

The Impact of Institutional Pressures on the Use and Maintenance of E-Commerce in Brazilian Micro and Small Enterprises (MSEs)

Henrique Adriano de Sousa¹ 

Luciana Klein¹ 

Simone Bernardes Voese¹ 

Abstract

Purpose – The study aims to verify the impact of institutional pressures on the perception of obstacles and benefits of the adoption and maintenance of e-commerce in Brazil's micro and small companies.

Theoretical framework – The study was conducted based on the precepts of Institutional Theory, focused on the institutional pressures approach. It verified the orientation and adaptation of actions taken by MSEs towards the use of e-commerce as an organizational practice.

Design/methodology/approach – The research was conducted based on a survey involving 120 managers of companies that use e-commerce. The survey was composed of 28 questions concerning institutional pressures, benefits, and obstacles perceived by managers, in addition to aspects related to the adoption and maintenance of e-commerce. Structural equation modeling was used for the data analysis.

Practical & social implications of research – The outcome of this study demonstrated that institutional mimetic and normative pressures provide the perception of benefits and help overcome obstacles concerning e-commerce, which compels companies to adopt and improve this business modality. On the other hand, coercive pressures showed no association with the perception of benefits, but mitigated the perception of obstacles, which suggests that coercive pressures are motivated according to the local context they form part of.

Originality/value – There is increased discussion of Institutional Theory, in which it is possible to verify that institutional pressures influence MSEs to

1. Federal University of Paraná, Department of Accounting Sciences, Curitiba, Brazil

How to cite:

Sousa, H. A., Klein, L., & Voese, S. B. (2022). The impact of institutional pressures on the use and maintenance of e-commerce in Brazilian micro and small enterprises (MSEs). *Revista Brasileira de Gestão de Negócios*, 24(2), p.366-382. <https://doi.org/10.7819/rbgn.v24i2.4174>

Received on:

05/01/2021

Approved on:

03/26/2022

Responsible editor:

Prof. Dr. João Mauricio Gama

Boaventura

Evaluation process:

Double Blind Review

Reviewers:

Ana Carolina Ferreira de Siqueira;

Cristina Dai Prá Martens

This article is open data



Revista Brasileira de Gestão de Negócios

<https://doi.org/10.7819/rbgn.v24i2.4174>

adopt and maintain new forms of online business. Thus, the results orientate the development of strategies by management using digital technologies as tools that allow competition.

Keywords: E-commerce, MSEs, adoption and maintenance, institutional pressures, obstacles and benefits.

1 Introduction

The use of e-commerce is modifying the way business models are executed in companies, especially in those considered as traditional (Choshin & Ghaffari, 2017). The growth of this commerce model has redirected business strategies to meet customers' expectations (Jai et al., 2013) and improve relations with suppliers. According to the literature, some consequent benefits of using e-commerce are: an increase in market expansion potential, adaptation to the external environment, an increase in reliability, uncertainty minimization, cost reductions, a visibility boost, and reduced need for physical space (Cheng & Yu, 2008; Felipa, 2017; Nohara et al., 2008; Yu et al., 2018). However, companies face obstacles regarding technological adaptation to innovations, wide asset use in information systems, lack of qualified employees, absence of data security, process modifications, and limited financial assets (Yu et al., 2018).

According to data from Ebit Nielsen's (2019) survey, in Brazil, e-commerce grew by 12% in the first semester of 2019. In the second, this growth represented R\$26.4 billion in revenue. The first half of 2019 saw 20% growth regarding the volume of orders in e-commerce, representing R\$65.2 million. Sales through mobile-commerce (m-commerce) were more prominent in non-durable goods, with emphasis on products for immediate consumption, such as food and beverages (Nielsen, 2019). By expanding their reach and consequently their sales, e-commerce can be a strategic option for micro and small enterprises (MSEs) seeking survival in the market. According to the Brazilian Micro and Small Business Support Service (SEBRAE), there are 6.4 million business establishments in the country, of which 99% of them are micro and small enterprises that account for 52% of formal jobs in the private sector (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas, 2020). In addition, the participation of MSEs represents 27% of the gross domestic product (GDP).

However, the use of e-commerce is not always a strategy issue. Companies seek to address the pressures of diverse customer profiles and analyze the behavior of other organizational field agents. In order to address the pressures of the business environment and the demands of their customers, companies have shown increasing concerns when adopting pre-established practices that will make them more appreciated and recognized in the market where they operate. This leads companies from the same environment to become similar to each other, building a scenario known as institutional isomorphism (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Furthermore, external institutions become the rulers through mimetic, coercive, and normative pressures (DiMaggio & Powell, 1983; Scott, 2008).

Mimetic isomorphism occurs due to the perception of successful actions taken by other companies from the same institutional field. It can be achieved by the incorporation of technological elements, innovations, or reactions to crisis situations, such as the Covid-19 pandemic, which directly impacts small entrepreneurs' commerce strategies (Cheng & Yu, 2008, Lin, Luo & Luo, 2019). Coercive isomorphism occurs through the relationship of dependence of one company on others, while normative isomorphism occurs due to professionalization (Cheng & Yu, 2008; DiMaggio & Powell, 1983; Lin et al., 2019).

MSEs and large companies have different aspects when it comes to perceiving benefits and obstacles related to technological innovations and the distinctive pressure they suffer from the environment since there is a time gap between their adoption of technologies due to social, economic, technological, and political conditions. However, with the introduction of the internet and the rapid change in customer requirements, institutional pressures have intensified (Rahayu & Day, 2015). For MSEs, keeping track of new technologies, market demands, and changes in customer behavior is essential to their survival due to their limited financial and technological resources, as well as physical capacity (Baggio et al., 2019). The knowledge and use of e-commerce help these businesses

to access different marketplaces by applying economies of scale and achieving network effects, which facilitates their development and makes them competitive and sustainable (Kabanda & Brown, 2017; Lestari, 2019).

Considering companies' perspectives and the growth of e-commerce, the purpose of this study is to verify the impact of institutional pressures on the perception of obstacles and benefits in the use and maintenance of e-commerce by Brazilian MSEs. After consulting managers of MSEs and collecting data through a survey, structural equation modeling was used to analyze and highlight the connection between institutional pressures and the perception of obstacles and benefits by MSEs that led to the adoption and maintenance of e-commerce.

The institutional approach in MSEs has been explored from different perspectives in Social Science research. Kurnia et al. (2015) examined the influence of organizational, industry and national readiness and environmental pressure on the adoption of distinct e-commerce technologies by MSEs in the retail sector in developing countries, based on the Malaysian supermarket sector. Williams and Spielmann (2019) analyzed how external institutional pressures influence the international market orientation in MSEs. Ramaswamy et al. (2017) examined Indian business groups and their diversification strategies at the time of pro-market institutional reforms, highlighting the diversification choices at the group level, and the consequences of these choices for their performance during a period of institutional change. In Brazil, institutional studies on MSEs have been conducted emphasizing internationalization and the adoption of accounting standards. Garcia et al. (2019) analyzed the mechanisms of institutionalization of the Brazilian Accounting Pronouncements Committee (CPC) for small and medium enterprises (SMEs). Silva et al. (2014) studied the institutional factors and the isomorphic mechanisms shown in the internationalization process, as well as the mimetic mechanisms in the approach of managers from different organizations. In this regard, studies that seek to verify how MSEs adapt to institutional dynamics and changes due to the implementation of e-commerce in their organizational field have become more relevant, aside from analyzing aspects that have not yet been addressed in Brazilian studies.

