



THE PANDEMIC OF COVID-19 AND THE LEVEL OF DIGITAL MATURITY OF MICRO AND SMALL BUSINESSES, A GLOBAL CONCERN

A pandemia de COVID-19 e o nível de maturidade digital de micro e pequenas empresas, uma preocupação global

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ABSTRACT

The COVID-19 pandemic urged the implementation of new corporate digital strategies which are, in fact, no longer an option but compulsory. Given the context, this study aims to raise the following question: Are the micro and small companies matured enough to face the challenges of digital transformation due to the Covid-19 pandemic? This study has an exploratory approach in order to answer this intriguing question which seems to be a global concern. Data were collected by applying online questionnaires to 256 managers of micro and small enterprises in the state of Bahia, Brazil. The main findings showed that half (50,2%) of respondents considered their enterprises to be in a medium level of digital maturity and 39.13% considered themselves highly prepared to face the challenges of digital transformation due to the Covid-19 pandemic. Also, the study showed that it seems to be an inversely proportional relation between managers' age range and level of digital maturity of companies. Young managers are much more open for new technologies than old ones.

Key words: digital maturity, micro and small businesses, Covid-19 pandemic, digital strategy.

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A PANDEMIA DE COVID-19 E O NÍVEL DE MATURIDADE DIGITAL DE MICRO E PEQUENAS EMPRESAS, UMA PREOCUPAÇÃO GLOBAL

The pandemic of Covid-19 and the level of digital maturity of micro and small businesses, a global concern

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RESUMO

A pandemia COVID-19 incitou a implementação de novas estratégias digitais corporativas que, de fato, não são mais uma opção, mas obrigatórias. Diante do contexto, este estudo visa levantar o seguinte questionamento: As micro e pequenas empresas estão amadurecidas o suficiente para enfrentar os desafios da transformação digital em decorrência da pandemia Covid-19? Este estudo tem uma abordagem exploratória a fim de responder a esta intrigante questão que parece ser uma preocupação global. Os dados foram coletados por meio da aplicação de questionários online a 256 gestores de micro e pequenas empresas do estado da Bahia, Brasil. Os principais resultados mostraram que metade (50,2%) dos entrevistados considerou suas empresas em um nível médio de maturidade digital e 39,13% se consideraram altamente preparados para enfrentar os desafios da transformação digital devido à pandemia Covid-19. Além disso, o estudo mostrou que parece haver uma relação inversamente proporcional entre a faixa etária dos gestores e o nível de maturidade digital das empresas. Os jovens gerentes são muito mais abertos às novas tecnologias do que as antigas.

Palavras-chave: maturidade digital, micro e pequenas empresas, pandemia Covid-19, estratégia digital.

INTRODUCTION

The rapid incorporation of new technologies in business processes is a phenomenon that challenges businessmen all over the world, in particular, those of micro and small enterprises, who did not seem to be prepared to. Nowadays, this phenomenon is not an option but became compulsory and are driven by policies of social isolation adopted by government during the pandemic of Covid-19.

In Brazil, just after cases were identified in China and Europe by the end of 2019, the country registered the first case of the disease on February 26, 2020 (Rios, 2020). After that, the disease has spread out across the country very fast. By the middle of 2021, numbers of infected people were close to 19 million with over 500K deaths (Massalli, 2021).

In April of 2020, just after the first cases in Brazil have been registered, according to the Brazilian Micro and Small Business Support Service (SEBRAE), 88% of small businesses reported drops in sales due to the pandemic (Boletim, 2020). In the State of Bahia, according to SEBRAE, 31.6% of micro and small enterprises had to reinvent themselves by adopting digital tools in their business processes in order to survive (Leonardo, 2020).

According to Thordsen, Murawski and Bick (2020), to keep their competitive advantages in an environment increasingly digitalized, companies must seek to evaluate their level of digital maturity. Thus, the theoretical framework of this study is about the phenomenon of the fast need of digital maturity of micro and small enterprises, due to the pandemic of Covid-19 in the State of Bahia, Brazil. Throughout this paper, it will be discussed the constructs of micro and small companies (Mintzberg & Quinn, 2001; Daft, 2005; Macruz, 2018).

Given this context, this paper aims to respond to the following question: what is the level of digital maturity of micro and small companies in the first year of the COVID-19 pandemic?

The general objective of the present study is to measure the level of digital maturity of micro and small companies in Bahia in the first year of the COVID-19 pandemic. The specific objectives, however, are to understand the relationship between the level of digital maturity and the effective uses of digital tools in the business processes, to understand whether they were or were not prepared for this unexpected digital transformation, if there was or was not the need for hiring new staff members, for technical training and the identification of manager's age group.

In the next section is presented the theoretical framework by introducing relevant bibliographic references for this study, following by the analysis of findings and subsequently, final considerations.

