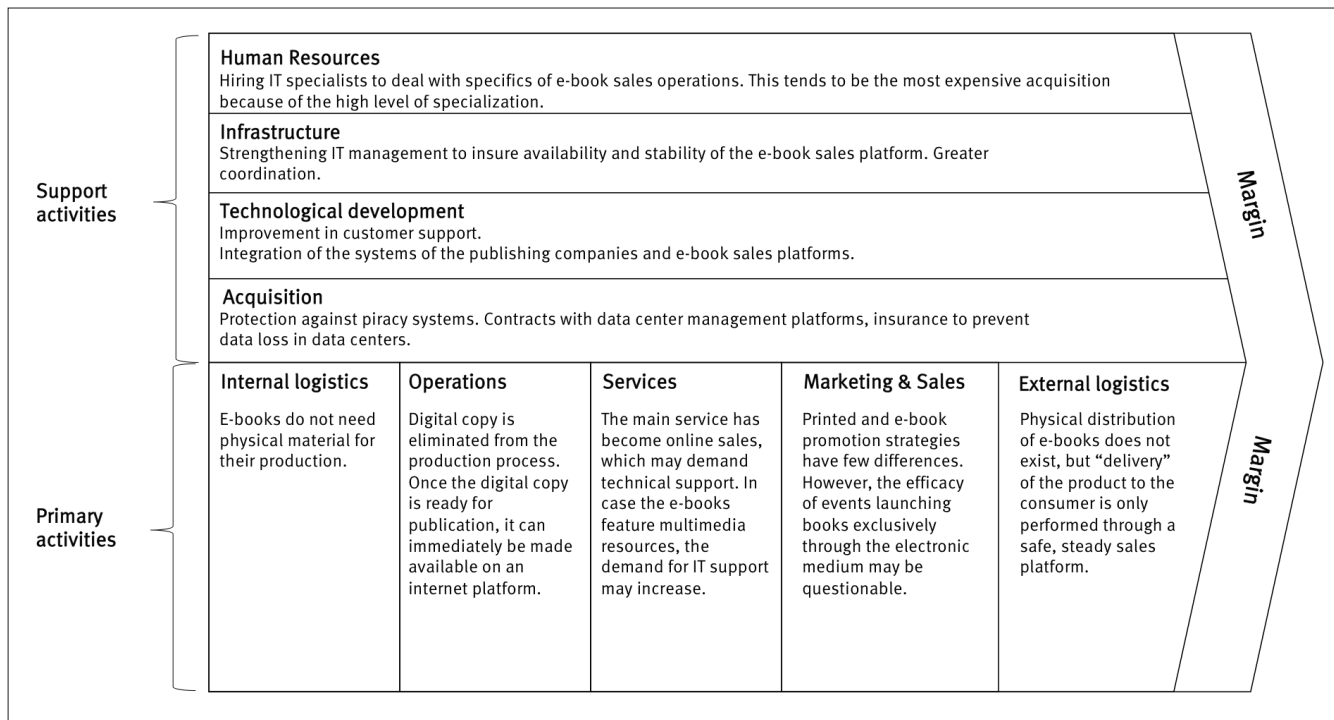
As for the primary activities, the arrival of e-books has exerted a stronger impact on the organizational outputs than on the inputs. The outputs take two forms—printed and e-books—while the inputs have remained the same (literary works with market potential). Content development is still the main source of value creation in the publishing chain. As stated by one of the interviewees,

this only works when you have something called content, which is the book. If you don't have [...] content, you have nothing. Then, the bookseller asks [Why] his publishing company books won't sell. Because the book from his/her publishing company is bad. If you bring me a good book, I'll sell it.

Content development remains critical to the value-creation process. Meanwhile, production and physical distribution were replaced by marketing and digital distribution when it comes to e-books (Clarke, 2017). With regard to marketing, one of the interviewees stated that increasing the e-book readership will require adjustments in the book release process, since the conventional promotion strategies, such as launch events, seem to make little sense for books that are launched exclusively in electronic format. Printed books still depend on the traditional distribution channels, while e-books depend on the implementation of a secure and steady electronic commerce platform that makes products available and commercializes them.

Changes in demand (authors who had difficulty getting their books published by publishing companies are now able to publish digitally) and the formats on offer (book purchase options in print and digital formats), both support activities, must be improved in the electronic commerce and customer support platforms. Structuring a digital supply chain is not just about technology acquisition and capacity development; it also requires the hiring of the right type of people and being open to a new culture that can lead to such change (Schrauf & Bertram, 2016).

Figure 3. Changes in the value chain of the publishing market with the introduction of e-books



Source: Based on Ramos (2013).

Moreover, expanding storage capacity on servers (hosts) and developing new skills in human resources are decisive in the transition to offering e-books. The recruitment of new employees is a key process, impacting human resources management and the financial environment of publishing companies, especially if the skills required are scarce in the market and, therefore, costly. This transition usually requires the development of new skills by organizations, as well as changes in the relationship between companies (Coreyne, Matthyssens & Bockhaven, 2017; Eloranta & Turunen, 2016; Lin et al., 2013).

FINAL REMARKS

This study aimed to evaluate the impact of the arrival of e-books on the publishing chain in Brazil. By interviewing executives of publishing companies, it was observed that the main transformations in this chain are related to a rapid disintermediation process and redefinition of the role of some links, such as physical bookstores. These bookstores have been helping many consumers in the purchase decision process, without necessarily benefiting from the service provided.

In practical terms, the study showed that the rise of e-books is not yet large enough to cause a radical change in the publishing

chain; however, it has necessitated adjustments in the operations. Printed books continue to be the consumers' preferred choice. Some studies predict the coexistence and complementarity of the two formats, rather than one replacing the other (Mullolland & Bates, 2014; Zhang & Kudva, 2014).

The potential for adopting e-books varies significantly among the publishing segments. This is a major obstacle to the growth of this new format. Even the textbook segment, considered the most promising for e-books, needs a more accurate evaluation, since there is evidence that teachers and students do not necessarily prefer e-books to the conventional books. In addition, they have little knowledge of the books available in an electronic format and all the features and functions of the reading devices (Cassidy, Martinez & Shen, 2012; Muir & Hawes, 2013; Mulholland & Bates, 2014; Wang & Bai, 2016).

As regards self-publication, the analyses suggest that its impact is very limited, with few implications for the publishing chain dynamics. The dubious quality of some of the self-published books makes this segment less promising than expected, notwithstanding the fact that several such books have appeared on the bestsellers list in the US market (Waldfogel & Reimers, 2015).

However, there is considerable evidence that the publishing sector has not yet become aware of all the implications of this digitalization process—a finding that is in line with what McIlroy

(2015) had reported. The interest shown by publishing companies in bringing their production processes closer to the just-in-time system shows a greater concern with manufacturing and reduction of operating costs than with the possibilities of using digitization to make the chain faster and consumer-focused, but at the risk of losing access to important market segments (Rahayyu & Day, 2015).

From a theoretical perspective, the analyses indicated that the arrival of e-books, which eliminated printing and physical distribution activities, did not bring the expected simplification of the operations in the book chain; this is despite the fact that digitization is viewed as beneficial by some companies (Lenka, Parida, & Wincent, 2017; Reddy & Reiniartz, 2017; Zott & Amit 2017). In contrast, adding new activities exclusively for the production and marketing of e-books increased the complexity of the chain. As a result, publishing companies have to manage the flow of digital books, along with that of the traditional books. This new flow requires the development of new resources and skills by organizations, directly affecting operational costs of the publishing companies. If the printed format is not completely replaced by with the digital one, the potential gains in efficiency are limited.

Given the limited sales of e-books and the significantly high entry costs to this market, future studies could seek to understand what reasons prompt publishing companies, especially smaller ones, to enter this field. No research seeking to explain the reasons for entering the publishing market have been found. Regrettably, some existing studies address only the factors that lead small- and medium-sized companies to adopt e-commerce (Rahayu & Day, 2015; Sin, Osman, Salahuddin, Abdullah, Lim, & Sim, 2016). Thus, research encompassing a wider range of publishing companies, and incorporating other links in the book chain, could substantially contribute to this field of study.

NOTE

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REFERENCES

- Anderson, C. (2006). *The long tail: Why the future of business is selling less or more*. New York, NY: Hyperion Books.
- Bardin, L. (2006). *Análise de conteúdo*. Lisboa, Portugal: Edições 70.
- Bookwire. (2015). *The bookwire Spanish and Portuguese markets report*. Retrieved from <http://marketing.bookwire.de/acton/media/14994/download-bookwire-spanish-and-portuguese-digital-ebook-markets-report>
- Botelho, J. M., & Scaramuzza, B. C. (2012). *Os atributos das livrarias e as mudanças que ameaçam sua existência*. Retrieved from <http://www.convibra.com.br/artigo.asp?ev=25&id=4348>
- Brooks, L., & Fitz, G. (2015). *Grey Matter(s): Embracing the publisher within*. *Foundation Review*, 7(2), 38-50. doi:10.9707/1944-5660.1248
- Caputo, A. (2012). *Reflections on the state of specialized libraries: Five global trends all knowledge professionals should understand*. *Information Services & Use*, 32(3-4), 169-171. doi:10.3233/ISU-2012-0666
- Carreiro, E. (2010). *Electronic books: How digital devices and supplementary new technologies are changing the face of the publishing industry*. *Publishing Research Quarterly*, 26(4), 219-235. doi:10.1007/s12109-010-9178-z
- Casarin, H., & Casarin, J. (2011). *Pesquisa científica: Da teoria à prática*. Curitiba, PR: Intersaberes.
- Cassidy, E. D., Martinez, M., & Shen, L. (2012). *Not in love, or not in the know? Graduate student and faculty use (and non-use) of e-books*. *The Journal of Academic Librarianship*, 38(6), 326-332. doi:10.1016/j.acalib.2012.08.005
- Caves, R. E. (2002). *Creative industries: Contracts between art and commerce*. Cambridge, UK: Harvard Business Press.
- Censo do Livro Digital. (2017). Retrieved from <http://www.snel.org.br/wp-content/uploads/2017/08/Apresentacao-Censo-do-Livro-Digital.pdf>
- Chao, C., & Lu, F. V. (2011). *Emergence of e-books and related managerial issues: A preliminary study*. *International Journal of Business, Marketing, and Decision Sciences*, 4(1) 117-126.
- A indústria editorial do livro e o desafio estratégico das novas tecnologias*. Retrieved from www.anpad.org.br/diversos/trabalhos/EnADI/enadi_2009/2009_ENADI130.pdf
- Clarke, M. (2017, Maio 27). Trade publishing and ebooks: W(h)ither the supply chain? *The Scholarly Kitchen*. Retrieved from <https://scholarlykitchen.sspnet.org/2010/05/27/trade-publishing-and-ebooks-whither-the-supply-chain/>
- Coreynen, W., Matthyssens, P., & Bockhaven, W. V. (2017). *Boosting servitization through digitization: Pathways and dynamic resource configurations for manufacturers*. *Industrial Marketing Management*, 60, 42-53. doi:10.1016/j.indmarman.2016.04.012
- Cresswell, J. W. (2007). *Projeto de pesquisa* (2ª ed.). Porto Alegre, RS: Artmed.
- Cunha, J. (2016). *Mercado de livros digitais não decola no Brasil e estagna nos EUA e Europa*. Retrieved from <http://www1.folha.uol.com.br/mercado/2016/04/1759174-mercado-de-livros-digitais-nao-decola-no-brasil-e-estagna-nos-eua-e-europa.shtml>
- D'Ambra, J., Wilson, C. S., & Akter, S. (2013). *Application of the task-technology fit model to structure and evaluate the adoption of e-books by Academics*. *Journal of the American Society for Information Science & Technology*, 64(1), 48-64. doi:10.1002/asi.22757
- Digimarc. (2017). *Inside de mind of a book pirate*. Retrieved from <https://www.digimarc.com/docs/default-source/default-document-library/inside-the-mind-of-a-book-pirate.pdf>