The effects of Covid-19 on e-commerce are remarkable and it is possible that the impact of coercive pressures has been intensified in terms of buyers, sellers, and regulations (Agus et al., 2021; Machová et al., 2021).

Due to the expansion of the field, mimetic pressures related to new business have also been intensified (Wang, 2021).

2 Institutional pressures and the perception of obstacles and benefits in the adoption of e-commerce

Institutions are systems that can structure social interactions with long-standing rules and social conventions that are already established and embedded. Language, money, law, systems of weights and measures, table manners, and businesses, among others, are examples of institutions (Scott, 2008). Institutions are fundamental to social interactions as they can shape and change individuals' willingness and aspirations, as well as exert pressures on organizations' behavior. These pressures are an outcome of the environment, such as regulatory forces and social forces, which transact with the organizations, and direct control relationships (DiMaggio & Powell, 1983; Guarido & Costa, 2012; Scott, 1994, 2008).

From the institutional perspective, the interaction between organizations and external institutions guides and shapes the actions that must be taken regarding new organizational practices (DiMaggio & Powell, 1983; Guarido & Costa, 2012; Williams & Spielmann, 2019). Changes in organizational behavior and adherence to new technologies occur within the institutional field, mediated by formal and informal pressures (DiMaggio & Powell, 1983; Oliver, 1991).

According to Fonseca (2003), Institutional Theory is based on three pillars - cognitive, regulatory, and normative - that can form the background of the relationship between institutions and organizations. Mimetic pressures are related to the cognitive pillar, coercive pressures to the regulatory pillar, and normative pressures to the normative pillar. Isomorphism occurs through institutional pressures and, although it is related to the empirical context, it is presented in three different features: mimetic, coercive, and normative (DiMaggio & Powell, 1983; Lai et al., 2006), as it can be seen in Chart 1.

Mimetic pressures are reinforced in environments with a high level of uncertainties and when members do not have clear goals, besides arising from the disadvantages perceived compared to competitors (Alsaad & Taamneh, 2019; DiMaggio & Powell, 1983; Oyadomari et al., 2008). Thus, companies seek to replicate other organizations' valid and successful actions. According to DiMaggio and Powell (1983), it is not uncommon for organizations to

Chart 1
Institutional pressures

Institutional Isomorphism		Authors
Mimetic isomorphism	It comes from one company's perception of the actions and models of success used by another enterprise located in the same institutional field. The changes in the way of working, in the market, and in the technological resources, among others, bring instability and create uncertainties in the organizational system. In response to these uncertainties, companies choose to replicate models from other similar companies which they consider legitimate and occupy a good place in the market.	Alsaad and Taamneh (2019), DiMaggio and Powell (1983), Alsaad and Taamneh (2019)
Coercive isomorphism	Coercive isomorphism is established by formal and informal pressures exerted by other organizations (such as political or social ones) that also interact in the same environment, affecting the organizations' orientation and their form of management. This includes customers, legislation, and associations, among others.	DiMaggio and Powell (1983), Lai et al. (2006)
Normative isomorphism	Normative isomorphism is mainly derived from professionalization, based on the search for members of a certain class that can validate ideals. However, this class must be able to associate other categories of influencers with their aspirations, such as customers and professionals from different areas. Professionalization introduces two important elements for isomorphism: formal education and the rise of professional networks between organizations, validating work models. This includes staff turnover, transfer of employees, changes of consulting firms, class associations, and any distribution of people working in different organizations in a balanced way.	Meyer and Rowan (1977), DiMaggio and Powell (1983), Peci (2006), Lai et al. (2006), Guarido and Costa (2012), Lin et al. (2019)

Source: The authors.

face unknown demands and difficulties, making such practices easy for these companies.

According to Haveman (1993), in the technological field, mimicry becomes efficient when companies diversify into a new market segment and start using new technological tools. As these innovations are included as part of the company, other social actors recognize and copy them, minimizing uncertainty, decreasing costs, and increasing benefits (Haveman, 1993; Cheng & Yu, 2008). In this sense, MSEs may recognize benefits by copying other companies that have previously adopted such practices.

In e-commerce, reducing uncertainties by studying the way of working and the operationalization of similar companies can lead to obstacles being overcome. This allows a better technology collection and a greater focus on other challenges, such as the need to become prominent in the market (Cheng & Yu, 2008; Piris et al., 2004). Therefore, the first research hypothesis was formulated:

H1a: Mimetic pressures are positively associated with the benefits of e-commerce perceived by MSEs.

H1b: Mimetic pressures are negatively associated with the obstacles of e-commerce perceived by MSEs.

Coercive pressures are expressed by dependency within the business field, where companies' actions are

in accordance with dominant organizations (Hwang & Choi, 2017). Companies depend on other organizations that hold resources and regulations, and customers who are the "rulers of the game," since they became more demanding with the opening of online markets, given the great supply. As a result, competition has been intensified and companies have started implementing measures to ensure their market share (Hwang & Choi, 2017; Lin et al., 2019). MSEs can also discern coercive pressures from intermediary companies in their sales, such as marketplaces, which operate as virtual shopping centers, offering online platforms, security, numerous services, and means of payment, among other conveniences, besides enhancing the companies' range (Serrentino, 2015). Furthermore, regulatory agencies have a remarkable coercive pressure on MSEs' e-commerce regulation.

Considering the coercive isomorphism perceived in the organizational field, some organizations start acting alike, adopting certain practices due to the coercion exercised by regulatory agencies. Companies seek to comply with what is imposed on them to take advantage of the benefits or to avoid market penalties. By attending to coercive pressures, MSEs minimize their perception of obstacles in e-commerce. Thus, the more rewards coercive organizations attribute, the greater the transformational force exerted on the companies, attributing a positive perception of the benefits of using e-commerce (Lin et al., 2019). Therefore, the second research hypothesis is presented:

H2a: Coercive pressures are positively associated with the benefits of e-commerce perceived by MSEs.

H2b: Coercive pressures are negatively associated with the obstacles of e-commerce perceived by MSEs.

Several organizations and networks of employees shape the ways a company operates, due to professionals who have worked elsewhere and still use the same techniques from other companies, making them resemble each other (Tsamenyi et al., 2006). The use of e-commerce by suppliers (Quaddus & Hofmeyer, 2007), customers (Perini et al., 2020), and regulatory agencies raises the need for companies to adopt this type of commerce as well. Those involved in the organizational field spread these norms through interaction channels and share the acquired professional skills across organizations (Lin et al., 2019; Zaguir, 2017).

Compliance with norms through normative pressures provides cultural identity to companies, contributing to their credibility, and influence on professionalization issues (Lin et al., 2019). As revealed by Lin et al. (2019), MSEs located where most organizations use e-commerce are more likely to consider it a valid practice, which is when normative pressures gain strength and effect the embracement of such practices. For Quaddus and Hofmeyer (2007) and Zaguir (2017), these validated practices help organizations to improve their position in the market, as well as maximizing their transactions. These factors contribute to reducing the perception of obstacles to the adoption and maintenance of e-commerce by MSEs. The third research hypothesis was formulated considering these aspects:

H3a: Normative pressures are positively associated with the benefits of e-commerce perceived by MSEs.

H3b: Normative pressures are negatively associated with the obstacles of e-commerce perceived by MSEs.

Institutional pressures have the power to change the entire organizational field. Thus, when they realize that the pressures provide greater benefits than obstacles, companies tend to transform and shape themselves according to others due to isomorphism (DiMaggio & Powell,

1983). Electronic business allows MSEs to participate in a vast market and compete with larger companies, since they use the same technological tools, achieving the same efficiency (Nohara et al., 2008).