1 THEORETICAL FRAMEWORK

The backbone of the theoretical framework is about the digital maturity of micro and small enterprises during the coronavirus pandemic, as they tend to be more affected and vulnerable due to natural lack of financial, human, knowledge and material resources. On the other hand, it is assumed that mature companies would have more tools, therefore, conditions, to face the challenges for this fast and unexpected need for digital transformation.

Society and governments around the world are concerned about how small businesses are responding to this situation, but there is a common sense: governments must provide financial support since small players were the ones deeply affected by losses in their revenue's structures.

Need of digital transformation is another common ground where all agree; however, questions are raised about the level of maturity of small businesses and whether they are ready to respond quickly to this huge challenge.

This assumption transposed to the digital universe and to the current historical and social context, derives from the concept of maturity itself, which, according to Macruz (2018, p.28), is a "state of an organization that uses all its capabilities to achieve its goals and is successful in this endeavor".

So, the level of maturity of an organization may guarantee its survival, considering that the management process can differentiate from the competitors by preserving strategic resources and creating a unique competitive advantage over other agents in the market (Barney, 1991; Porter & Millar, 1999; Heilbroner & Penrose, 2006; Milberg, 2008; Porter & Heppelmann, 2014). In this scenario, it is assumed that companies are inserted in an open system, in which competitors interact and are influenced by other social agents and natural factors (Bertalanffy, 1972).

Assuming that the concept of maturity itself is broad enough, the digital maturity brings the perception of how companies implement modern technologies to gain competitiveness and efficiency. The question is: How to measure it?

Despite existing many different methodologies to measure digital maturity in organizations, this study highlights the one proposed by Varnavskiy et al. (2020), which suggests a math model, including a quantitative and qualitative criterion. They suggested the analysis involving five areas: educational, scientific, and academic, digital operations, corporate culture and staff experience and finally control and reporting. This model argues that the higher is the index, the higher is the position of the organization in the digitalization ranking.

Due to the pandemic of Covid-19 with social isolation and other compulsory changes, companies must adapt themselves to a new dynamic relationship with customers and sales. Different levels of digital maturity may be related to different sizes of companies, and it seems to impact the way companies deal with challenges and with their strategies (Mintzberg & Quinn, 2001; Daft, 2005). According to Tigre (2014), some of them, such the innovation one, do not depend on companies' size and are directly linked to competitiveness.

Besides the pandemic phenomenon itself, companies have faced a series of challenges to promote the digital transformation, taking them to another level of digitalization. These challenges demand high investments in equipment and structures, but they also demand efforts in resistances to change by staff members, changes on organizational culture, data security and privacy and regulations (Lavrado, 2019; Longo & Watanabe, 2019).

2 METHODOLOGY

The methodological procedures adopted assume an exploratory approach through the application of a structured questionnaire (with dichotomous choice questions and five-point Likert scales) to 256 managers of small businesses in the state of Bahia, in Brazil. They were selected from the website "Value Small Business" powered by SEBRAE, Bahia. Also, the snowball technique was used to extend the scope of the questionnaires (Gil, 2008; Vinuto, 2014).

Exploratory studies are those used to discover unclear relevant problems and it is conducted to understand a certain phenomenon which in this case refers to the level of digital maturity of small businesses in the State of Bahia whilst the pandemic of Covid-19.

The proposed model has a core variable which is to identify the level of digital maturity of micro and small companies to face the challenge of the pandemic. This variable is explained by six independent variables: USE (how often you use digital tools in your company); PREPARATION (are companies prepared for the changes related to the digitalization of the business due to the pandemic of Covid-19?); CONTRACT (were professionals hired and/or any training was available focused on the digital era?); KNOWLEDGE (do the companies have knowledge and/or adequate techniques and skills to face the challenges of the digital transformation?); STRATEGY (nowadays, is the digital strategy the core element of the businesses?) and AGE RANGE.

3 FINDINGS

According to 50.2% of managers who answered this survey, their companies were on a medium level of digital maturity. 29.25% considered as high level and only 9.88% considered their companies as a very high level of digital maturity. Also, 7.91% of respondents answered that their companies had a low level of digital maturity and 2.77% identified as a very low level.

The result of a multiple linear regression study (Table 1) points out to a directly proportional relationship between the frequency of use of digital tools in the company and its level of digital maturity. The greater the use of technology, the more mature the organization becomes. Therefore, in times of pandemic, when the incorporation of digital strategy is no longer an option and has become vital for many businesses to survive. So, it is reasonable to argue that those who has already developed successful digital strategies might be ahead in the market.