- Earp, F. S., & Kornis, G. (2005). *A economia da cadeia produtiva do livro*. Retrieved from https://www.bndes.gov.br/SiteBNDDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/ebook/ebook.pdf
- Eloranta, V., & Turunen, T. (2016). *Platforms in service-driven manufacturing: Leveraging complexity by connecting, sharing, and integrating*. *Industrial Marketing Management*, 55, 178-186. doi:10.1016/j.indmarman.2015.10.003
- Fonseca, L. B. (2013). *Crescimento da indústria editorial de livros do Brasil e seus desafios* (Dissertação de mestrado, Instituto Coppead de Administração, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ).
- Gilbert, R. J. (2015). *E-books: A tale of digital disruption*. *Journal of Economic Perspectives*, 29(3), 165-184. doi:10.1257/jep.29.3.165
- Ho, H., Wang, L., & Cheng, H. (2011). *Authors, publishers, and readers in publishing supply chain: The contingency model of digital contents production, distribution, and consumption*. *Systems Engineering Procedia*, 2, 398-405. doi:10.1016/j.sepro.2011.10.053
- Hua, G., Cheng, T., & Wang, S. (2011). *Electronic books: To "E" or not to "E"? A strategic analysis of distribution channel choices of publishers*. *International Journal of Production Economics*, 129(2), 338-346. doi:10.1016/j.ijpe.2010.11.011
- Jamali, H., Nicholas, D., & Rowlands I. (2009). *Scholarly e-books: The views of 16,000 academics: Results from the JISC national e-book observatory*. *Aslib Proceedings*, 61(1), 33-47. doi:10.1108/00012530910932276
- Josselson, R. (2013). *Interviewing for qualitative inquiry: A relational approach*. New York, NY: The Guilford Press.
- Julianelli, L. (2013). *Análise estrutural do processo de planejamento da demanda*. Retrieved from http://www.ilos.com.br/ilos_2014/publicacoes/artigos-2013/analise-estrutural-do-processo-de-planejamento-de-demanda/
- Ketokivi, M., & Choi, T. (2014). *Renaissance of case research as a scientific method*. *Journal of Operations Management*, 32(5), 232-240. doi:10.1016/j.jom.2014.03.004
- Lazzari, A. (2012). *Cenários para a indústria editorial brasileira nos próximos cinco anos*. Retrieved from <http://hdl.handle.net/10183/61625>
- Lenka, S., Parida, V., & Wincent, J. (2017). *Digitalization capabilities as enablers of value co-creation in servitizing firms*. *Psychology & Marketing*, 34(1), 92-100. doi:10.1002/mar.20975
- Li, Y., Lin, Z., Xu, L., & Swain, A. (2015). *Do the electronic books reinforce the dynamics of book supply chain market?: A theoretical analysis*. *European Journal of Operational Research*, 245(2), 591-601. doi:10.1016/j.ejor.2015.01.048
- Lin, C., Chiou, W., & Huang, S. (2013). *The challenges facing e-book publishing industry in Taiwan*. *Procedia Computer Science*, 17, 282-289. doi:10.1016/j.procs.2013.05.037
- Marconi, M., & Lakatos, E. M. (2009). *Fundamentos de metodologia científica*. São Paulo, SP: Atlas.
- Marszałek, P. (2016). *Disintermediation of banks: Causes and consequences*. *Research Papers of the Wrocław University of Economics/Prace Naukowe Uniwersytetu Ekonomicznego We Wrocławiu*, (451), 256-267. doi:10.15611/pn.2016.451.21
- Martin, K., & Quan-Haase, A. (2013). *Are e-books replacing print books? Tradition, serendipity, and opportunity in the adoption and use of e-books for historical research and teaching*. *Journal of the American Society for Information Science & Technology*, 64(5), 1016-1028. doi:10.1002/asi.22801
- Matulionyte, R., Paton, E., McIntyre, P., & Gleadhill, D. (2017). *The system of book creation: Intellectual property and the self-publishing sector of the creative industries*. *Creative Industries Journal*, 10(3), 191-210. doi:10.1080/17510694.2017.1393193
- Maxim, A., & Maxim, A. (2012). *The role of e-books in reshaping the publishing industry*. *Procedia – Social and Behavioral Sciences*, 62, 1046-1050. doi:10.1016/j.sbspro.2012.09.178
- McIlroy, T. (2015). *Reengineering the book publishing supply chain*. *The Future of Publishing*. Retrieved from <http://thefutureofpublishing.com/2015/03/reengineering-the-book-publishing-supply-chain/>
- Mello, G. (2012). *Desafios para o setor editorial brasileiro de livros na era digital*. Retrieved from http://www.bndes.gov.br/SiteBNDDES/export/sites/default/bndes_pt/Galerias/Arquivos/conhecimento/bnset/set3612.pdf
- Mello, G., Nyko, D., Garavini, F., & Zendron, P. (2016). *Tendências da era digital na cadeia produtiva do livro*. *BNDDES Setorial*, 43, 41-80. Retrieved from https://web.bndes.gov.br/bib/jspui/bitstream/1408/9434/3/BS43_corrigeo_P_BD.pdf
- Mello, J. (2004). *Rupturas do conhecimento: O mercado editorial brasileiro entre o livro impresso e o livro eletrônico*. Retrieved from <http://www.portcom.intercom.org.br/pdfs/3884323943626864056643125222784382792.pdf>
- Meredith, J. (1998). *Building operations management theory through case and field research*. *Journal of Operations Management*, 16(4), 441-454. doi:10.1016/S0272-6963(98)00023-0
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative data analysis: A methods sourcebook*.
- Muir, L., & Hawes, G. (2013). *The case for e-book literacy: Undergraduate students' experience with e-books for course work*. *The Journal of Academic Librarianship*, 39(3), 260-274. doi:10.1016/j.acalib.2013.01.002
- Mulholland, E., & Bates, J. (2014). *Use and perceptions of e-books by academic staff in further education*. *The Journal of Academic Librarianship*, 40(5), 492-499. doi:10.1016/j.acalib.2014.05.018
- Natálio, C., & Bidarra, J. (2014). *E-books multimedia: O próximo capítulo na divulgação cultural?* Retrieved from <https://repositorioaberto.uab.pt/handle/10400.2/3190>
- Nicolau, M., & Virginio, R. (2012). *Livro digital: Percalços e artimanhas de um mercado em reconfiguração*. Retrieved from http://www.insite.pro.br/2012/Julho/livro_digital_mercado.pdf
- Parry, M. E., & Kawakami, T. (2017, Março 7). *Why e-readers succeeded as a disruptive innovation in the US, but not in Japan*. *LSE Business Review*. Retrieved from <http://eprints.lse.ac.uk/79964/1/blogs.lse.ac.uk-Why%20e-readers%20succeeded%20as%20a%20disruptive%20innovation%20in%20the%20US%20but%20not%20in%20Japan.pdf>
- Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York, NY: Free Press.

- Rahayu, R., & Day, J. (2015). **Determinant factors of e-commerce adoption by SMEs in developing country: Evidence from Indonesia**. *Procedia – Social and Behavioral Sciences*, 195, 142-150. doi:10.1016/j.sbspro.2015.06.423
- Ramos, G. (2013). *Como montar uma livraria*. Retrieved from pt.slideshare.net/GersonRamos/curso-comomontarumalivraria-parte1final
- Rao, K. N., Tripathi, M., & Kumar, S. (2016). **Cost of print and digital books: A comparative study**. *Journal of Academic Librarianship*, 42(4), 4. doi:10.1016/j.acalib.2016.04.003
- Reddy, S., & Reinartz, W. (2017). **Digital transformation and value creation: Sea change ahead**. *GfK-Marketing Intelligence Review*, 9(1), 11-17. doi:10.1515/gfkmir-2017-0002
- Rodrigues, M. (2014, July 14). **Faturamento com e-book cresce 225% no Brasil, mas mercado editorial continua em crise**. *O Estado de São Paulo*. Retrieved from <http://cultura.estadao.com.br/blogs/babel/faturamento-com-venda-de-e-book-cresce-225-no-brasil-mas-mercado-editorial-continua-em-crise/>
- Rossman, G. B., & Rallis S. F. (1998). *Learning in the field: An introduction to qualitative research*. Thousand Oaks, CA: Sage Publications.
- Sabota, G. (2014). **Crescimento na venda de e-books no Brasil deve continuar, diz especialista**. Retrieved from <http://cultura.estadao.com.br/noticias/geral,crescimento-na-venda-de-e-books-no-brasil-deve-continuar-diz-especialista,1156757>
- Schrauf, S., & Bertram, P. (2016, Sep. 7). **Industry 4.0: How digitization makes the supply chain more efficient, agile, and customer-focused**. *Strategy &*. Retrieved from <https://www.strategyand.pwc.com/media/file/Industry4.o.pdf>
- Seuring, S., & Müller, M. (2008). **Core issues in sustainable supply chain management: A Delphi Study**. *Business Strategy and the Environment*, 17(8), 455-466. doi:10.1002/bse.607
- Shaver, D., & Shaver, M. A. (2003). **Books and digital technology: A new industry model**. *Journal of Media Economics*, 16(2), 71-86. doi:10.1207/S15327736ME1602_1
- Silva, D. S. (2013). **O comportamento do mercado editorial brasileiro frente às novas tecnologias digitais na década de 2000**. Retrieved from <http://repositorio.ufba.br/ri/handle/ri/14429>
- Sin, K. Y., Osman, A., Salahuddin, S. N., Abdullah, S., Lim, Y. J., & Sim, C. L. (2016). **Relative advantage and competitive pressure towards implementation of e-commerce: Overview of small and medium enterprises (SMEs)**. *Procedia Economics and Finance*, 35, 434-443. doi:10.1016/S2212-5671(16)00054-X
- Stuart, I., McCutcheon, D., Handfield, R., McLachlin, R., & Samson, D. (2002). **Effective case research in operations management: A process perspective**. *Journal of Operations Management*, 20(5), 419-433. doi:10.1016/S0272-6963(02)00022-0
- Sun, D., Easley, R., & Kim, B. C. (2015). **Optimal Digital rights management with uncertain piracy**. *Decision Sciences*, 46(1), 165-191. doi:10.1111/dec.12120
- Svaldi, G. (2010). *O e-book como alternativa para as empresas do mercado editorial: O caso da Jambo Editora*. Retrieved from www.lume.ufrgs.br/bitstream/handle/10183/29696/000778351.pdf?sequence=1
- Taylor, L. J., & Smith, J. (2016). **Goldratt's thinking process applied to the digital rights management**. *Franklin Business & Law Journal*, 2016(4), 8-32.
- Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. London, UK: Psychology Press.
- Tonkin, E. (2010). **E-books: Tipping or vanishing point?** *Ariadne Web Magazine for Information Professionals*, 62. Retrieved from www.ariadne.ac.uk/issue62/tonkin
- Vassiliou, M., & Rowley, J. (2008) **Progressing the definition of "e-book"**. *Library Hi Tech*, 26(3), 355-368. doi:10.1108/07378830810903292
- Vendrell-Herrero, F., Bustinza, O. F., Parry, G., & Georgantzis, N. (2016). **Servitization, digitization and supply chain interdependency**. *Industrial Marketing Management*, 60, 69-81. doi:10.1016/j.indmarman.2016.06.013
- Waldfoegel, J., & Reimers, I. (2015). **Storming the gatekeepers: Digital disintermediation in the market for books**. *Information Economics and Policy*, 31, 47-58. doi:10.1016/j.infoecopol.2015.02.001
- Walton, W. E. (2014). **Why undergraduate students choose to use e-books**. *Journal of Librarianship and Information Science*, 46(4), 263-270. doi:10.1177/0961000613488124
- Wang, S., & Bai, X. (2016). **University students awareness, usage and attitude towards e-books: Experience from China**. *The Journal of Academic Librarianship*, 42(3), 247-258. doi:10.1016/j.acalib.2016.01.001
- Wischenbart, R. (2017). *Global e-book report: A report on market trends*. Retrieved from <http://www.wischenbart.com/page-4>
- Yin, R. K. (2014). *Case study research*. Thousand Oaks, CA: Sage Publications.
- Zhang, Y., & Kudva, S. (2014). **E-books versus print books: Readers' choices and preferences across contexts**. *Journal of the Association for Information Science & Technology*, 65(8), 1695-1706. doi:10.1002/asi.23076
- Zott, C., & Amit, R. (2017). **Business model innovation: How to create value in a digital world**. *GfK-Marketing Intelligence Review*, 9(1), 19-23. doi:10.1515/gfkmir-2017-0003