Joining a digital marketplace brings numerous benefits in terms of cost and performance, such as a greater number of virtual transactions, business acceleration, a reduction of administrative tasks as a result of a smaller staff, an increase in the company's visibility due to the greater amount of sales, and an increase in the range of customers and suppliers by breaking geographic limitations. Other benefits that can be perceived by MSEs are: operating in international markets, specialized partnerships, a reduction of physical space, optimization of infrastructure, a reduction of equipment costs, work time flexibility, and constant access by customers (Felipa, 2017; Nohara et al., 2008; Piris et al., 2004).

Despite the numerous benefits of this business model, certain obstacles may hinder MSEs' adoption of e-commerce, such as struggles to link investments with returns, to understand the electronic environment of business, to operate on a global scale, to work with partners and intermediators, and financial constraints, among others (Felipa, 2017; Nohara et al., 2008).

Bouwman et al. (2007) and Rana et al. (2019) point out the cost as one of the main obstacles to the adoption of e-commerce, due to the entrepreneur's concern about the final cost of implementing the new technology, and the expected period of return on the investment made. For Rana et al. (2019), network threats can also create more obstacles, such as financial and data privacy risks. Other emphasized obstacles include lack of technological knowledge, changes in the company's strategies and processes, the customers' lack of knowledge about e-commerce, and obliviousness regarding the future benefits of such implementations. Thus, the fourth research hypothesis was formulated:

H4a: Perceived benefits are positively associated with the adoption and maintenance of e-commerce by MSEs.

H4b: Perceived obstacles are negatively associated with the adoption and maintenance of e-commerce by MSEs.

Based on the hypotheses, Figure 1 shows the theoretical model proposed in this research.

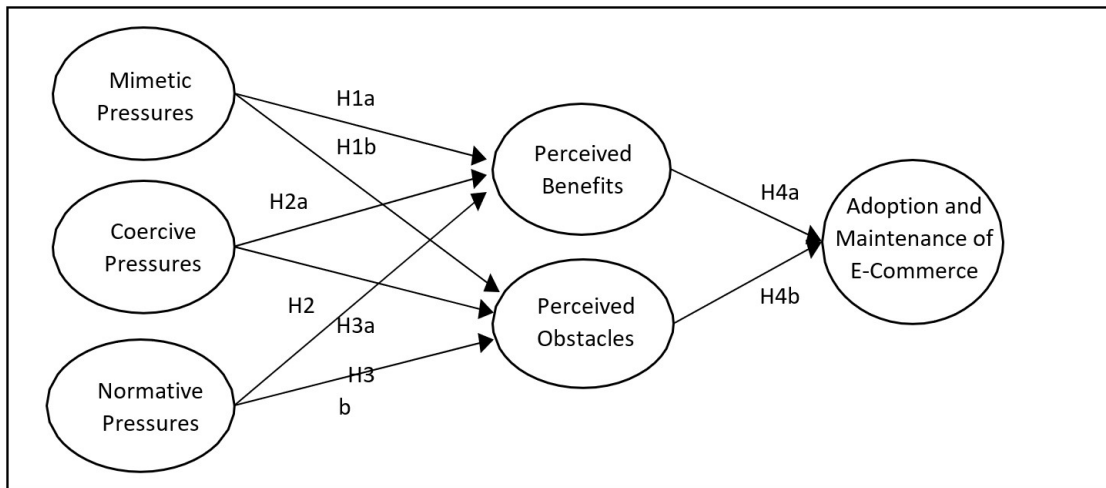


Figure 1. Theoretical model and research hypotheses

Source: The authors.

The literature suggests that mimetic, coercive and normative pressures influence Brazilian MSEs' perception of benefits and obstacles for the adoption and maintenance of e-commerce (Figure 1).

3 Methodological procedures

This research was based on a survey with 40 multiple choice questions divided into two sections. The first section consisted of 28 questions about institutional pressures on e-commerce and the perceived benefits of and obstacles to its adoption. The second one was about company and participant demographic information, as well as management issues, such as the types of resources used for e-commerce, and number of employees, according to SEBRAE's classification (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas, 2020).

For each question, the participants indicated their perception according to the organization's practices on a five-point Likert scale, where (1) corresponded to "totally disagree" and (5) to "totally agree." To validate the survey and reduce difficulties in comprehension or ambiguities, a pre-test was conducted with three doctoral students. The questions were formulated based on the instruments used in previous studies and on the theoretical framework according to Appendix A.

The study population comprised managers of Brazilian MSEs that use e-commerce. This choice is justified by their strategic position in defining business plans, dealing with opportunities and threats of the

environment, and, therefore, meeting the requirements to fulfill the purpose of this study.

The sample was estimated using the G*PowerWin3.1.9.2 software (Faul et al., 2009). To assess the variables, a 0.95 test power, significance level of $\alpha = 0.05$, and median effect size of $f^2 = 0.15$ were used (Cohen, 2013). Considering that the number of predictors for "perceived obstacles" and "perceived benefits" is equal to three (Figure 2), and that the minimum sample to be used in the partial least squares path modeling (PLS-PM) is determined by the software, the minimum number of necessary cases to be analyzed for this study is equal to 119. Of the 130 received responses, 10 were excluded: seven due to participant inadequacy regarding previous requirements, and three due to invalid answers. The final sample consisted of 120 managers who were adequate for testing the hypotheses. The survey was available on Google Forms and sought to cover different business models. At first, the survey was sent to companies that were previously contacted via the email provided by their corporate websites. Due to low adherence, forms were also sent to companies that have professional ads on online platforms, such as OLX, iFood (Brazilian marketplaces), Instagram, and Facebook (social media). The data collection occurred between March the 2nd and 24th of 2020.

Before analyzing the theoretical model, the common method bias was investigated using Harman's single factor method. The factor analysis did not show any elements, nor did any factor remove most of the