Table 1. Multiple Linear Regression Model

	Coefficient	Standard Error	Rácio-t	Value p	
Constant (B_0)	2,83892	0,486476	5,836	1,66e-08	***
USE	0,154144	0,0614030	2,510	0,0127	**
PREPARATION	-0,470084	0,102148	-4,602	6,67e-06	***
CONTRACT	-0,253665	0,0986797	-2,571	0,0107	**
KNOWLEDGE	0,184442	0,0482384	3,824	0,0002	***
ESTRATEGY	0,114416	0,0458991	2,493	0,0133	**
AGE RANGE	-0,0905111	0,041196	-2,006	0,0459	**
Dependent variable average	3,351562		D.P. Dependent variable	0,864007	
Sum Resíd. square	124,0366		E.P. Regression	0,705790	
R-square	0,348408		Ajusted R-square	0,332707	
F(6, 249)	22,19010		Value P(F)	6,87e-21	
Log. Likelihood	-270,4993		Akaike Criteria	554,9987	
Schwarz Criteria	590,8149		Hannan-Quinn Criteria	564,9797	

Source: Present study

Another dimension that stimulates this digital transformation is the current availability of technologies in the market as an element of facilitation for many businesses, in particular, for micro and small companies. The Availability of free Apps and software are becoming important tools to manage from customers relationship, sales, and information technology to general management.

Among the findings, there seem to be an inversely proportional relation between the MATURITY and PREPARATION. This is explained because the greater the company's level of digital maturity, the less they are prepared for changes related to the digitization of businesses due to the COVID-19 pandemic.

The findings suggest a direct relation between the frequency of use of digital tools in the company and their level of digital maturity. In other words, the greater the use of technology, the greater organizations become in terms of digital maturity.

An open analysis refutes the premise that the organization's level of digital maturity would be a competitive advantage in this context of pandemic. The likely explanation for this argument might be supported by those managers who claim that their businesses were not prepared for the unexpected changes caused by the pandemic context. In other words, the higher the level of companies' digital maturity, resources do not seem to be enough to deal with the challenges which emerge from this pandemic and chaotic scenario.

The analysis of the variable CONTRACT points out to the fact that companies with lower levels of digital maturity must hire professionals and/or carry out some specific training programs much more focused on the digital dimension, given the need imposed by the urgent adaptation to meet customers' needs remotely. Therefore, the use of new sales and marketing among other tools were compulsory.

Those companies, with a higher level of digital maturity, seem to have greater KNOWLEDGE. This Knowledge might be translated into technical skills able to keep up a constant growth on digital Evolution without the urgency of hiring new workforce and search for external source of knowledge.

Another element of this analysis is the direct relation between the two variables: MATURITY and STRATEGY. It is considered that the higher the level of digital maturity a certain company has, the more important digital strategy is for the business (Daft, 2005; Gupta, 2019).

The use of the variable AGE RANGE is important, in order to understand the profile of the companies' leadership. In this aspect, findings revealed that young managers have greater perception of companies' level of digital maturity. In general, this finding can be explained from the predisposition and open mind of younger people to invest and to learn about new technologies as they understand the importance of digital transformation for companies. 71.01% of respondents are between 26 and 45 years of age. Such profile is anchored in a managerial personality open for innovation and flexibility (Crnkovic & Moretti, 2013).

CONCLUSION

The influence of the pandemic of Covid-19 has accelerated the process of digital transformation on businesses in general and in particular for the micro and small companies all over the world. In the State of Bahia, as is believed had happened in most of the countries, those players had no option, but to introduce new technologies to their management processes in order to survive. The phenomenon of the pandemic was unexpected and put a lot of pressure on businesses to adapt to a new reality during an economic crisis already in progress.

Back to the initial question about whether micro and small businesses was prepared for the rapid digital transformation due to the pandemic of Covid-19, this study found that, according to the 256 respondents, half of them (50.2%) considered their companies to be in a medium level of digital maturity, which means that the process of digital transformation was already in progress, but, due to the unexpected pandemic of Covid-19, they had to accelerate it.

As changes in businesses imposed by the pandemic were inevitable, the study showed that the relation between the level of digital maturity and preparedness for these changes indicates that they are inversely proportional. Despite there were investments in new technologies, managers did not seem to be prepared to deal with them, the reality showed that it would have a great impact on how to do business in this unique context.

Also, Findings has shown that, in terms of the use of digital tools, knowledge, skills, and digital strategies, the relation is directly proportional to the level of digital maturity. The greater companies that had adopted any digital strategies, the greater the level of digital maturity they have now, which corroborates with the primary premises of this research.

Another conclusion, which calls for attention, is the inverse proportion relation between managers' age range and level of digital maturity of companies. Young managers are much more open for new technologies than old ones, which seem to indicate a sign of an innovation-oriented leadership.

Finally, authors suggest that this study could be replicated in a comparative way, by applying the same questionnaire to managers in different states in Brazil and other countries, in order to compare whether companies in different environments has had the same challenge to accelerate the digital transformation inside their organizations.

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