PERSPECTIVES

Invited article

Translated version

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SOCIAL INEQUALITY AND GRADUATE STUDIES IN BUSINESS ADMINISTRATION IN BRAZIL: THE ROLE OF EVALUATIONS

INTRODUCTION

There are numerous approaches that relate graduate programs in business administration to social inequality. Generally associated with poverty and concentration of people's wealth (Díaz, 2007), social inequality may be addressed through opportunities of access to master's and Ph.D. courses (Kliksberg, 2010; Murillo, 2007) and studies on social impact on the life of the congresses and community (Kliksberg, 2010). It may also be approached from a diversity standpoint (Sen, 2001), considering ethnic and gender differences, as well as regional disparities in Brazil. In this article, I address the role of the evaluation system of the graduate program in business administration, managed by the Coordination of Superior Level Staff Improvement (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior [CAPES]), in reducing social inequality. In addition to focusing on the debate in my study and research area, examining social inequality from the assessment perspective directs this reflection toward something that affects the entire academic community, enabling dialog with other possible approaches.

The reflection path proposed in this study, which is to be regarded as an opinion article, begins with the presentation of some guiding premises of the debate. Then, I conduct a brief assessment of some aspects of the evaluation of the *stricto sensu* graduate course in business administration. I conclude with implications for the social inequality issue, derived from the dialog between the premises presented in the first part and a brief meta-assessment, conducted in the second part.

GUIDING PREMISES

The following assumptions elucidate the viewpoint of the reflection and lay the foundation for the argumentation.

The first premise is accompanied by a Paulo Freire quote: "If education alone does not transform society, without it society will not change either" (Freire, 2000, p. 31). It is paramount to recognize the role of education in reducing inequality; however, this does not imply that universities should be regarded as ideologically neutral institutions or as ideological apparatuses of the state, focused on reproducing inequality. The graduate programs in business administration play a key role in reducing inequality, but they cannot change the world by themselves.

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The second premise recognizes the importance of knowing which graduate course in business administration is required. In other words: “Masters and PhDs, what for?” (Patrus & Lima, 2014, p. 6). This question must be asked both within the framework of each program and in the area of business administration. My answer, shared by many colleagues, is clear: we want a program that develops individuals with teaching and research skills in business administration, and the skill of educating others as individuals. In the German sense of *bildung*, the purpose of pursuing a master or doctor is to develop a professional and academic life, which is much different from the term “preparation,” suggested in Article 66 of the National Education Guidelines and Framework Law (1996).

According to Kant, a well-educated person has clarification, namely, human beings’ emergence from their self-incurred minority, which is their inability to make use of their understanding without guidance from another individual (Kant, [1783] 2005). The third premise considers that the attainment of a master’s or doctorate requires individuals to be able to confidently think for themselves, that is, to be enlightened, have good judgement, be the author of their own understanding, and think independently.

As a corollary of the previous premise, the permanent faculty of a graduate course program (hereafter GCP) must be “illuminated”; in other words, individuals must be able to think for themselves and make public use of their reasoning in all domains. Therefore, a GCP must have clear training objectives for itself and the public. I was once flabbergasted by the discussion of a program coordinator about the purpose of masters and PhD. courses in a congress. She told me that the purpose of her course was determined by the CAPES in its evaluation policy. Her entire management was guided by the CAPES evaluation criteria, despite her not agreeing with its productivist logic; this illustrates Kant’s concept of minority. As a counterexample, I quote the metaphoric question posed by Tânia Fischer to the Interdisciplinary Center for Development and Social Management students: “How many lives has your project saved or is saving?” (Fischer, 2018, p. 18). This is the clear purpose of vocational training, thought of in an illuminated, liberated way, according to an education ideal. The fourth premise states the need for a GCP to have a clear proposal of what professional it wants to form and it must be appropriately supported by the curriculum, the teaching body, the physical and technological infrastructure, and the preconditions for student graduation. Thus, in my opinion, pursuing a good evaluation from the CAPES is consistent with having a purpose that will inspire the GCP.

As a fifth premise, I point out the necessary link between evaluation and educational objectives. An evaluation is logical

when the teaching-learning process promotes the behavioral changes proposed in the educational objectives (Pilletti, 1987). Thus, its formative character allows systematic improvement of the means, processes, and methods that aim to achieve the educational objectives.

As a sixth and final premise, the inducer power of an evaluation must be acknowledged. On the one hand, it can substantially promote the pursuit of educational objectives. However, to achieve this, it must be ensured that the assessment criteria are evaluated *ex-ante*, that is, the assessment criteria should be established before the four-year evaluation period to plan for their fulfillment. If certain CAPES assessment criteria are established *ex-post* (after the four-year period), they damage their inducing character, potentially favoring the manipulation of criteria to favor one or another program. On the other hand, the unintentional consequences generated from the evaluation (Smith, 1995) include “tunnel vision” (to prioritize quantifiable indices to the detriment of those with greater difficulty of quantification), “misrepresentation” (perverse behavior that disobey procedures or manipulate data to search for a better evaluation), and “fixation to a measure” (to take an index as more important than its underlying objective).

Having established the six premises that form the basis of this argumentation, I provide a brief assessment of some aspects of the CAPES evaluation to investigate whether they contribute to reducing social inequality.

A BRIEF ASSESSMENT OF THE CAPES EVALUATION

The CAPES was established in 1951 with the mission to improve the qualifications of higher education teachers and researchers. The turning point in the history of CAPES began in 1998, when the evaluation model, previously based on visits from consultant commissions and follow-ups to improve courses, with grades between 1 and 5, was altered, and now it features grades between 1 and 7. This new model has introduced the social inclusion and internationalization criterion in the evaluation, shifting the focus from teaching to research (Souza, 2008). I first address the changes that the CAPES evaluation underwent and then discuss social inclusion, an issue more related to the social inequality subject.

As mentioned in a previous study (Patrus, Shigaki, & Dantas, 2018), the new evaluation structure of CAPES, despite classifying the programs between grades 1 and 7, maintained the evaluation scale between 1 and 5 for all criteria. The programs evaluated with grade 5 are then re-evaluated to select those

with concepts 6 and 7. However, there is a major distortion in this double evaluation of the CAPES evaluation system: only the programs that have excellence are applicable for grades 6 and 7, namely, the programs with average grades greater than 4.5 out of 5. The expected normal curve of course distribution is only verified among the grades from 1 to 5. Correcting such a distortion implies changing the entire platform supporting the evaluation. This demands investments in not only information technology but also the entire classification logic.

The consequence of this misunderstanding, combined with the minority of coordination of some programs, fosters isomorphism among the graduate courses, which is a progressive search for legitimacy through actions imitating the pattern of programs graded 5, 6, or 7. In a diverse and unstable country, the evaluation follows a single pattern, without considering the specific vocations of each program and its regional location. Similarly, the purposes of GCPs appear to be dictated not by the enlightenment and discernment of each program in each region, but by the search for the legitimacy of a grade given by a regulatory or promoting body. It is worth highlighting that the responsibility for this mimetic isomorphism does not lie only with the institutional power of the evaluation, but must also be shared with the lack of clarification (as defined in premises three and four) regarding the coordination of programs that depend on institutional evaluations.

One of the causes of this dependence is the competitive character of the CAPES evaluation, whose purpose seems to violate the premise that deems the evaluation an integrated process of verifying the achievement of educational objectives (premise five). More than an evaluation to investigate quality and guide improvements, the CAPES evaluation is an additive assessment because it chooses programs that can obtain resources and grants from public organs. As publicly stated on more than one occasion by the former assistant coordinator of the Business Administration area at CAPES, Professor Aridelmo Teixeira, the CAPES evaluation aims to classify programs for the allocation of scarce resources. The evaluation “is like a Brazilian championship, used to classify some for the Libertadores Cup, others for the South American Cup, and to demote others to Second Level Division” (Patrus, Tolentino, & Shigaki, 2018, p. 7).

The introduction of the calculation of a median to evaluate the qualified production of the business management area in the previous four-year evaluation period confirms the understanding that the evaluation system has classification objectives for resource distribution. According to the area document of the 2017 four-year evaluation (CAPES, 2017), the proportion of permanent GCP teachers, which reached the median of qualified academic works in the field, was calculated based on the scores achieved

by their publications in the best scientific journals. The number of teachers who had scores equal to or greater than the median of the area was counted. The total was divided by the total of number of permanent GCP teachers (CAPES, 2017). This criterion perverts the formative purpose of an evaluation by using an *ex-post* criterion, as previously described in premise six, compromising its inducing power. Since the information of what the median of the production of the area is can only be known during the four-year evaluation period, the GCP does not have parameters to establish a goal for its strategic planning. Thus, the competitive aspect of this evaluation criterion can be confirmed.

Regarding the distribution of teachers who have scores equal to or greater than the median of the area, if the number of the teachers who achieved this score is divided by the number of teachers of the permanent faculty, the rule suggests that all teachers should produce international quality (the great majority of the Pages A1 and A2). The median, a measure of academic production, generated what Patrus, Tolentino and Shigaki (2018) called “pre-internationalization”, aims for the internationalization of grade 5, which used to be a differential attribute of the programs graded 6 and 7.