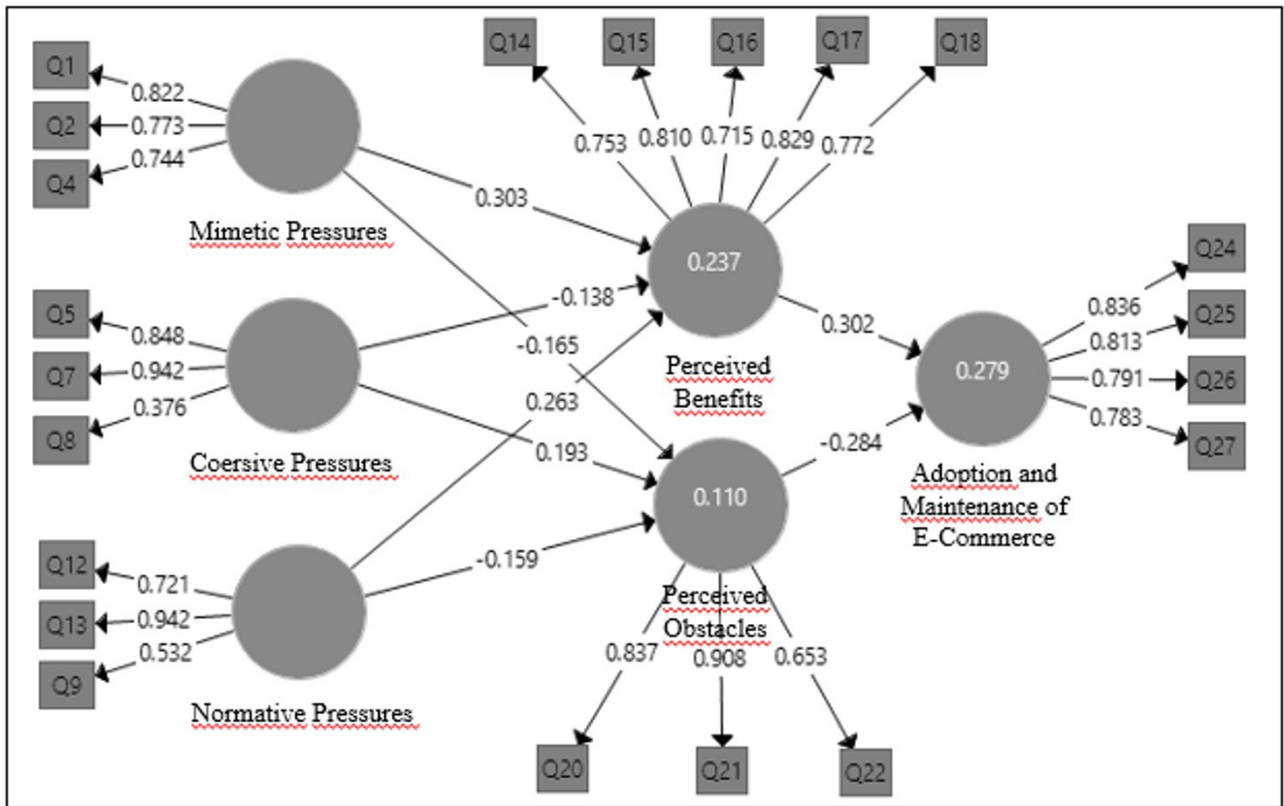


Figure 2. Proposed model with R² values

Source: Survey data

variance from the set of variables (Harman, 1976). In addition, a partial correlation method was used, in which an additional independent variable that removes the greatest variations from the factor analysis was inserted. This variable did not cause any considerable change in the variance between the dependent variables. Therefore, the tests suggest a low level of common method bias in this research.

To test the hypotheses, the structural equation modeling technique was used through the SmartPLS v. 3.2.9 software. Assuming the combination of theoretical elements, modeling using partial least squares (PLS) is appropriate for building complex relationships with multiple dependencies and independences between latent variables (Brei & Liberali, 2006; Nascimento & Macedo, 2016; Neves, 2018). In addition, PLS can estimate complex models using few observations and without establishing assumptions on the statistical distribution of the dataset (Hair et al., 2014).

After evaluating the measurement model, the two-step analytical procedure and the structural relationships were tested to evaluate the theoretical model. The main purpose

of the measurement model analysis is to verify whether the operational items used to measure the constructs are significant and whether they actually fulfill their function (Brei & Liberali, 2006; Hair et al., 2014). The structural model was estimated by the path coefficients using linear regressions between constructs (structural models) (Brei & Liberali, 2006; Hair et al., 2014).

4 Data analysis

This section presents the characteristics of the sample, the evaluation of the measurement model, the evaluation of the structural model, and the hypothesis testing. At the end, the hypotheses are discussed.

4.1 Sample characteristics

According to Table 1, concerning the profile of the participants, there is a homogeneous distribution regarding gender, where male participants accounted for 51.67% and 48.33% were female. The age group from 21 to 35 years was predominant, representing 64.17% of the sample. This result shows that the companies surveyed

are managed by “Generation Y,” known as the children of technology (Zomer et al., 2018).

A total of 70.83% of the participants have a higher education degree and 22.50% are post-graduates. About 63.09% of the graduation courses are in the business area, such as Administration, Accounting, and Economics, including courses focused on management, which suggests that the participants have a certain level of knowledge about business models and strategic planning. The majority of the participants are enterprise owner partners (69.17%). The companies’ characteristics, the resources used for e-commerce, and the time period since its adoption are presented (Table 2) as follows.

According to the data (Table 2), 35% of the sample corresponds to companies in the food and beverage industry, and 20% are companies in the clothing and footwear industry. According to SEBRAE’s definition of company size, which is based on the number of employees in the commerce and services fields, companies with less

than nine employees are classified as microenterprises (ME), which represent 71.67% of the sample. On the other hand, companies with 10 to 49 employees are classified as small companies (SC), representing 23.33% of the sample.

The most used technological resources in e-commerce are, respectively, WhatsApp© (85.33%), social media (83.33%), websites of their own (53.33%), marketplaces (52.5%), and email (51.67%). Regarding the period of time working with e-commerce, approximately 80.83% of the sample joined digital platforms less than five years ago, which shows that, unlike large companies, MSEs are still in the initial phase of its use in Brazil.

4.2 Evaluation of the measurement model

The measurement model was evaluated through an analysis of the cross-loading matrix. In this analysis,

Table 1
Profile of the Respondents

Gender	Frequency	%	Educational Level	Frequency	%
Female	58	48.33	Secondary School	35	29.17
Male	62	51.67	Undergraduation	58	48.33
			Specialization degree	27	22.50
Age Group	Frequency	%	Role in the company	Frequency	%
20 years old or less	2	1.67	Owner partner	83	69.17
21 to 35 years old	77	64.17	Manager	21	17.5
36 to 55 years old	40	33.33	Supervisor	5	4.17
Over 56 years old	1	0.83	Others	11	9.17

Source: Survey data.

Table 2
Characteristics of enterprises

Sphere of activity	Frequency	%	Resources used	Frequency	%
Food and beverages	42	35%	E-mail	62	51.67%
Clothing and footwear	24	20%	WhatsApp©	103	85.83%
Informatics	8	6.67%	Website	64	53.33%
Sales and marketing	10	8.33%	Marketplace	63	52.5%
Personal services	6	5%	Social media	100	83.33%
Specialized services	4	3.33%			
Health	3	2.50%			
Others	23	19.17%			
Company size	Frequency	%	Time in e-commerce	Frequency	%
Up to 9 employees	86	71.67%	Less than 1 year	30	25%
From 10 to 49 employees	28	23.33%	From 1 to 3 years	45	37.5%
From 50 to 99 employees	6	5%	From 3 to 5 years	22	18.33%
			More than 5 years	23	19.17%

Source: Survey data.

of the 28 questions, eight presented cross-loadings with a value of less than 0.50 ($AVE < 0.50$), meaning that these questions did not explain the constructs related to them in a satisfactory matter (Ringle, Silva, & Bido, 2014); therefore, according to the literature, they should be withdrawn. Seven questions, adapted from the research instrument proposed by Lin et al. (2019), were removed. Among them, the constructs “Mimetic Pressure,” “Coercive Pressure” and “E-commerce Adoption and Maintenance” had one question removed from each, and the constructs “Normative Pressure” and “Perceived Obstacles” had two questions removed from each. However, in the construct “Coercive Pressure,” one question with a loading of less than 0.50 was maintained, due to the importance of the construct in the theoretical model. The adjustments to the questions were made to enable the continuity of the analysis regarding the measurement model.

Moreover, the suitability indices of the adjusted model were analyzed to verify convergent validity (average variance extracted - AVE), composite reliability and internal consistency (Cronbach's alpha), as shown in Table 3.

The Cronbach's alpha coefficients and the composite reliability were calculated to assess internal consistency. The Cronbach's alpha of the constructs ranges from 0 to 1. There is no minimum value defined for this coefficient according to the literature (Hair et al., 2014), however, in surveys in general, the lower limit remains around 0.70. For this study, in which the constructs “Coercive Pressures,” “Normative Pressures” and “Mimetic Pressures” remained with three questions, the lower limit of the Cronbach's alpha was considered to be 0.657. Constructs should have values equal to or greater than 0.70 for the composite reliability index to be considered valid (Hair et al., 2014). All constructs

presented coefficients higher than the minimum limit (Table 3), therefore, the constructs of this research present internal consistency.

