E-Business in Pandemic Context - A Systematic Literature Review

Miguel Barros and Anabela Mesquita
Polytechnic of Porto, Jaime Lopes Amorim, 4465-004 S. Mamede Infesta, Portugal
miguelbarrosiscap@gmail.com

Abstract. The world changed with the spreading of the new Coronavirus, considered by the World Health Organization as a Pandemic. Economies stopped, hospitals and morgues got overcrowded, economic indicators abruptly deteriorated, people found themselves confined to their houses. This times challenge organizations by guiding them to reinvent themselves in order to survive. This study focuses on the identification and explanation of the Systematic Literature Review Methodology, to survey the State of the Art regarding the adoption of E-Business Models by Portuguese Small and Medium-Sized Enterprises, forced to rethink their activity, given the restrictive measures taken to face the Pandemic. It is explained how the works in this area will be researched, selected and referred in the future study of investigation. The aim of the study is to evaluate the idea of how an e-business model can become vital, if implemented, in a Portuguese SME, with the current situation.

Keywords: E-business • Covid-19 • SME

1 Introduction

Currently, we live in a context of uncertainty, with the Pandemic caused by the new Coronavirus, SARS-CoV-2, which causes the disease identified as COVID-19. It is transmitted through the respiratory system, through droplets of the nose and mouth, on a human to human basis, through close contact with the infected or through contact with contaminated surfaces and objects [1]. To date, more than 16 million confirmed cases of Covid-19 were reported, including more than 600 thousand deaths from the disease [1].

In Portugal, a State of Emergency was declared, as the Portuguese Law and Constitution demand, with an agreement between the President, Government and Parliament. The rights of travel within the national territory, economic initiative, international circulation, the right to gather around and the freedom to religious worship, in its collective dimension were partially suspended, among others [2]. It is also important to explain that “Emergency” is understood as requiring coordination and response in order to save lives, protect property, protect public health and safety, or reduce/avoid the threat of a disaster [3].

© The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2021
A. Abreu et al. (Eds.): ICOTTS 2020, SIST 209, pp. 540–549, 2021.
https://doi.org/10.1007/978-981-33-4260-6_46
Like Portugal, countries affected by the Pandemic closed schools, banned gatherings, sports, collective activities, flights, closed borders, to confine people to their houses and prevent the spread of the virus.

With this, there was a general reduction in global industrial production and an abrupt drop in the price of oil, which caused a big drop, around 20%, in the global markets, in a short period of time. Thus, the scenario of a global recession has become very likely. The more the virus spreads, geographically and temporally, the more the performance of the world economy will be affected, raising concerns about financial sustainability, especially in highly indebted countries, such as Portugal. Therefore, coherent and coordinated responses are needed to limit the economic consequences of this Pandemic [4].

In this context, there are many challenges facing Small and Medium-Sized Enterprises (SME) on how to survive and even how to be competitive. One of the possible solutions, which many have been trying, is to use the potential of technologies to reach customers. E-business has a very significant impact, as it streamlines the processes of traditional business models, optimizing and automating them. The main advantage associated with E-business solutions is increasing companies’ effectiveness and efficiency. This business model also improves the internal and external communication of the organizations that practice it, reducing costs and highlighting the company’s growth [5]. Given the importance of SME for economic development, academics and politicians have studied the adoption of E-business Models in these entities. Numerous Business Models have already been proposed as ideal, but they are constantly changing, depending on the context, and there are still problems with them. These models proposed at the time tend to be very linear and prescriptive for specific cases; the problem is that each case is different and SME adopt them in the light of their reality. Given the diversity of existing SME, the adoption of an E-business Model becomes anything but linear. In addition, most of these models tend to neglect the secondary activities of the value chain that support a company [6].

Therefore, it is important to make an in-depth survey of the E-business Models proposals already launched, to rethink them in order to adapt them in support of the creation of a new Model, idealized for Portuguese SME, during and after the pandemic context.