This historical datum suggests how the CAPES established grades 6 and 7, without the necessary adjustment of the grades used in the evaluation. The grades remained between 1 and 5, and were associated with the increase in the measure scale in this model, narrowing the possibility of diversity; this is viewed as isomorphic pressure. Finally, I discuss social inclusion.

Among the components of the CAPES evaluation, social inclusion has the closest relation to the social inequality issue. Unlike the grades of discourses and intellectual production, accounting for 70% of the evaluation and featuring several quantitative metrics, social inclusion is predominantly qualitative: it accounts for 10% of the evaluation. It is composed of three verification items: 1) inclusion and regional and/or national impact of the program; 2) integration and cooperation with other programs and centers; and 3) visibility or transparency of the program.

The first item accounts for 50% of the component, evaluating educational, social, cultural, and technological impacts. The second item accounts for 25% of the component, focusing on actions such as systematic cooperation and exchange with other programs and contribution to innovation in research. The third item, also accounting for 25% of the component, evaluates the availability and accessibility of a program website, with all the data from the program, and broad access to theses and dissertations.

From this data, I conclude that the social inclusion component of a program is evaluated marginally. It is not translated

into values significant enough to induce program coordinators to take this initiative. Notably, Interinstitutional Doctorate (Dinter) and Interinstitutional Masters (Minter) are great initiatives to reduce inequality. Taking the quality of promotion programs to the receiving institutions helps in contributing to the formation of teachers and researchers outside the consolidated centers of education and research, as well as fostering partnerships and opportunities for development in science and technology.

On the one hand, if the promotion programs had to be graded 5, the recent change in this requirement to a minimum of grade 4 should be celebrated as a crucial step toward extending the provision of these partnerships. On the other hand, dedication of time and energy for promotion programs initiatives infringes upon other permanent teachers' tasks. The number of teachers' advisees increases. The fatigue from commuting and duration of trips to the receiving institution, usually in regions where transport logistics are not simple, are other factors that overburden teachers with work.

A way of minimizing these difficulties is to view GCP from a permanent faculty perspective. Because teachers' tasks are multiple and conflicting (Nascimento, 2010), it is not possible that every faculty member completes every task assigned to him or her. When considering teachers as members of a faculty, each teacher may theoretically contribute to the program with his or her best skills, whether they are in education, research, or management. The program must handle its purpose and institutional requirements, with a leader capable of integrating each of its members and function as a healthy organism. Requesting that all teachers take care of all these tasks not only undermines the concept of faculty, but it may take a toll on teachers' health. Moreover, although CAPES evaluates the program and not its teachers, the institutions use the same criteria as those used to evaluate the program, to re-accredit or disaccredit its permanent teachers.

A new, unintentional consequence of the evaluation lies therein; however, it is not highlighted by Smith (1995) or by Thiel and Leeuw (2002). I propose to call it an intellectual solipsism, which may be defined as an emphasis on evaluating the individual productivity of the professional, without considering his or her contribution to his or her team. Considering the context of *stricto sensu* graduate programs, the intellectual solipsism of a GCP professor, regarded as academic solipsism, refers to the emphasis on evaluating his or her individual productivity. This also takes into account the fact that teachers can belong to a permanent faculty group, and may contribute several skills that their peers may not be equipped with, which is required for collectivity to function in good terms.

FINAL REMARKS

With the aim of analyzing social inequality based on the evaluation of the business management programs created by CAPES, I present the following four final remarks: First, it must be acknowledged that the CAPES evaluation includes initiatives to reduce inequality. Regarding social inclusion, there are clear behaviors that are expected from a program to promote social, educational, cultural, economic, and technological development. The strong point of these initiatives is Dinter and Minter; if there is interest from the programs and the area, a greater incentive may be given to joining partnerships like Dinter and Minter, provided that the *tradeoff* is reasonable. Tackling this proposal renews the recommendation that the business administration area and each of its programs reflect on what kind of graduate course one is seeking, which is the point of the second premise.

Second, the enhancement of social inclusion may easily lose value because of the unintentional consequences of the evaluation, especially tunnel vision. This occurs when a program tends to prioritize indicators with quantifiable metrics to the detriment of those of qualitative evaluation. The multiplicity of metrics in the current evaluation, despite enabling greater objectivity, incurs the risk of fixation to the scale, or the risk of GCPs prioritizing an index over its underlying objective.

Third, to fight social inequality is to fight for the right to equality; however, it is essential to remember the importance of fighting for the right to difference (Cury, 2002). The CAPES evaluation treats different people in the same way; the diverse programs try to be equal. An unintentional consequence of GCP evaluations is the issue broadly referred to as intellectual solipsism, and more specifically, academic solipsism: teachers, who have different skills, are evaluated by the university on a scale, and teachers, whose skills are different, try to acquire the same skills. As demonstrated, this distortion undermines the significance of permanent faculty, a fundamental concept that converts team diversity into a value.

Finally, it must be acknowledged that there is a complexity to these challenges. Only by publicly exercising understanding, seeking dialog in a debate focused on the desired graduate course, for Brazil and for each of the GCPs, it is possible to create programs that can contribute to a less unequal, fairer country. As researcher professors, we do not have the power to transform the reality of inequality in Brazil, but if critical reflection, dialog, and rationality are not promoted within the academic community, there is no possibility of transformation.

REFERENCES

- Coordenação de Aperfeiçoamento de Pessoal de Nível Superior. (2017). *Documento de área – Administração Pública e de Empresas, Ciências Contábeis e Turismo – 2017*. Retrieved from <http://www.capes.gov.br/component/content/article/44avaliacao/4649-administracao-ciencias-contabeis-e-turismo>
- Cury, C. R. J. (2002). *Direito à educação: Direito à igualdade, direito à diferença*. *Cadernos de Pesquisa*, (116), 245-262. doi:10.1590/S0100-15742002000200010
- Díaz, L. M. (2007). Instituições do estado e produção e reprodução da desigualdade na América Latina. In A. D. Cimdamore, & A. D. Cattani (Orgs.), *Produção de pobreza e desigualdade na América Latina* (pp. 125-150). Porto Alegre, RS: Tomo Editorial/Clacso.
- Fischer, T. (2018). *Administração como aprendizagem: Do vir ao porvir com Tânia Fischer*. Farol–Revista de Estudos Organizacionais e Sociedade, 5(12), 13-31. doi:10.25113/farol.v5i12.4794
- Freire, P. (2000). *Pedagogia da indignação: Cartas pedagógicas e outros escritos*. São Paulo, SP: Editora UNESP. Retrieved from http://plataforma.redesan.ufrgs.br/biblioteca/pdf_bib.php?COD_ARQUIVO=17339
- Kant, I. ([1783]). *Resposta à pergunta: Que é esclarecimento?* Retrieved from <http://coral.ufsm.br/gpforma/2senafe/PDF/b47.pdf>
- Kliksberg, B. (2010). Os desafios éticos de um continente paradoxal. In A. Sen, & B. Kliksberg (Orgs.), *As pessoas em primeiro lugar: A ética do desenvolvimento e os problemas do mundo globalizado* (pp.137-375). São Paulo, SP: Companhia das Letras.
- Lei de Diretrizes e Bases da Educação Nacional de 1996. (1996). *Planalto Civil*. Retrieved from http://www.planalto.gov.br/ccivil_03/Leis/L9394.htm
- Murillo, S. (2007). Produção de pobreza e construção de subjetividade. In A. D. Cimdamore & A. D. Cattani, *Produção de pobreza e desigualdade na América Latina* (pp. 39-78). Porto Alegre, RS: Tomo Editorial/Clacso.
- Nascimento, L. F. (2010). *Modelo Capes de avaliação: Quais as consequências para o triênio 2010-2012?*. *Administração: Ensino e Pesquisa*, 11(4), 579-600. doi:10.13058/raep.2010.v11n4.130
- Patrus, R., & Lima, M. C. (2014). *A formação de professores e de pesquisadores em administração: Contradições e alternativas*. *Revista Economia & Gestão*, 14(34), 4-29. doi:10.5752/P.1984-6606.2014v14n34p4
- Patrus, R, Shigaki, H. B., & Dantas, D. C. (2018, Maio). Quem não conhece seu passado está condenado a repeti-lo: Distorções da avaliação da pós-graduação no Brasil à luz da história da Capes. *EnEPQ – Encontro Nacional de Ensino e Pesquisa em Administração e Contabilidade*. Encontro da ANPAD, Porto Alegre, RS.
- Patrus, R., Tolentino, V., & Shigaki, H. B. (2018, Maio). Equívocos da avaliação da pós-graduação em administração: A pré-internacionalização da produção intelectual como efeito colateral do pós-produtivismo. *EnEPQ – Encontro Nacional de Ensino e Pesquisa em Administração e Contabilidade*. Encontro da ANPAD, Porto Alegre, RS.
- Pilletti, C. (1987). *Didática geral*. São Paulo, SP: Ática.
- Sen, A. (2001) *Desigualdade reexaminada*. Rio de Janeiro, RJ: Record.
- Smith, P. (1995). *On the unintended consequences of publishing performance data in the public sector*. *International Journal of Public Administration*, 18(2-3), 277-310. doi:10.1080/01900699508525011
- Souza, E. F. de. (2008). *O discurso da Capes para avaliação dos programas de pós-graduação: Da (des)fragmentação à comunicação em rede* (Tese de doutorado, Universidade de Brasília, Brasília, DF). Retrieved from <http://repositorio.unb.br/handle/10482/6299>
- Thiel, S. Van, & Leeuw, F. L. (2002). *The performance paradox in the public sector*. *Public Performance & Management Review*, 25(3) 267-281. doi:10.2307/3381236

PERSPECTIVES

Invited article

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SOCIAL INEQUALITY, RESEARCH RESPONSIBILITY, AND RESPONSIVENESS

INTRODUCTION

Inequality is one of the classic problems of the social sciences. It is recurrently associated with the phenomenon of social stratification because it manifests itself as a hierarchical and unequal arrangement of positions based on socially defined features, such as power, property, and prestige (Eisenstadt, 1995) or as a “structure of regularized inequalities” (Almeida, 1984, p. 175). Although concerns over the economic basis of income and class inequality predominate, attention on the subject has been intensified by its association with other dimensions, such as gender, race, and ethnicity (Dodd, Lamont, & Savage, 2017).

Research indicates that Brazil is one of the most unequal countries in the world. Studies support the historical resilience of inequality (Medeiros, Souza, & Castro, 2015), an absence of significant oscillations of income concentration among the wealthiest population (Souza, 2016), and recent growth in inequality (Morgan, 2017), although official data indicate a reduction in the income concentration in recent years (IBGE, 2018). The 2017 report of the Institute of Applied Economic Research (IPEA) suggests an uncertain scenario up to 2035 concerning the possibility of reducing inequality, which is largely explained by the fiscal imbalance and the recent political crisis (Guellati, Monteiro, & Oliveira Junior, 2017).