The average variance extracted (AVE) indicates the degree to which items should theoretically be correlated (Hair et al., 2014). Convergent validity is achieved when all values of the AVE are equal to or higher than 0.50 (Hair et al., 2014). The AVE coefficients for the proposed model (Table 3) have higher indices than those reported in the literature, implying that the items are indeed interrelated.

The discriminant validity was analyzed, which is determined as the “degree to which a construct is distinguished from others by empirical standards” (Hair et al., 2014, p. 104). The discriminant validity can be obtained using the Fornell-Larcker criterion, comparing the square root of the AVE with the correlation between the latent variables or constructs. The square root of the AVE of each construct must be greater than its highest correlation with another construct to have discriminant validity. In Table 4, the discriminant validity between constructs is highlighted.

After evaluating the measurement model, it can be concluded that the indicators can competently assess institutional pressures, perceived obstacles, and perceived benefits, as well as the adoption or maintenance of e-commerce. Therefore, the measurement model allows the estimation of the causal relationship of the structural model.

4.3 Structural model evaluation and hypothesis testing

The R^2 values were evaluated to validate the structural model (Figure 2). These values represent the percentage of variance of a latent

Table 3
Model suitability indices

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Perceived Obstacles	0.724	0.846	0.651
Perceived Benefits	0.836	0.883	0.603
Coercive Pressures	0.660	0.789	0.583
Regulatory Pressures	0.657	0.786	0.564
Mimetic Pressures	0.697	0.824	0.609
E-commerce Adoption and Maintenance	0.820	0.881	0.650

Source: Survey data.

variable explained by others (Hair et al., 2014), where the values are provided only for endogenous latent variables. This can be seen in “Perceived Benefits,” “Perceived Obstacles” and “Adoption and Maintenance of E-Commerce.”

The R² value for “Perceived Benefits” and “Perceived Obstacles” is 23.7% and 11%, respectively. These values confirm the explanatory power of institutional pressures (mimetic, coercive and normative) over the obstacles and benefits of e-commerce perceived by MSEs. The explanatory power of the variables “Perceived Benefits” and “Perceived Obstacles” regarding the latent variable “Adoption and Maintenance of E-Commerce” is 27.9%. A R² of less than 0.50 is acceptable in studies that verify human perceptions, whereas it is not for studies about physical processes. The hypothesis test results are presented in Table 5.

The t-values were identified (t statistics, Table 5) to test the hypotheses of each structural path model. T-values above 2.576 for p <0.01 and above 1.96 for p <0.05 are statistically significant (Seward & Doane, 2014, p. 347-348).

4.4 Hypotheses discussion

The institutional pressures have an impact on the perception of obstacles and benefits of e-commerce, resulting in its adoption and maintenance in MSEs. Hypothesis H1a sought to verify whether mimetic pressures are positively associated with the perception of e-commerce benefits by Brazilian MSEs. When companies verify the success of other companies through the benefits from using new strategies, the first group seeks to emulate these new strategies, as they also perceive potential benefits for their business (Haveman, 1993; Cheng & Yu, 2008). The results were significant (p<0.01, Table 5), meaning that mimetic pressures are associated with the perception of e-commerce benefits. Thus, it can be inferred for this sample that the reduction of uncertainties and the increase in the credibility conferred to the company are associated with the change of its behavior regarding the organizational behavior of other companies, which is consistent with the results of Cheng and Yu (2008).

Hypothesis H1b sought to verify whether mimetic pressures are negatively associated with perceived e-commerce obstacles. The results are not significant (p<0.05), so they

Table 4
Discriminant validity

Variables	Perceived Obstacles	Perceived Benefits	Coercive Pressures	Regulatory Pressures	Mimetic Pressures	Adoption and Maintenance
Perc. Obstacles	0.807					
Perc. Benefits	0.628	0.777				
Coercive Pres.	-0.202	-0.155	0.763			
Normative Pres.	0.208	0.360	0.026	0.751		
Mimetic Pres.	0.233	0.401	-0.079	0.331	0.781	
Adoption and Maint.	0.474	0.480	-0.060	0.233	0.317	0.806

Source: Survey data.

Table 5
PLS results - Path coefficients - Total Effects

Variables	p-value	t statistics	Significance	Hypotheses
Mimetic Pres. - > Perceived Benefits	0.001*	3.424	Significant	H1a
Mimetic Pres. - > Perceived Obstacles	0.075	1.780	Not Significant	H1b
Coercive Pres - > Perceived Benefits	0.099	1.651	Not significant	H2a
Coercive Pres. - > Perceived Obstacles	0.045**	2.003	Significant	H2b
Normative Pres. - > Perceived Benefits	0.001*	3.283	Significant	H3a
Normative Pres. - > Perceived Obstacles	0.074	1.786	Not Significant	H3b
Obstacles- > Adoption and maintenance	0.034**	2.120	Significant	H4a
Benefits- > Adoption and maintenance	0.040**	2.049	Significant	H4b

Note: *Significant at p<0.01; **Significant at p<0.05. Source: Survey data.

do not confirm that mimetic pressures are negatively associated with the perception of obstacles in the use of e-commerce. However, it is possible to notice some evidence of potential in that hypothesis, since it presented a p-value of 0.075, indicating a thorough investigation is needed regarding the influence of mimetic pressures on perceived obstacles to e-commerce adoption. The tendency of changing organizational behavior as a result of other companies' conduct does not diminish the perception of technological or operational obstacles by Brazilian MSEs. In light of the significance found, this data are similar to the result of Piris et al. (2004).

Hypothesis H2a verified whether coercive pressures are positively associated with the perception of e-commerce benefits in MSEs. Lin et al. (2019) state that the maximization of rewards conferred by coercive organizations fortifies the organizations' transformation, which culminates in a positive perception of the benefits of using e-commerce. However, that study was influenced by the context of the country in which it was conducted (China), where institutions such as the government encourage e-commerce. Hypothesis H2b sought to verify whether coercive pressures are negatively associated with e-commerce obstacles perceived by MSEs. The results at $p < 0.05$ were significant, which implies that the coercive pressures are not related to the perception of obstacles in the use of e-commerce by MSEs (Serrentino, 2015).

Hypotheses H3a and H3b sought, respectively, to verify whether regulatory pressures are positively associated with the benefits and negatively associated with the obstacles of e-commerce perceived by MSEs. The results of H3a at $p < 0.01$ indicate that regulatory pressures are positively associated with the perception of e-commerce benefits by MSEs. The results are in line with the studies of Zaguir (2017) and Lin et al. (2019), in which the use of e-commerce by institutions related to the organization prompts the need for companies to adopt e-commerce, as well as further dissemination of norms and skills. Regulatory pressures, analyzed by hypothesis H3b, are not negatively associated with the perception of e-commerce obstacles by MSEs. Since the results at $p < 0.05$ were not significant, the hypothesis is rejected.