With this study, it is intended, therefore, to explain the process of research, selection and referencing of works relevant to the combined scope of E-business, SME, digital work of SME and the economic impact of the new Coronavirus. The objective is to clarify, for future study, the State of the Art and to come to evaluate the feasibility of the transition to an E-business Model for SME, in a Pandemic context.

This work, being in progress and limited by the recent occurrence of the mentioned events, is structured as follows: after contextualization, the scientific research methodology to be adopted to collect the empirical knowledge already generated is identified, highlighting the initial research questions and the path to your answers; data is released for later phases of work in terms of the research methodology, and this task ends with the references.
1.1 Initial Research Questions

The challenge in creating and launching appropriate research questions detects with determination of open research questions that can or should be studied [7].

With this, the following research questions were launched:

- What is the impact of E-Business Models on Portuguese SME?
- How to generate an E-Business Model suitable for a Portuguese SME facing the consequences of the COVID-19 Pandemic?
- How to implement an E-Business Model, in a Portuguese SME, in order to help it survive, and even grow, the consequences of Pandemic?

For a better understanding of the purpose of each research question, the objectives associated with each one was identified in Table 1 [8].

| Research questions                                                                 | Objectives                                                                                                                                 |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| What is the impact of E-Business Models on Portuguese SME                          | Generically understand the functioning of Portuguese SME, what are the current practices of using E-business tools and how they can leverage business |
| How to generate an E-Business Model suitable for a Portuguese SME facing the consequences of the COVID-19 Pandemic? | Knowing, through predictions and the unfolding of the facts, the consequences of the Covid-19 Pandemic and, with that, studying models of conception of E-business Models, to create one that suits the pandemic context |
| How to implement an E-Business Model, in a Portuguese SME, in order to help it survive, and even grow, the consequences of Pandemic? | Evaluate, taking into account the available scientific knowledge, how the E-business Model generated in the study may impact the activity of a Portuguese SME |

2 Research Methodology

The method for carrying out this study, at this initial point, involves gathering the existing scientific evidence, to date. With this, the State of the Art will be verified, through the Systematic Literature Review (SLR), around:

- E-business - realizing how it emerged, its impact on business and society, its evolution over the years and, essentially, how they can support business in the current context.
- The E-business Models - for a comprehensive survey of the existing Models, their characteristics, potential, in view of the objective of creating a new Model adapted to Portuguese SME.
3 Systematic Literature Review

As priorly explained, the methodology adopted to analyze the State of the Art for this study will be Systematic Literature Review (SLR). SLR tries to gather all the empirical evidence, within previously specified eligibility criteria, to answer an initial investigation question. Using explicit and systematic methods, selected with the objective of minimizing bias, this research methodology provides more reliable data and from which conclusions can be drawn and decisions made. As it summarizes the results of the original studies, SLR is usually considered as high-quality evidence [9]. This same study highlights, as the Stages in the SLR process, the following points:

1. Formulate the initial investigation question.
2. Produce a record of what the study will be and its research process.
3. Define the inclusion and exclusion criteria for literature material.
4. Develop a research strategy and search the literature - find the studies.
5. Select and evaluate the quality of the studies.
6. Extract and synthesize data, assessing the quality of the evidence.
7. Disseminate results - Publication.

This task is guided by these steps to present the Research Methodology that will be developed in the future work. It is assumed that the registration of the investigation process, or the investigation protocol (point 2. of the stages of the SLR process) is represented throughout this document.