The fact is that social inequality is one of the most relevant problems in Brazilian society. It results from the institutional arrangement of the society and, once naturalized and reproduced, reverberates in the reduction of social solidarity and democratic coexistence (Queiroz, 2018; Reis, 2000; Souza, 2004, 2015; Souza, 2016).

In this essay we address the issue of social inequality by focusing on selected aspects of the organizational and institutional scope of the scientific field of research in Business Administration. We begin with a brief consideration of two ways of addressing the relationship between social inequality and research in Business Administration: denial and confrontation. Regarding the second way as better than the first, we approach the discussion on the societal impact of research with two scientific delimitations: the responsible and the responsive. The first refers to the social engagement of research, i.e., to the bonds of commitment to problems or social causes manifested in the practices of the social insertion of graduate programs, and in their preferences for certain research phenomena. The second emphasizes institutional integrity, positioning the debate in the structure of rules and the moral commitment of the academic community.

In conclusion, we argue that responsible engagement legitimizes while responsiveness transforms. The argument is that the approach of research to social problems, especially the more

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pervasive and pernicious ones, such as social inequality, requires the complicity of mechanisms (see Amis, Munir, Lawrence, Hirsch, & McGahan, 2018) at the organizational and institutional levels of the scientific field of Business Administration. This implies, on the one hand, the need to consider the articulation between research intentions and intervention spaces on social reality and, on the other hand, the need to consider formal induction and moral commitment in the infusion of values that bring scientific practice closer to the transformation of society.

SOCIAL INEQUALITY AND RESEARCH IN BUSINESS ADMINISTRATION

Although the relationship between social inequality and the research field of Business Administration may be addressed from different positions, here they are treated as opposites, despite the possibility of intermediate manifestations. We shall refer to denial and confrontation.

Scientific denial encompasses behaviors that involve either rejection of data or evidence, refutation of research strategies, or negligence of the scope of scientific practices with regard to their problem-solving abilities (Specter, 2009). We may imagine the substitution of scientific skepticism by ideological defense or the suppression of evidence by fallacious rhetoric (Hansson, 2017; Specter, 2009) or political proselytism disguised as scientificity.

With regard to the position of denial, the premise is that research in Business Administration should not embrace social inequality. While denial is considered difficult to apprehend or inherently complex, it expresses a skeptical position and non-approval of initiatives that would otherwise be considered naïve, reckless, undue, or irrelevant. There would be three types of denial:

- Object-related: Inequality would not be the focus of studies in the field, which should focus its efforts and resources on the understanding of organizations—their nature, structure, processes, and results. The organization would be the entity to be explained.
- Mechanism-related: Inequality could not be explained from the analysis of management practices or organizational activity, since, in the last instance, it is a distinct problem that should be entrusted to economists, sociologists, or researchers from different areas of knowledge (Amis et al., 2018).

- Constituent-related: Due to the previous ones, inequality would not be the focus of attention of the main constituents of the support and approval of organizational activities, restricted, e.g., to investors, partners, or collaborators and rarely to society at large.

However, denial competes with the position of confrontation. This second view is guided by an understanding that organizations are inherently associated with the reproduction (or solution) of social inequalities, either because they are spaces that produce inequality in their structure and internal processes or because they adopt management practices that replicate existing social problems (Amis et al., 2018; Marens, 2018). Furthermore, it is understood that social inequality requires interdisciplinary treatment, which explains the interest of different stakeholders, including public research funds, government, and segments of civil society. Recent special editions of *Organization Studies* (vol. 39, no. 9, 2018) and *Business & Society* (vol. 57, no. 6, 2018) have addressed the question from this perspective.

In the position of confrontation, the centrality of the problem is taken into account, as well as the potential influence of organizations as an *explanans* of inequality, and the organizational agency as a relevant mechanism for the reduction or reproduction of social problems. The research interest, in turn, is justified not only as an instrumental response to social pressures but also as adherence to the ethical review movement underlying the scientific field (Tsui, 2016), which includes society as a beneficiary.

The position of confrontation, in simple words, means admitting that “Yes, we have something to do with all of this,” that it is necessary to face the problem, and that something can be done about it. Under the terms of this essay, it means opening the door to thinking about research practices, guidelines for graduate programs, development and evaluation agencies, and the shared values of the scientific community in the field of Business Administration.

IMPACT AS A PERSPECTIVE

The position of confrontation mentioned here develops along two paths: that of responsible science (or research) and that of responsive science (or research). We take as a basis and guidance the notion of research impact to address each of them.

There are several conceptions and difficulties inherent in the comprehension of impact, as previously discussed in the RAE Perspectives session (Alperstedt & Andion, 2017; Lazzarini, 2017;

Oliveira Junior, 2018) and elsewhere (Allen, 2018; Bornmann, 2012; Brewer, 2011; Crotty, 2018; Dantas, 2004). Here, impact refers to the multidimensional set of effects caused by the scientific field (we regard the “scientific field” as a social arena constituted of interests, relations, and institutions guiding the production and dissemination of scientific knowledge) in several spheres of society, including academia.

Thus, the impact is largely associated with the societal returns of research, expressed by economic, cultural, social, or environmental effects from the actions of teaching and research entities in different spheres of society beyond the academic community (Donovan, 2011; Grant, Brutscher, Kirk, Butler, & Wooding, 2010). It is also associated with a kind of paradigm shift, through which there is a growing appreciation of knowledge oriented toward different publics and needs of society, in addition to the knowledge produced for the scientific community itself (Hill, 2016). It also involves the assumption that science and society would maintain a social contract in which imperative social problems must be the focus of the production of scientific knowledge (Nightingale & Scott, 2007).

From the above, we will briefly discuss the association between the impact and social engagement of research, referring to the notion of responsible science and its manifestation in the activities aimed at the social insertion of graduate programs and the preference for certain research phenomena.

Scientific responsibility and inequality as object

Responsible research (or science) is guided by epistemic and social values that cherish not only rigor but also relevant and useful knowledge for society (Tsui, 2016). It is, therefore, socially engaged, because it focuses on the societal impact of research, not only considering the publication and use of the information in the academic field but also affecting the forms of “appropriation and use of knowledge by society” (Wood Jr., Costa, Lima & Guimarães, 2016, p. 24). For the purpose of our argument, the social engagement of research was translated here in terms of intention and intervention by graduate programs. While the former refers to the preference for certain objects or phenomena at which research efforts and resources are mostly directed, intervention refers to actions oriented toward changing social reality.

That said, intervening actions implemented by graduate programs may manifest social engagement in a range of ways depending on their relevance and limitations (Lazzarini, 2017; Lima & Wood Jr., 2014; Wood Jr. et al., 2016). Under the Brazilian

graduate evaluation system, such actions tend to be interpreted in terms of the form of social insertion of the programs, entailing initiatives, and their effects on the training of qualified personnel; the repercussions of the research among audiences outside science; and the transformation of knowledge into technologies. In general terms, they encompass a relational dimension with other spheres of society (Ozanne et al., 2017).

Recently, another type of engagement initiative has been successfully implemented, in the form of institutional protocols, manifestoes, and collaborative networks aimed at repositioning the assessment of research impact beyond the academic field. As examples, we may cite the Leiden Manifesto (Hicks, Wouters, Waltman, Rijcke, & Rafols, 2015), The Metric Tide report (Wilsdon et al., 2015), and the San Francisco Declaration on Research Assessment, known as DORA (ASCB, 2013). In this issue, the RAE editorial (see Tonelli & Zambaldi, 2018) referred to this movement by citing the Responsible Research in Business and Management (RRBM) Network initiative. This initiative unites different entities around principles oriented to the defense of the societal value of research and business schools in the face of the potential crisis of legitimacy that builds up from accumulated criticism of the quality, integrity, and distancing of research from the real world (RRBM Network, 2017).

With regard to the first issue of social engagement and also the focus of this study, inequality, the scientific production in Brazil in the area of Business Administration is still scarce. Some numbers are illustrative. From a sample of just over 39,000 theses and dissertations defended in the area of Business and Public Administration in the Catalogue of Thesis and Dissertations of Capes (Coordination for the Improvement of Higher Education Personnel), 200 contained the term “inequality” in their title or abstract. On the SPELL database, among the 44,500 works cataloged, there were only 43 papers containing the term “inequality” in the title. From National Association of Postgraduation and Research in Administration (Associação Nacional de Pós-Graduação e Pesquisa em Administração - ANPAD) events, there have been 23 papers since 1999, and in the SciELO Citation Index Brazil, we found 26 articles, of which 15 were published between 2013 and 2017. Finally, among the more than 1,600 valid research groups on the National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq) platform, only 10 active and certified groups used the term “inequality” in the group name, research line, or research line keyword.

Although this survey has left aside works on the subject that have not used the term in the fields considered in the analysis—or those published in databases and other media not

analyzed—the results suggest that little attention has been given to social inequality as a research subject in the area of Business Administration. Thus, although researchers and research groups may have an eventual interest in the subject, they do not express a generalized interest which is structured in research lines or areas of concentration.

This implies the loss of an opportunity to acquire more knowledge about the phenomenon on which we shed light and a weakening of the ability to understand its theoretical interfaces with the Business Administration area, especially the mechanisms associated with the organizational practices underlying the reproduction and persistence of inequality as a social problem (Alperstedt & Andion, 2017; Amis et al., 2018). Moreover, the low commitment and low sensitivity of the research activities of social inequality drastically reduce the potential societal impact that could be derived from the area of Business Administration in terms of the expectation or confirmation of its influence on and benefits to society (Lima & Wood Jr., 2014).

Responsiveness and institutional integrity

So far, we have tried to position the issue around responsible research, i.e., the orientation toward society underlying the social engagement practices of graduate programs. From this point on, we appeal to the notion of responsiveness, considering that the question should be thought of in the light of two institutionalization mechanisms of the scientific field: formalization of rules and the moral commitment of the community.

Formal rules, in principle, set behavioral norms. They are generally interpreted as a coercive expression of the regulatory order because they have in their constitution assertions that “forbid, require or permit some action or outcome” (Ostrom, 1990, p. 139). However, they are also mechanisms for the establishment of social relations, and they influence the way social reality is understood (Cotterrell, 2006). Therefore, they carry different expressions of informality in their formality; more specifically, they represent some value substance associated with the abstract aspects of their constitution, have an interpretive opening, and are subject to negotiation processes related to their formal validity, adequate representation of the reality for which they are addressed, communicability, and change (Cotterrell, 2006; Stinchcombe, 2001).

In the context of Brazilian graduate programs, there is an abundance of formal rules and guidelines set forth in ordinances, resolutions, and specific documents produced by different entities. The normative content produced by Capes

and CNPq stands out for having guidelines, standards, and sanctions associated with different dimensions of scientific activity, affecting the promotion of research and the evaluation of graduate programs. For this reason, they are the subject of recurring debates in the academic world.

It is important to note the inductive effect produced by the rules once they signal the conditions for the recognition and reward of programs and researchers. On the one hand, they are brought into organizations that sometimes establish specific structures to ensure compliance with the precepts established by the rules. It is not uncommon to find regimental devices or incentive systems in graduate programs oriented toward this end, as with the requirements or rewards for the production of papers. On the other hand, rules affect the individual behavior of the researcher, who considers their contents and effect on the programs as parameters for action. The consequence of this process may vary in the adherence to the substance of the rule, which is sometimes dysfunctional (Friedman, 2016), as in the case of productivist logic.