Hypotheses H4a and H4b sought to verify whether the benefits and obstacles perceived are positively or negatively associated with the adoption and maintenance of e-commerce by MSEs. Regarding hypothesis H4a, the results indicate that the perceived benefits have a positive effect on the adoption and maintenance of e-commerce

by MSEs; therefore, hypothesis H4a was not rejected. The perceived obstacles have a negative effect on the adoption and maintenance of e-commerce by MSEs, therefore, hypothesis H4b was also not rejected, and there is evidence to support this at the 5% significance level. These results are in accordance with the study by DiMaggio and Powell (1983), which affirms that institutional pressures provide greater benefits than obstacles, resulting in difficulties on a global scale being overcome when operating, for example, with partners, intermediaries, or financial constraints, among others (Nohara et al., 2008; Felipa, 2017). Thus, at the 5% significance level, mimetic and normative pressures positively influence the perception of e-commerce benefits in MSEs, while obstacles are not influenced by mimetic and normative institutional pressures.

5 Concluding remarks

The objective of the study was to verify the impact of institutional pressures on the perception of obstacles and benefits of the adoption and maintenance of e-commerce by Brazilian MSEs. The descriptive research was composed of a survey, which was answered by 120 managers of Brazilian companies from distinct sectors that utilize e-commerce in their operations. Structural equation modeling was used for the data analysis.

The model was appropriately developed for the objective of this research. When testing the hypotheses, H1a was confirmed in the first set (H1a and H1b), a result that is consistent with Haveman's study (1993). In that study, the benefit is perceived by minimizing uncertainty, lowering costs, and promoting good visibility. Although hypothesis H1b, concerning the negative association with the perception of obstacles, was not confirmed, there are indications that other factors could help explain this phenomenon. This leads to the belief among organizations that taking identical actions to other companies leads to a decrease in the obstacles for e-commerce. This derives from the fact that certain problems were previously overcome by the model companies. Regarding the second set of hypotheses (H2a and H2b), only hypothesis H2b was confirmed, which indicates that coercive pressures help minimize the perception of e-commerce obstacles, but do not stimulate the perception of benefits. This is inconsistent with the studies of Lin et al. (2019), who state that coercive pressures confer benefits capable of inducing transformations in companies that use e-commerce.

Regarding the third set of hypotheses (H3a and H3b), only H3a was confirmed, which shows that normative pressures influence the perception of benefits. Therefore, the network of professionals and the adoption of certain knowledge in the field contribute to this perception. It is noteworthy that the legal context in which companies are embedded has a fundamental impact on coercive pressures. Hypothesis H3b, on the other hand, was not confirmed at a 5% significance level. However, it has an instructive potential for the mitigation of e-commerce obstacles.

The results confirmed that the institutional pressures performed by the three types of isomorphism have a significant effect on the adoption and maintenance of e-commerce after the perception of benefits and the overcoming of perceived obstacles in micro and small businesses (H4a and H4b). Thus, the results fill a gap on the factors that motivate companies to adopt and enhance new technological strategies.

The literature reinforces the significance of the debate involving isomorphism and institutional pressures in the most recent changes in organizations and their relationships with the environment, taking into account the technological potential and the cultural change of the participants. Along these lines, both pressure players and MSEs can identify how transformations in the scenario correlate between themselves, which enables better management of strategies within the organizational field.

The study demonstrated that the adoption of e-commerce is still very recent for most MSEs, which widens the horizon for further research. This is especially accentuated given the current crisis, a consequence of the Covid-19 pandemic, which directly affects small entrepreneurs, who are being forced to focus their strategies towards e-commerce. The study suggests conducting comparison research with companies that do not utilize e-commerce to understand the perception of obstacles that lead to the non-adoption of the electronic modality. The sampling for this research was conducted according to participant availability. However, future studies could focus on a specific sector.

Acknowledgments

The authors would like to thank the Academic Publishing Advisory Center (*Centro de Assessoria de Publicação Acadêmica*, CAPA – www.capa.ufpr.br) of the Federal University of Paraná (UFPR) for its assistance with the English language translation and developmental editing.

References

- AGUS, A. A., YUDOKO, G., MULYONO, N., & IMANIYA, T. (2021). E-commerce performance, digital marketing capability and supply chain capability within e-commerce platform: Longitudinal study before and after COVID-19. *International Journal of Technology*, 12(2), 360. <http://dx.doi.org/10.14716/ijtech.v12i2.4122>.
- ALSAAD, A., & TAAMNEH, A. (2019). The effect of international pressures on the cross-national diffusion of business-to-business e-commerce. *Technology in Society*, 59, 101158. <http://dx.doi.org/10.1016/j.techsoc.2019.101158>.
- BAGGIO, D., GAVRONSKI, I., & LIMA, V. Z. (2019). Inovação aberta: Uma vantagem competitiva para pequenas e médias empresas. *Revista Ciências Administrativas*, 25(3), 1-14. <http://dx.doi.org/10.5020/2318-0722.2019.7507>.
- BOUWMAN, H., CARLSSON, C., MOLINA-CASTILLO, F. J., & WALDEN, P. (2007). Barriers and drivers in the adoption of current and future mobile services in Finland. *Telematics and Informatics*, 24(2), 145-160. <http://dx.doi.org/10.1016/j.tele.2006.08.001>.
- BREI, V. A., & LIBERALI No., G. (2006). O uso da técnica de modelagem em equações estruturais na área de marketing: Um estudo comparativo entre publicações no Brasil e no exterior. *Revista de Administração Contemporânea*, 10(4), 131-151. <http://dx.doi.org/10.1590/S1415-65552006000400007>.
- CHENG, H. L., & YU, C. M. J. (2008). Institutional pressures and initiation of internationalization: Evidence from Taiwanese small-and medium-sized enterprises. *International Business Review*, 17(3), 331-348. <http://dx.doi.org/10.1016/j.ibusrev.2008.01.006>.
- CHOSHIN, M., & GHAFARI, A. (2017). An investigation of the impact of effective factors on the success of e-commerce in small-and medium-sized companies. *Computers in Human Behavior*, 66, 67-74. <http://dx.doi.org/10.1016/j.chb.2016.09.026>.
- COHEN, J. (2013). *Statistical power analysis for the behavioral sciences*. New York: Routledge. <http://dx.doi.org/10.4324/9780203771587>.
- DIMAGGIO, P. J., & POWELL, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective

rationality in organizational fields. *American Sociological Review*, 48(2), 147-160. <http://dx.doi.org/10.2307/2095101>.

FAUL, F., ERDFELDER, E., BUCHNER, A., & LANG, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <http://dx.doi.org/10.3758/BRM.41.4.1149>. PMID:19897823.

FELIPA, P. B. (2017). Marketing+ internet= e-commerce: Opportunities and challenges. *Revista Finanças y Política Económica*, 9(1), 41-56. <http://dx.doi.org/10.14718/revfinanzpolitecon.2017.9.1.3>.

FONSECA, V. D. (2003). A abordagem institucional nos estudos organizacionais: Bases conceituais e desenvolvimentos contemporâneos. In M. M. F. Vieira & C. A. Carvalho (Eds.), *Organizações, instituições e poder no Brasil* (pp. 47-66). Rio de Janeiro: Editora FGV.

GARCIA, E. L. M., ALMEIDA, E. M., SANCHES, S. L. R., & FAIA, V. S. (2019). A adoção do CPC PME é fonte de legitimidade organizacional? Análise sob a perspectiva da teoria institucional. *Revista Ambiente Contábil*, 11(1), 21-41. <http://dx.doi.org/10.21680/2176-9036.2019v11n1ID14189>.

GUARIDO, E. R. Fo., & COSTA, M. C. (2012). Contabilidade e institucionalismo organizacional: Fundamentos e implicações. *Revista Contabilidade e Controladoria*, 4(1), 20-41. <http://dx.doi.org/10.5380/rcc.v4i1.26685>.