3.1 Inclusion/Exclusion Criteria

With a careful consideration of the inclusion/exclusion criteria of the works obtained as a result of the research work, Table 2 was developed, explaining the main requirements. The main focus, in this analysis, was the partial reading of the work, through the respective “title”, “abstract”, “Index” and “conclusion” of the works, in order to guarantee the greatest possible coincidence with the theme [8]. Additionally, the publication date of the work weighs predominantly in the exclusion or inclusion in the research work. The conditions, in each criterion, for selection and exclusion are demonstrated:

| Criteria          | Inclusion                                                                 | Exclusion                                                                 |
|-------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Partial reading   | Approach to the creation of e-business models, consequences of the pandemic of COVID-19, Portuguese SME companies, SME’s work in digital | Repeated/duplicated works; approaches to topics in areas outside business sciences |
| Year of publication | Preferably from 2020 onwards                                              | Older than 2016                                                           |
3.2 Searching Strategy

In order to answer the objective of the investigation, it is necessary, first of all, to carry out a survey of studies in the area, which allow to understand what is already known, already studied and what remains to be investigated in this scope of the creation and adoption of E-business Models, especially in the current situation.

Performing this survey will require a good relationship between sensitivity and precision/specificity, in the research. This will result in a comprehensive and representative research of the scientific knowledge already generated, reducing, however, irrelevant, duplicate or impertinent results for the case [9].

So, it begins by explaining that searches will be carried out in various databases, as follows:

- Google Scholar (https://scholar.google.pt).
- Scientific Repositories of Portugal (https://www.rcaap.pt).
- Higher Education Institutions Scientific Repositories.
- Presidency of the Portuguese Republic electronic diary (https://dre.pt/).
- B-On (https://www.b-on.pt/).
- ResearchGate (https://www.researchgate.net/).

It is clarified that in the works extracted by the research, the references of the articles will be verified, a practice that is expected to take a long time, but, it is believed, will add efficiency to the review and will help to identify additional relevant works that the research has filtered.

Terminology is an important part of obtaining relevant results for research work, with a direct impact on the transmission of different points of view to each new academic work [10]. Considering this and considering the research questions, the use of the following search terms, in Portuguese and English, is launched to obtain relevant and representative works of scientific knowledge already generated for future work:

- Coronavirus Business Impact;
- E-Business Models creation and adoption.

3.3 Selection of Studies

Due to the incipient research work developed so far, it has become expected that the volume of results obtained from the research, in the absolute number of works, will be considerably large. This will make the correct evaluation and selection of the highlighted studies vital, in order to make this SLR representative of the knowledge available to date.

It is suggested, first, to start by eliminating the duplicate results that are expected to be extracted from the research, given the scope inherent to the research by the methodology in question [9].

Then, it is intended to categorize the studies, in order to separate them depending on whether they answer one or another research question. The categorization of the study, associating it with the respective research question, will be done by carefully examining the “Title” and “Abstract”/“Abstract” of the work [9].
To ensure greater relevance and academic rigor, it is suggested to remove works with less novelty content or with a less relevant contribution in the field of E-business [11].

At the suggestion of the studies referred to in the previous paragraphs, a reference management application will also be used, with emphasis on academic advice, Zotero. In addition, a flowchart and selection form will be created, to ensure greater consistency in the work selection decision and validating the number of studies/articles remaining in each stage.

3.4 Evaluation of the Quality of Studies

Assessing the quality of studies obtained through work Assessing the quality of studies obtained through scientific research work is fundamental to the SLR process [9].

For this study, at the suggestion of the investigation by [12], a checklist will be made to understand the relevance of each work extracted from the research and included in the works. That checklist will include the points listed below, despite the

| Item da checklist | Rigor | Replication | Transparency/Openness |
|-------------------|-------|-------------|-----------------------|
| **Description of Research Sample** | | | |
| 1. Sampling plan recruitment strategy | | | |
| 2. Inclusion/exclusion criteria | | | |
| 3. Number of cases excluded/Final sample size for each analysis | | | |
| 4. Basic sociodemographic info on sample | | | |
| **Description of Measures/Manipulations** | | | |
| 5. Basic information on scales and their descriptive statistics | | | |
| 6. Scale adaptations/Translated scales | | | |
| 7. Provide access to all scale items | | | |
| 8. Manipulation checks reported, along with how failed manipulation checks were handled | | | |
| **Description of Analysis and Interpretation** | | | |
| 9. Correlation matrix including ALL variables (including controls, sociodemographics, multiplicative and transformed variables) | | | |
| 10. Full results from model testing | | | |
| 11. Effect size and variance accounted for estimates included | | | |
| 12. Using relative (“higher/lower”) rather than absolute language when depicting and discussing interactions | | | |
fact that it may still undergo changes depending on the evolution of the investigation and the passage of time. It is also explained that the response of each work to each of the checklist points will be evaluated from zero to five, with “zero” attributed to the non-compliance with that point and, on the other hand, “five” is attributed to compliance point total.