Thus, returning to the central problem of this essay, would it be possible to suppose that rules produced by development and evaluation agencies are enough to induce the desired societal impact, such as the social inequality here addressed? Probably not. Informality, which underlies the formal rules previously mentioned, raises at least one necessary condition for its statement to produce concreteness in behavioral patterns aligned with its substance: its association with the moral order of the scientific community (Selznick, 1992). It is noteworthy that what is suggested does not address the reasons that lead an individual to obey a rule, but rather that a system of rules maintains institutional integrity in the structure of the scientific field and is responsive in “acknowledging the legitimacy of an appropriate range of claims and interests” (Selznick, 1992, p. 463).

Therefore, community is a relevant element. Hence, since social engagement, tied to social inequality, is part of the moral commitment of the scientific community, it is expected that the organizations involved will be treated as moral agents, infused with value, and thus as responsible and responsive participants in the moral order (Selznick, 1992). Conversely, in the absence of an underlying value that links social inequality to the social engagement of organizations, the greater will be the likelihood of obtaining instrumental responses to rules that recommend the impact. In this sense, the organizations involved will less be institutionalized, and the institutional integrity to sustain social change will be diminished.

In summary, the formalization of rules is, in principle, an inductive mechanism of behaviors, but the inductive capacity

of the rules is greater when sustained by the moral aspects of the scientific community. Thus, the injection of moral principles from the scientific community into the rules that induce societal impact and the actions of social engagement are conditions for institutional integrity. Furthermore, the responsiveness of science to social inequality depends on the conditions for maintaining the institutional integrity of the rules and organizations of the scientific field (e.g., graduate programs, development and evaluation agencies, and others).

FINAL CONSIDERATIONS

Throughout this essay, we sought to discuss the societal impact of scientific research in the area of Business Administration addressing the social inequality issue. We have used the notion of scientific responsibility in an attempt to explore the issue of social engagement in graduate programs. In addition, we proposed attention to responsiveness and, consequently, to institutional integrity, by focusing on the formal rules and sensitivity related to socially valued aspects within the scientific community. We understand that there must be some complicity between the organizational and institutional levels to enhance the effective commitment of research on social problems, such as social inequality.

It is noteworthy that marginalizing the phenomenon of social inequality in the scientific field, as well as other relevant social problems, might be as harmful as the problem itself since it removes legitimacy and public recognition of their importance as an object of analysis. Moreover, it expresses detachment from implicit and manifest interests of the area of Business Administration (it is difficult to believe that this would not lead to an approximation to the position of negation of the object, mechanisms, and constituents). However, initiatives of social engagement, formalization of the institutional processes of evaluation, and recognition and production of research on the subject, although incipient, have been gaining relevance in the academic debate. This space, opened by the RAE Journal to address the issue, is one of the initiatives contributing to the gradual infusion of substantive value to research in this area.

“Social scientists should focus particularly on influencing how people interpret their reality by drawing on the empirical research we pride ourselves on” (Lamont, 2018, p. 436). Thus, in conclusion, we argue that adequately (maintaining) the relationship between responsibility and scientific responsiveness favors initiatives of societal impact, and, especially, the conditions for societal impact.

ACKNOWLEDGEMENTS

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REFERENCES

- Allen, D. G. (2018). *Rethinking Impact*. *Journal of Management*, 44(7), 2507-2510. doi:10.1177/0149206318785902
- Almeida, J. F. (1984). *Temas e conceitos nas teorias da estratificação social*. *Análise Social*, 20(81-82), 167-190.
- Alperstedt, G. D., & Andion, C. (2017). *Por uma pesquisa que faça sentido*. *RAE-Revista de Administração de Empresas*, 57(6), 626-631. doi:10.1590/S0034-759020170609
- American Society for Cell Biology (ASCB). (2012). San Francisco declaration on research assessment. Retrieved from <https://sfdora.org/read/>
- Amis, J. M., Munir, K. A., Lawrence, T. B., Hirsch, P., & McGahan, A. (2018). *Inequality, institutions and organizations*. *Organization Studies*, 39(9), 1131-1152. doi:10.1177/0170840618792596
- Bornmann, L. (2012). *Measuring the societal impact of research*. *EMBO reports*, 13(8), 673-676. doi:10.1038/embor.2012.99
- Brewer, J. D. (2011). *The impact of impact*. *Research Evaluation*, 20(3), 255-256. doi:10.3152/095820211X12941371876869
- Cotterrell, R. (2006). *Law, culture and society: Legal ideas in the mirror of social theory*. Aldershot, UK: Ashgate.
- Crotty, D. (2018). Measuring societal impact or, meet the new metric, same as the old metric [online]. The Scholarly Kitchen. Retrieved from <https://scholarlykitchen.sspnet.org/2018/08/02/societal-impact-meet-new-metric-old-metric/>
- Dantas, F. (2004). *Responsabilidade social e pós-graduação no Brasil: Idéias para (avali)ação*. *Revista Brasileira de Pós-Graduação*, 1(2), 160-172.
- Dodd, N., Lamont, M., & Savage, M. (2017). *Introduction to BJS special issue*. *The British Journal of Sociology*, 68(S1), S3-S10. doi:10.1111/1468-4446.12326
- Donovan, C. (2011). *State of the art in assessing research impact: Introduction to a special issue*. *Research Evaluation*, 20(3), 175-179. doi:10.3152/095820211X13118583635918
- Eisenstadt, S. N. (1995). *Power, trust, and meaning: Essays in sociological theory and analysis*. Chicago, IL: The University of Chicago Press.
- Friedman, L. M. (2016). *Impact: How law affects behavior*. Cambridge, UK: Harvard University Press.
- Grant J., Brutscher, P-B., Kirk, S. E., Butler, I., & Wooding, S. (2010). *Capturing research impacts: A review of international practice*. Santa Monica, CA: RAND.

Edson Ronaldo Guarido Filho

- Guellati, Y., Monteiro, C. D., & Oliveira Júnior, A. (2017). O Brasil em 2035: Tendências e incertezas para a área social. Instituto de Pesquisa Econômica Aplicada (IPEA), Discussion paper 2348. Rio de Janeiro, RJ: IPEA.
- Hansson, S. O. (2017). *Science denial as a form of pseudoscience*. *Studies in History and Philosophy of Science*, 63, 39-47. doi:10.1016/j.shpsa.2017.05.002
- Hicks, D., Wouters, P., Waltman, L., Rijcke, S., & Rafols, I. (2015). *The Leiden manifesto for research metrics*. *Nature*, 520(7548), 429-431. doi:10.1038/520429a
- Hill, S. (2016). *Assessing (for) impact: Future assessment of the societal impact of research*. *Palgrave Communications*, 2, 16073. doi:10.1057/palcomms.2016.73
- Instituto Brasileiro de Geografia e Estatística. (2018). *Pesquisa Nacional por Amostra de Domicílio Contínua*. Retrieved from <https://www.ibge.gov.br/estatisticas-novportal/multidominio/condicoes-de-vida-desigualdade-e-pobreza/17270-pnad-continua.html?=&t=o-que-e>
- Lamont, M. (2018). *Addressing recognition gaps: Destigmatization and the reduction of inequality*. *American Sociological Review*, 83(3), 419-444. doi:10.1177/0003122418773775
- Lazzarini, S. (2017). *Pesquisa em Administração: Em busca de impacto social e outros impactos*. *RAE-Revista de Administração de Empresas*, 57(6), 620-625. doi:10.1590/S0034-759020170608
- Lima, G. M. R., & Wood Jr., T. (2014). *The social impact of research in business and public management*. *RAE-Revista de Administração de Empresas*, 54(4), 458-463. doi:10.1590/S0034-759020140410
- Marens, R. (2018). *Laying the foundation: Preparing the field of business and society for investigating the relationship between business and inequality*. *Business & Society*, 57(6), 1252-1285. doi:10.1177/0007650316679990
- Medeiros, M., Souza, P. H. G. F., & Castro, F. A. (2015). *A estabilidade da desigualdade de renda no Brasil, 2006 a 2012: Estimativa com dados do imposto de renda e pesquisas domiciliares*. *Ciência & Saúde Coletiva*, 20(4), 971-986.
- Morgan, M. (2017). *Extreme and persistent inequality: New evidence for Brazil combining national accounts, surveys and fiscal data, 2001–2015*. *World Inequality Database (WID.org) Working Paper Series*, 12, 1-50.
- Nightingale, P., & Scott, A. (2007). *Peer review and the relevance gap: Ten suggestions for policy-makers*. *Science and Public Policy*, 34(8), 543-553. doi:10.3152/030234207X254396
- Oliveira Junior, M. D. M. (2018). *O futuro dos programas de pós-graduação em Administração: Novas escolhas e novos caminhos*. *RAE-Revista de Administração de Empresas*, 58(1), 87-90. doi:10.1590/S0034-759020180107
- Ostrom, E. (1990). *Governing the commons*. Cambridge, UK: Cambridge University Press.
- Ozanne, J. L., Davis, B., Murray, J. B., Grier, S., Benmecheddal, A., Downey, H. ... Veer, E. (2017). *Assessing the societal impact of research: The relational engagement approach*. *Journal of Public Policy & Marketing*, 36(1), 1-14. doi:10.1509/jppm.14.121
- Queiroz, C. (2018). *Olhar pioneiro sobre a desigualdade social. Entrevista com Elisa Pereira Reis*. *Pesquisa Fapesp*. Retrieved from <http://revistapesquisa.fapesp.br>
- Reis, E. P. (2000). *Percepções da elite sobre pobreza e desigualdade*. *Revista Brasileira de Ciências Sociais*, 15(42), 143-152. doi:10.1590/S0102-69092000000100010
- Responsible Research for Business and Management Network (2017). *A vision of responsible research in business and management: Striving for useful and credible knowledge*. Position Paper, RRBM.
- Selznick, P. (1992). *The moral commonwealth: Social theory and the promise of community*. London, UK: University of California Press.
- Souza, J. (2004). *A gramática social da desigualdade brasileira*. *Revista Brasileira de Ciências Sociais*, 19(54), 79-96. doi:10.1590/S0102-69092004000100005
- Souza, J. (2015). *A tolice da inteligência brasileira: Ou como o país se deixa manipular pela elite*. São Paulo, SP: LeYa.
- Souza, P. H. G. F. (2016). *A desigualdade vista do topo: A concentração de renda entre os ricos no Brasil, 1926–2013*. Doctoral thesis. Universidade de Brasília, Brasília.
- Specter, M. (2009). *Denialism: How irrational thinking harms the planet and threatens our lives*. New York, NY: Penguin.
- Stinchcombe, A. L. (2001). *When formality works: Authority and abstraction in law and organizations*. Chicago, IL: University of Chicago Press.
- Tonelli, M. J., & Zambaldi, F. (2018). *Ciência responsável e impacto social da pesquisa em Administração*. *RAE-Revista de Administração de Empresas*, 58(3), 215-216. doi:10.1590/S0034-759020180301
- Tsui, A. (2016). *Reflections on the so-called value-free ideal: A call for responsible science in the business schools*. *Cross Cultural & Strategic Management*, 23(1), 4-28. doi:10.1108/CCSM-08-2015-0101
- Wilsdon, J., Allen, L., Belfiore, E., Campbell, P., Curry, S., Hill, S. ... Johnson, B. (2015). *The metric tide: Report of the independent review of the role of metrics in research assessment and management*. Retrieved from http://blogs.lse.ac.uk/impactofsciences/files/2015/07/2015_metrictide.pdf
- Wood Jr, T., Costa, C. C. M., Lima, G. D. M. R., & Guimarães, R. C. (2016). *Impacto social: Estudo sobre programas brasileiros selecionados de pós-graduação em administração de empresas*. *RAC-Revista de Administração Contemporânea*, 20(1), 21-40. doi:10.1590/1982-7849rac20161842

BOOK REVIEW

Translated version

SUITING INNOVATIONS TO EMERGING MARKETS: HOW TO DO MORE WITH LESS

JUGAAD INNOVATION: Think frugal, be flexible, generate breakthrough growth.