HAIR JR, J., SARSTEDT, M., HOPKINS, L., & KUPPELWIESER, V. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106-121. <http://dx.doi.org/10.1108/EBR-10-2013-0128>.

HARMAN, H. H. (1976). *Análise fatorial moderna*. Chicago: Universidade de Chicago.

HAVEMAN, H. A. (1993). Follow the leader: Mimetic isomorphism and entry into new markets. *Administrative Science Quarterly*, 38(4), 593-627. <http://dx.doi.org/10.2307/2393338>.

HWANG, K., & CHOI, M. (2017). Effects of innovation-supportive culture and organizational citizenship behavior

on e-government information system security stemming from mimetic isomorphism. *Government Information Quarterly*, 34(2), 183-198. <http://dx.doi.org/10.1016/j.giq.2017.02.001>.

JAI, T. M. C., BURNS, L. D., & KING, N. J. (2013). The effect of behavioral tracking practices on consumers' shopping evaluations and repurchase intention toward trusted online retailers. *Computers in Human Behavior*, 29(3), 901-909. <http://dx.doi.org/10.1016/j.chb.2012.12.021>.

KABANDA, S., & BROWN, I. (2017). A structuration analysis of Small and Medium Enterprise (SME) adoption of E-Commerce: The case of Tanzania. *Telematics and Informatics*, 34(4), 118-132. <http://dx.doi.org/10.1016/j.tele.2017.01.002>.

KURNIA, S., CHOUDRIE, J., MAHBUBUR, R. M., & ALZOUGOOL, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. *Journal of Business Research*, 68(9), 1906-1918. <http://dx.doi.org/10.1016/j.jbusres.2014.12.010>.

LAI, K. H., WONG, C. W., & CHENG, T. E. (2006). Institutional isomorphism and the adoption of information technology for supply chain management. *Computers in Industry*, 57(1), 93-98. <http://dx.doi.org/10.1016/j.compind.2005.05.002>.

LESTARI, D. (2019). Measuring e-commerce adoption behaviour among gen-Z in Jakarta, Indonesia. *Economic Analysis and Policy*, 64, 103-115. <https://doi.org/10.1016/j.eap.2019.08.004>.

LIN, J., LUO, Z., & LUO, X. (2019). Understanding the roles of institutional pressures and organizational innovativeness in contextualized transformation toward e-business: Evidence from agricultural firms. *International Journal of Information Management*, 51, 102025. <http://dx.doi.org/10.1016/j.ijinfomgt.2019.10.010>.

MACHOVÁ, R., KORCSMÁROS, E., ESSEOVÁ, M., & MARČA, R. (2021). Changing trends of shopping habits and tourism during the second wave of COVID-19: International comparison. *Journal of Tourism and Services*, 22(12), 131-149. <http://dx.doi.org/10.29036/jots.v12i22.256>.

- MEYER, J. W., & ROWAN, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340-363. <http://dx.doi.org/10.1086/226550>.
- NASCIMENTO, J. C. H. B., & MACEDO, M. A. S. (2016). Modelagem de equações estruturais com mínimos quadrados parciais: Um exemplo da aplicação do SmartPLS® em pesquisas em contabilidade. *Revista de Educação e Pesquisa em Contabilidade*, 10(3), 289-313. <http://dx.doi.org/10.17524/repec.v10i3.1376>.
- NEVES, J. A. B. (2018). *Modelo de equações estruturais: Uma introdução aplicada*. Brasília: Escola Nacional de Administração Pública. <http://repositorio.enap.gov.br/handle/1/3334>
- NIELSEN, E. (2019). *O webshoppers* (Vol. 1, No. 40, pp. 1-27). São Paulo: Ebit. <https://reports.ebit.com.br/webshoppers/webshoppersfree>
- NOHARA, J., ACEVEDO, C., ZILBER, S., & PARISOTTO, I. (2008). Inovação tecnológica e competitividade: Os desafios das pequenas e médias empresas em participar no comércio eletrônico. *Revista de Administração e Inovação*, 5(2), 132-149. <http://www.revistas.usp.br/rai/article/view/79114>
- OLIVEIRA, T., THOMAS, M., & ESPADANAL, M. (2014). Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information & Management*, 51(5), 497-510. <http://dx.doi.org/10.1016/j.im.2014.03.006>.
- OLIVER, C. (1991). Strategic responses to institutional processes. *Academy of management review*, 16(1), 145-79. <https://doi.org/10.5465/amr.1991.4279002.<jrn>>
- OYADOMARI, J. C., CARDOSO, R. L., MENDONÇA No., O. R., & DE LIMA, M. P. (2008). Fatores que influenciam a adoção de artefatos de controle gerencial nas empresas brasileiras: Um estudo exploratório sob a ótica da teoria institucional. *Revista de Contabilidade e Organizações*, 2(2), 55-70. <http://dx.doi.org/10.11606/rco.v2i2.34705>.
- PECI, A. (2006). A nova teoria institucional em estudos organizacionais: Uma abordagem crítica. *Cadernos EBAP.EB*, 4(1), 1-12. <http://dx.doi.org/10.1590/S1679-39512006000100006>.
- PERINI, M. N., LAZZARI, F., EBERLE, L., & MILAN, G. S. (2020). Análise dos fatores que influenciam a intenção de uso do m-commerce por americanos da geração millennial. *Revista Eletrônica de Ciência Administrativa*, 19(1), 134-157. <http://dx.doi.org/10.21529/RECADM.2020006>.
- PIRIS, L., FITZGERALD, G., & SERRANO, A. (2004). Strategic motivators and expected benefits from e-commerce in traditional organizations. *International Journal of Information Management*, 24(6), 489-506. <http://dx.doi.org/10.1016/j.ijinfomgt.2004.08.008>.
- QUADDUS, M., & HOFMEYER, G. (2007). An investigation into the factors influencing the adoption of B2B trading exchanges in small businesses. *European Journal of Information Systems*, 16(3), 202-215. <http://dx.doi.org/10.1057/palgrave.ejis.3000671>.
- 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. <http://dx.doi.org/10.1016/j.sbspro.2015.06.423>.
- RAMASWAMY, K., PURKAYASTHA, S., & PETITT, B. S. (2017). How do institutional transitions impact the efficacy of related and unrelated diversification strategies used by business groups? *Journal of Business Research*, 72, 1-13. <http://dx.doi.org/10.1016/j.jbusres.2016.11.005>.
- RANA, N. P., BARNARD, D. J., BAABDULLAH, A. M., REES, D., & RODERICK, S. (2019). Exploring barriers of m-commerce adoption in SMEs in the UK: Developing a framework using ISM. *International Journal of Information Management*, 44, 141-153. <http://dx.doi.org/10.1016/j.ijinfomgt.2018.10.009>.
- RINGLE, C. M., SILVA, D., & BIDO, D. D. S. (2014). Modelagem de equações estruturais com utilização do SmartPLS. *Revista Brasileira de Marketing*, 13(2), 56-73. <http://dx.doi.org/10.5585/remark.v13i2.2717>.
- SCOTT, W. R. (1994). Institutions and organizations: Toward a theoretical synthesis. In W. R. Scott & J. W. Meyer (Eds.), *Institutional environments and organizations:*

Structural complexity and individualism (pp. 55-78). Thousand Oaks: SAGE.

SCOTT, W. R. (2008). *Institutions and organizations: Ideas and interests*. Atlanta: SAGE.

SERRENTINO, A. (2015). *Varejo e Brasil: Reflexões estratégicas: Pensar simples em ambiente complexo*. São Paulo: Varese.

Serviço Brasileiro de Apoio às Micro e Pequenas Empresas – Sebrae. (2020). *Pequenos negócios em números*. <https://www.sebrae.com.br/sites/PortalSebrae/ufs/sp/sebraeaz/pequenos-negocios-em-numeros,12e8794363447510VgnVCM1000004c00210aRCRD>

SEWARD, L. E., & DOANE, D. P. (2014). *Estatística aplicada à administração e economia* (4ª ed., pp. 347-348). São Paulo: AMGH Editora.

SILVA, V. A., SCHERER, F. L., BORGES, D. E., & DE MOURA CARPES, A. (2014). Análise dos fatores institucionais inerentes ao processo de internacionalização de empresas gaúchas do setor de máquinas e equipamentos. *Revista Administração em Diálogo*, 16(2), 167-188. <http://dx.doi.org/10.20946/rad.v16i2.13632>.

TSAMENYI, M., CULLEN, J., & GONZÁLEZ, J. M. G. (2006). Changes in accounting and financial information system in a Spanish electricity company: A new institutional theory analysis. *Management Accounting Research*, 17(4), 409-432. <http://dx.doi.org/10.1016/j.mar.2006.02.002>.

WANG, N. (2021, March). Research on the influence of the cross-border e-commerce development of small and medium-sized enterprises in Dongguan in the post-epidemic era. In *2021 2nd International Conference on E-Commerce and Internet Technology (ECIT)* (pp. 176-180). New York: IEEE. <http://dx.doi.org/10.1109/ECIT52743.2021.00047>.

WILLIAMS, C., & SPIELMANN, N. (2019). Institutional pressures and international market orientation in SMEs: Insights from the French wine industry. *International Business Review*, 28(5), 101582. <http://dx.doi.org/10.1016/j.ibusrev.2019.05.002>.

YU, Y., LI, M., LI, X., ZHAO, J. L., & ZHAO, D. (2018). Effects of entrepreneurship and IT fashion on SMEs' transformation toward cloud service through mediation of trust. *Information & Management*, 55(2), 245-257. <http://dx.doi.org/10.1016/j.im.2017.07.001>.

ZAGUIR, N. A. (2017). *Adoção da computação em nuvem: Questões organizacionais e ambientais com o uso do modelo TAM-TOE em empresas de grande porte* [Doctoral dissertation]. Universidade de São Paulo. <https://www.teses.usp.br/teses/disponiveis/3/3136/tde-22062017-140341>

ZOMER, L. B., SANTOS, A. R., & COSTA, K. C. O. (2018). O perfil de alunos do curso de administração: Um estudo com base nas gerações x, yez. *Revista Gestão Universitária na América Latina*, 11(2), 198-221. <http://dx.doi.org/10.5007/1983-4535.2018v11n2p198>.

Appendix A. Study variables

Variable	Item	Assertions	Author and year	Original scale		
Mimetic Pressure (PM)	Q1	Our main competitors benefit from the use of e-commerce.	Adapted from the study of Lin et al. (2019)	5-Point Likert Scale		
	Q2	Our main competitors that use e-commerce are perceived positively by other similar companies.				
	Q3	Our main competitors that use e-commerce are perceived positively by their suppliers.				
	Q4	Our main competitors that use e-commerce are perceived positively by their customers.				
Coercive Pressure (CP)	Q5	Our company uses e-commerce because of the influence of government requirements.	Adapted from the study of Lin et al. (2019)	5-Point Likert Scale		
	Q6	Our company uses e-commerce because of the competitive conditions.				
	Q7	Our company uses e-commerce considering the requirements of trade unions or organizations with which the company is affiliated.				
	Q8	Our company uses e-commerce to meet the requirements of intermediary companies (sales, advertising, marketplaces).			In accordance with the literature	--
Normative Pressure (NP)	Q9	The fact that our suppliers carry out transactions on electronic platforms influences our company to use e-commerce.	Adapted from the study of Lin et al. (2019)	5-Point Likert Scale		
	Q10	The technologies used by our company's customers have an influence that leads us to use e-commerce.				
	Q11	The governmental support and encouragement for the use of information technology influence our company to use e-commerce.				
	Q12	The workers in our company influence us to use e-commerce.			In accordance with the literature	--
	Q13	The use of technologies by the sector to which our company belongs influences us to use e-commerce.				
Perceived Benefit (PB)	Q14	Our company is aware of the opportunities created by e-commerce.	Adapted from the study of Lin et al. (2019)	5-Point Likert Scale		
	Q15	Our company understands the potential benefits of e-commerce for our business.				
	Q16	Our company recognizes that e-commerce is compatible with our organization's culture, values, needs, and working practices.			In accordance with the literature	--
	Q17	Our company understands the benefits of a wider market coverage provided by e-commerce.				
	Q18	Our company understands the expansion of sales volume provided by the use of e-commerce.				
Perceived Obstacle (PO)	Q19	E-commerce is a costly investment for our company.	Adapted from the study of Lin et al.(2019)	5-Point Likert Scale		
	Q20	Our team is not familiar with e-commerce.				
	Q21	Our team does not possess the technical skills to use e-commerce.				
	Q22	We are not sure if / how e-commerce can help our company.				
	Q23	The costs of e-commerce outweigh the potential benefits for our company.				

Variable	Item	Assertions	Author and year	Original scale
E-commerce adoption and maintenance	Q24	We ought to advance in e-commerce and update ourselves with innovative positioning methods in the digital market.	Adapted from Oliveira et al. (2014)	5-Point Likert Scale
	Q25	We intend to continue using e-commerce.	Adapted from the study of	
	Q26	There is a plan to continue using e-commerce.	Lin et al. (2019), Yu et al. (2018)	
	Q27	We believe that e-commerce is a component of the organization's strategy.	In accordance with the literature	--
	Q28	E-commerce is fundamental to business performance.		

Financial support:

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES).

Open science:

Data Disclosure: The data used in this research is publicly available, in line with RBGN's open science policies at: Sousa, Henrique Adriano de; Klein, Luciana; Voese, Simone Bernardes, 2022, "Supplementary data - The Impact of Institutional Pressures on the Use and Maintenance of E-Commerce in Brazilian Micro and Small Enterprises (MSEs)", <https://doi.org/10.7910/DVN/UHBQFQ>, Harvard Dataverse, V1

Conflicts of interest:

The authors have no conflict of interest to declare.

Copyrights:

RBGN owns the copyrights of this published content.

Plagiarism analysis:

RBGN performs plagiarism analysis on all its articles at the time of submission and after approval of the manuscript using.

Authors:

1. Henrique Adriano de Sousa, PhD Student in Accounting, Federal University of Paraná, Curitiba, Brazil.

E-mail: henriqueadrianodesousa@gmail.com

2. Luciana Klein, PhD in Accounting, Professor, Federal University of Paraná, Curitiba, Brazil.

E-mail: lucianaklein.ufpr@gmail.com

3. Simone Bernardes Voese, Post Doctorate in Management, Federal University of Mato Grosso do Sul; Professor, Federal University of Paraná, Curitiba, Brazil.

E-mail: simone.voese@gmail.com

Authors' contributions:

1st author: Definition of research problem; Development of hypotheses or research questions (empirical studies); Theoretical foundation/Literature review; Definition of methodological procedures; Data collection; Statistical analysis; Analysis and interpretation of data; Manuscript writing.

2nd author: Theoretical foundation/Literature review; Definition of methodological procedures; Statistical analysis; Analysis and interpretation of data; Critical revision of the manuscript.

3rd author: Definition of research problem; Development of hypotheses or research questions (empirical studies); Definition of methodological procedures.