Navi Radjou, Jaideep Prabhu & Simone Ahuja. San Francisco: Jossey-Bass, 2012. 288p.

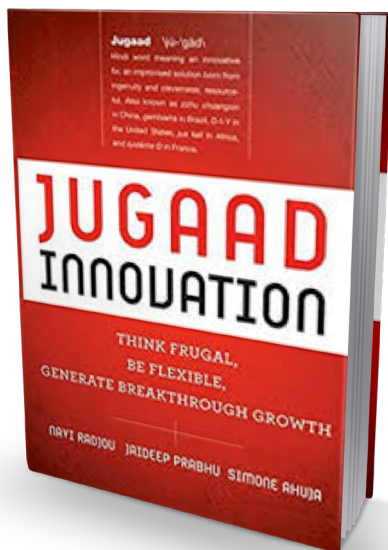
When there are talks about innovation, we soon imagine those ultra-high-resolution televisions, water-resistant smartphones with a number of functions, almost human Japanese robots, or cars that will soon dispense with drivers, among other high-tech products that inhabit the popular imagination. On the other hand, we certainly would not associate innovation with products such as a compact refrigerator made of clay that does not use electricity, or with a bicycle prepared to walk through bumpy streets, generating energy through the buffers.

These unusual innovations are highlighted in this book, because unlike the innovations produced in developed countries, in countries of emerging economies, where there is a generalized shortage of natural, technological, and human resources added to a highly complex environment, the task of innovating becomes a true challenge to be overcome. With the aim of bringing the innovation process in emerging countries to the fore, the authors Navi Radjou, Jaideep Prabhu, and Simone Ahuja present a discussion in their book “Jugaad Innovation” released in 2012 and present an easy, pleasant, and fluid reading, ideal for those looking for a quick and enjoyable reading.

The term *Jugaad* is a Hindu word that means an innovative fix, an improvised solution born of inventiveness, creativity, or intelligence; ingenuity. *Jugaad* also has words of the same meaning in other countries, such as *zizhu chuangxin* in China, *D-I-Y* in the United States, *jua kali* in Africa, *ystème D* in France, and in Brazil, it is the same as *gambiarra*, improvised or popularly known as the Brazilian way (*Jeitinho Brasileiro*).

The authors’ main arguments are based on: (a) the idea of discontinuity of the current innovation processes as an old formula used by Western business leaders who mix the top-down strategies with rigid and highly structured business processes, requiring a diversity of abundant resources, generally available from developed countries; (b) a belief that Western leaders need to look at countries with high growth potential and large business opportunities, particularly for emerging countries, such as Brazil, India, China, Russia, and South Africa, seeking a new frugal and flexible approach to innovation processes; and (c) India’s choice to conduct research and studies because, after China, it is the fastest growing economy in the world, indicating that India will soon surpass China economically.

Divided into nine chapters, the authors bring numerous examples, presented and described in detail, and also present an important conceptual framework for those who wish to promote the *Jugaad* innovation, frugal and simplified, in the mold indicated by the book. However, the authors sin for the absence of figures and



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illustrations of the curious and innovative products exemplified, being for the imagination of the readers, the visualization of the ideas of products indicated during reading. Another flaw is the absence of schemas or figures that make the visualization of the conceptual structure indicated by the book.

In short, the *Jugaad* innovation, brought by the authors, can be summarized in six principles: (1) The pursuit of opportunities in adversity; (2) Do more with less; (3) Be flexible; (4) Simplify things; (5) Give chance to the excluded; and (6) Follow your heart. Despite the seeming simplicity indicated in these principles, and the numerous illustrative examples detailed throughout the chapters, the authors do not bring practical methods or applications that allow readers or potential managers to implement in practice the principles outlined in this book.

In the first chapter, the authors elaborately present the concept of *Jugaad* innovation, presenting a counterpoint to the traditional methods of innovation used in the Western countries of developed economies. They point out that the complexity of markets, such as scarcity, diversity, interconnectivity, speed, and globalization limit the ability of Western organizations to innovate.

In the second chapter, the first principle of the conceptual structure is presented, indicating that we must seek opportunities in adversity. According to the authors, *jugaad* entrepreneurs transform the severe constraints and lack of resources into opportunities to create and generate value through creative inventions, such as the bicycle developed to ride on roads full of holes and bumps, creating a bicycle that generates energy from these bumps.

In the third, fourth, and fifth chapters, the authors present the second, third, and fourth principles respectively, in which it is indicated to do more with less, because where there is a generalized shortage of resources, such as water, energy, food, and particularly professionals with technical capacity, the obligation to seek solutions using what one has is fundamental, making entrepreneurs highly qualified and creative. Being flexible goes against traditional approaches where low-risk operations are desired. By being flexible, *Jugaad* entrepreneurs constantly question the *status quo*, keeping an open mind and accepting new solutions, unrestricted, and remaining open to the innumerable possibilities for innovation. In addition,

simplifying things is fundamental to *Jugaad* innovation, as the authors argue about the importance of finding “good enough” solutions to solve the problem in question, dispensing with the very elaborate or sophisticated possibilities.

In chapter six, the fifth principle of *Jugaad* innovation is presented, which speaks about the importance of giving chance to the excluded. Although it seems obvious, many companies do not provide sufficient attention to the large number of consumers who are marginalized or excluded from the attention of traditional companies as they are consumers with limited or no purchasing power. However, the authors point out that the *Jugaad* entrepreneurs intentionally seek out these excluded and/or often overlooked clients by large corporations, precisely in order to bring them to the consumer market, and creating products and solutions that are accessible and that meet the needs of these markets needs. In addition to bringing them to the consumer market, *Jugaad* companies create their business models aimed at social inclusion involving these non-traditional and low-income communities as active consumers and participants in the process of creating and generating value.

In chapter seven, the sixth principle is introduced which encourages the reader to “follow his heart,” indicating that *Jugaad* innovators do not rely on discussion groups or market research to decide what to produce or what strategic decisions to make. In addition, they do not necessarily decide on which markets to act. The main argument of the authors is that as *Jugaad* innovators are close and integral to the communities where they operate, they know the market and its consumers, allowing them to use only their knowledge and feeling for decision making. One more weakness that should be highlighted, as it goes against the common sense that attaches significant importance to market information, is that it also encourages unsuspecting readers to make decisions on a guesswork basis.

To conclude, in chapters eight and nine, the authors present ways of integrating the *Jugaad* mentality to the companies, as well as provide the guidelines for the creation of *Jugaad* nations.

The *Jugaad* Innovation book is an interesting read for those who seek ways to innovate, despite adversity. Putting into practice the presented method can be an alternative for the creation of frugal, simple, and profitable innovations. All we have to do is test it.

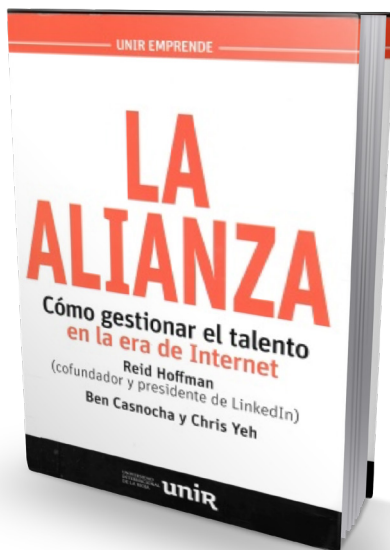
BOOK REVIEW

Translated version

ALLIANCE BETWEEN EMPLOYERS AND EMPLOYEES IN THE NEW ERA OF THE INTERNET

LA ALIANZA. Cómo gestionar el talento en la era de internet.

Reid Hoffman, Ben Casnocha, y Chris Yeh. Logroño: Universidad Internacional de La Rioja, S.A. (UNIR Editorial), 2016. 171p.



“La alianza. Cómo gestionar el talento en la era de Internet” (2016) is the Spanish translation of the book, “The Alliance. Managing talent in the networked age” (Harvard Business Review Press, 2014). Written by Reid Hoffman, Ben Casnocha, and Chris Yeh, the book revolves around the idea that the traditional model of employment for life, while appropriate for periods of stability, is rigid in the era of networking. Reid Hoffman is the co-founder and CEO of LinkedIn and partner of Greylock Partners. Ben Casnocha is a writer and entrepreneur in Silicon Valley, who was director of personnel at LinkedIn and Greylock Partners, and also a coauthor of books with Reid Hoffman, such as *El mejor negocio eres tú: Adáptate al futuro, invierte en ti mismo e impulsa tu carrera*, a New York Times bestseller. Chris Yeh is the vice-president of marketing for PBworks and co-founder and partner of Wasabi Ventures. What all three authors have in common is their dedication to the world of technology and innovation.

In this 171-page book, which comprises eight chapters and three appendices, the authors consider the traditional model of employment to be in recession all over the world. They believe that both managers and employees should create a new relationship framework in which promises can be made and maintained. The book aims to promote this endeavor and contribute to the construction of prosperous companies and successful professional careers. Based on this reading, we believe that the last cycle of economic crisis may be to blame for the loss of validity of the existing life-long work model, although employees continue to prefer stability in their jobs. As per assignments conducted on job satisfaction, we have found that stability is a factor that influences the satisfaction of workers.

The terms “employee” and “employer”, or “employee” and “manager” are widely but appropriately used throughout this book. The alliance (Chapter One) is the agreement, with explicit conditions, mutually beneficial for both parties (manager and employee) to work on building successful, prosperous and professional companies. As stated in Chapter Four, this alliance is ethical, and not legal. The authors of the book, who come from an environment in which labor alliances are consolidated (i.e., the business fabric of Silicon Valley start-ups where companies experience an economic growth in early years), say that for organizations to survive and grow in a changing

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and innovative environment, they must adapt to the needs of the business ecosystem. Under this premise, talent is the most valuable resource and the most successful companies are those that use alliances to hire, manage, and maintain entrepreneurial and talented teams. Thus, this book covers stories of different situations experienced by employees and managers, alike, with specific attention to cases at the company LinkedIn.

Chapter Two deals with the period of service, which is “a way of choreographing the progressive commitments that shape the alliance” (page 33). It distinguishes between “rotating” and “transformative” service periods. The “rotating” service is usually one to three years long- during which employees joining a company automatically access each service. The “transformative” service periods are usually two to five years long, and are determined by specific objectives. “Foundational” service periods are longer still, and during this period, parties assume a permanent relationship. In any of these cases, the employment relationship must be bidirectional and the benefits to employers and employees must be clarified. Regardless of the service duration, the purpose of the service periods is to build trust by means of sincere conversations and to voluntarily seek longevity of the relationship.

In Chapter Three, the authors talk about how to align an employee’s goals and values with those of the company. The necessary level of alignment may vary depending on the type of service period. For the rotating services, the overlap between the company’s interests and those of employees is modest, while in the transformative phase, the overlap is substantial and in the foundational service periods, the overlap is almost complete. These findings are clearly indicated in the graphs on Page 64. Typically, the company’s values are clear and, at first, immovable, while employees’ values are less explicit.

We believe that the first three chapters reflect the substantial parts of the book. To implement the system (Chapter Four), it is necessary to establish periodic controls to assess development during the period of service from both parties’ perspectives, at regular intervals or when discussing specific objectives. The key to a successful conversation about a period of service lies in acting systematically, consistently, and transparently.

Chapter Five deals with the collection of information about networks. The greatest utility networks offer is connecting the organization with external information sources. Employees’ contact networking acts as a source and filter of new data. Above all, online information makes it easier to select talent. To implement information gathering plans (Chapter Six), one

should: a) select highly connected people, b) teach employees to collect sensitive information through social networks or by talking, c) develop programs and policies that help employees build their individual networks; d) have employees share their learnings with the organization.

The authors dedicate the last two chapters of the book to the networks of former employees. “Creating a network of former employees costs little and is the next natural step for maintaining a relationship of trust, investment and mutual benefit” (page 120). However, these networks bring more benefits for the former employees and less for the company. The company can offer its former employees facilities for rehiring, provide discounts on products, invitations to events and official recognition for selected employees. Profitable relationships with talented former employees who have worked there before must endure, and although lifetime employment disappears, alliances come into place forever.

In short, we believe that this is an interesting topic and, a broad debate. It is true that employment disappears for life, but not due to the employee’s decision, as they usually aim for stability in the company hiring them. While this “idyllic” relationship between employers and employees would improve the working environment, which is fairly important for the proper functioning of companies, it is not prevalent in most companies. Perhaps some organizations are more inclined toward implementing this system than others, especially those in the sectors of technology, innovation, and networks, among others. The organization must adapt to the environment, so that it can serve the market in the best possible way. Thus, the proposal of the book is more appropriate to implement, especially in high-tech contexts, where a breakthrough or specific innovation is sought, with technicians entering and leaving at different stages of the process. The organization will then be characterized by its flexibility and adaptability to the specific needs at the time.

La Alianza aims to provide a framework that changes the functioning of companies and, ultimately, the economy in general (page 142). This statement is too broad and may need some development. The book is interspersed with names and situations that bring realism to the discourse, although there is a lack of emphasis on the description of departments of the company that are most involved in these actions. We believe that the human resources department is responsible for establishing contact between employers and employees, so a team of specialized staff will be highly useful for establishing an environment of trust and transparency in an organization.

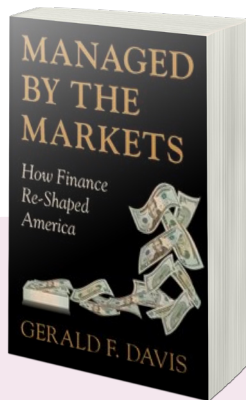
BOOK RECOMMENDATION

Translated version

Cultural perspectives on financial domination in the economy and organizations

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The last few decades have witnessed rapid changes in the dynamics of capitalist economies around the world. Important authors in the fields of economic and organizational sociologies have tried to interpret them from perspectives that emphasize cultural and power relations in the construction of economic processes. Most of these authors associate these changes with those in the dynamics of accumulation due to market deregulations, which allow for the financial sector overlapping the productive sectors of the economy and the prioritization of capital accumulation via the financial market to the detriment of the industry. The recommended books systematize the discussion on how these processes unfolded and what their organizational and work consequences were, providing a “shortcut” to understanding our days.



MANAGED BY THE MARKETS. How finance re-shaped America

Gerald F. Davis. New York, NY: Oxford University Press, 2009. 304 p.

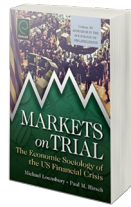
In this book, Gerald Davis, Professor of the University of Michigan, comprehensively analyzes the financialization processes in the United States starting in the 1980s, addressing how they affected companies, banks, the state, and citizens. This analysis of the extensive reorganization of the United States is important in itself as well as by its enormous influence on other countries. It is an excellent starting point for the subject.



DECIFRA-ME OU TE DEVORO: O Brasil e a dominação financeira.

Roberto Grün São Paulo – SP: Alameda, 2015. 346 p.

In another comprehensive book, Professor Roberto Grün addresses specifically how finance was culturally imposed on the Brazilian society. His analysis starts considering the oscillations in economic culture, the transformations in politics and the dominant corporate models in the last decades, culminate in taking corporate governance as the focal point of financial dominance, and finishes investigating the ambiguous relationship between the PT (Worker’s Party) governments and finance.



MARKETS ON TRIAL: The economic sociology of the U.S. financial crisis.

Michael Lounsbury & Paul M. Hirsch (Eds.). Bingley, UK: Emerald Books, 2010.

In this valuable book, divided into two volumes, some of the leading authors in the fields of economic and organizational sociologies provide alternative interpretations and recommend ways for the resolution of the 2008 financial crisis. Analyses of the dramatic events associated with the crisis particularly reveal the cultural foundations of historically constructed multiple forms of social rationality, which is the basis for the functioning of financial markets.



THE VANISHING AMERICAN CORPORATION: Navigating the hazards of a new economy

Gerald Davis. Oakland, CA: Berrett-Koehler Publishers, 2016. 234 p.

Starting from the provocative assertion that large corporations are gradually disappearing from developed economies, Davis argues that financial hegemony has weakened the hierarchical coordination typical of large firms and promoted the rise of coordination through commercial contracts based on the performance of projects and tasks. This trend has arisen from the diffusion of digital platforms facilitating “uberization” of the dominant business models.



ENRICHISSEMENT: Une critique de la marchandise

Luc Boltanski & Arnaud Esquerre. Paris, France: Gallimard, 2016. 672 p.

Applying their pragmatic justifications approach to confront the classical value theories, authors argue that the de-industrialization of European economies and the increase in inequality have boosted what they call the “enrichment economy,” which promotes the appreciation of what is unique, rare, and ancient. This approach is an alternative way to understand the recent transformations in capitalism, seeking to raise criticisms that can moralize its dynamics and control it.

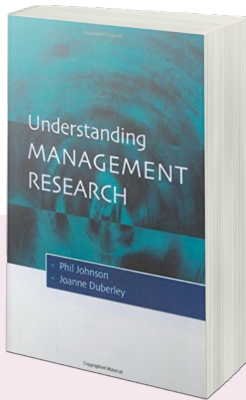
BOOK RECOMMENDATION

Epistemology of Management science

Translated version

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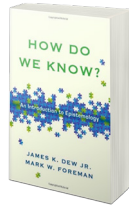
Over the last 10 years in Brazil, debates around epistemological issues have grown in the field of management science. Several graduate programs in this field already offer courses on epistemology of management research. It is a topic of interest to three categories of the meeting of the National Association of Postgraduate and Research in Management (EnANPAD), namely teaching and research in management and accounting (EPQ), organizational studies (EOR), and marketing (MKT). Furthermore, an international colloquium on the subject has been regularly held at the Federal University of Santa Catarina, under the leadership of Professor Maurício Serva. Given below are a list of recommended books that can aid graduate students of management to understand the complex philosophical foundations of the social sciences and the management studies and produce knowledge in this domain. These books were suggested and reviewed by Professor Pedro Jaime (Graduate Program on Management Studies/FEI-SP), author of the *Executivos negros: Racismo e diversidade no mundo empresarial* (Edusp, 2016) and *Sociologia das organizações: Conceitos, relatos e casos* (Cengage, 2017).



UNDERSTANDING MANAGEMENT RESEARCH: An Introduction to Epistemology

Phil Johnson & Joanne Duberley. London, UK: Sage, 2000, p.224.

The book consists of eight chapters, including an introduction that emphasizes the importance of epistemology in research on management and a conclusion that advocates for a more reflexive approach towards studies in this area. The other chapters discuss the epistemological currents; a few examples of these currents are positivism, conventionalism, critical theory, pragmatism, and critical realism. It is worth mentioning the absence of a chapter on interpretative approaches, which are studied along with the positivist perspective, causing possible confusion on the readers.



HOW DO WE KNOW? An Introduction to Epistemology

James K. Dew Jr. & Mark W. Foreman. Downers Grove, IL: IVP Academic, 2014, p. 175.

As an educational book, it places epistemology as the branch of philosophy that deals with nature and the sources of knowledge. It discusses central concepts of epistemological reflection, including truth, inference, perception, justification, and certainty. The following two caveats should be noted: 1) the specificities of the production of knowledge in social sciences are not always identified, and 2) the authors are professors of philosophy and religion. Therefore, some passages of the book, and even one entire chapter, are devoted to theological knowledge.



PHILOSOPHY OF SOCIAL SCIENCE: The Philosophical Foundations of Social Thought

Ted Benton & Ian Craib. London, UK: Palgrave Macmillan, 2010, p. 256.

It presents the philosophical basis of social sciences. The introduction suggests that the production of knowledge in this field gains density when directed toward branches of philosophy, such as epistemology, ontology, logic, and ethics. The chapters are dedicated to different epistemological trends: positivism, distinct interpretive traditions (comprehensive sociology, phenomenology, hermeneutics), critical theory, critical realism, feminist, and postmodernist and poststructuralist approaches. The work is completed by conclusions, comments on recent developments, and a useful glossary.



PHILOSOPHIES OF SOCIAL SCIENCE: The Classic and Contemporary Readings

Gerard Delanty & Piet Strydom (Eds.). Maidenhead, UK: Open University Press, 2003, p. 496

The book is a collection of extracts from works written by classical and contemporary authors of philosophy and social sciences. The introduction position epistemology in relation to ontology and methodology. Six parts are dedicated to positivism and its critics, interpretive traditions, critical theory, pragmatism/semiotics, structuralism/post-structuralism controversy, and new approaches, respectively. Each part presents a brief introduction which brings the central aspects of the tradition and the authors associated with it.



RESEARCH CONCEPTS FOR MANAGEMENT STUDIES

Alan Berkeley Thomas. London, UK: Routledge, 2006, p. 224.

This book addresses the language employed in management research, and hence serves as a guide to students in this domain. It emphasizes that concepts related to the scientific practice in this area have multiple meanings because they are influenced by different temporal, national, epistemological, methodological, and disciplinary contexts. The author discusses notions of science, theory, data, validity and significance used in three major subareas of management studies - accounting and finance, marketing and organizational behavior - and their connections to roots disciplines such as economics, sociology, and psychology.