Table 3 represents the checklist proposed, at the time, for assessing the quality of studies, in an adaptation of a selected model [13].

3.5 **Extract and Synthesize Data, Assessing Quality of Evidence**

The methods of data synthesis, obtained by an SLR, are preponderant for the promotion of innovative scientific research approaches, facilitating consensus in the formation of more scientific knowledge [14].

For the synthesis and extraction of the most relevant data from the studies obtained by the future research of this study, we will choose a model that [9, 15], highlights and explains, in the construction of a scheme synthesis based on the answer to the points:

1. Formulation of the problem.
2. Literary review.
3. Evaluation and analysis of information.
4. Interpretation of results.
5. Publication.

3.6 **Disseminating Results**

This SLR process will constitute one of three phases of the methodology of a scientific research work, with the ultimate goal of validating the possibility of an E-business Model being central to the survival of a Portuguese SME during and immediately after the current pandemic context.

In this research work, as already mentioned, the State of Art around E-business is raised, from its history, to the creation and implementation of Business Models. With this, it is intended to be able to design a Model to later assess the impact that its adoption would have on a Portuguese SME. With this, a monograph will be produced, with all its presupposed components, for, hopefully, publication in mid-2021.

To conclude and better illustrate the research process, within this SLR Research Methodology, the Summary Table (Image 1) was created, with the steps mentioned above, described in a more schematic way. This picture follows as an adaptation of the selected model [11].
4 Conclusion and Future Work

SLR, as an integral part of the methodology to be used in future research work, presupposes a lot of rigor in the survey of the State of the Art, in this case, the scope of E-business. It is expected to obtain numerous research results, to be selected or excluded, to later formulate duly validated knowledge [9]. From the initial research to the data transition for the study to come, there will be a long and laborious process, but at the same time, enriching and right-handed.

Thus, this Research in Progress task, allowed us to better understand how the task of developing the monograph to focus on the subject in question is foreseen. There is, after investigating various knowledge already scientifically launched, a better notion of how to proceed properly in an SLR.

Expectably, there will be limitations in the work, which are related to the fact that there is still a huge amount of scientific evidence, currently, that allows to read the impact of E-business Models on SME, in the current context of Pandemic. Even so, the objective is to deepen the knowledge of the E-business models and the possible impact of their adoption, in this context that is expected to be unfavorable. This will be the core work of this study in the future. Realize what is working, what did not work, what
allowed a company to survive, what compromised its activity, what made companies grow, what made companies end…. With this, in future work, a model will be formulated that best fits the reality of a Portuguese SME in order to study more concretely the best possible solution, in the sense of survival or even, eventually, the growth of the organization.

It is hoped that this hypothesis around the positive impact of the E-business on Portuguese SME will materialize. On the other hand, there is a notion that the risks, especially due to the limitations of financial resources, of the implementation of an E-business model can compromise the stability of companies, therefore, it is explained that these models are not a guaranteed bet since at the start [5, 16].

References

1. World Health Organization. (03 June 2020) Coronavirus Dashboard. https://covid19.who.int/
2. Presidency of the Portuguese Republic. (2020, março). Decreto do Presidente da República number 14-A/2020 March 18th. Diário da República no. 55/2020, 3 Suplement, Series I 2020-03-18. https://dre.pt/pesquisa/-/search/130399862/details/maximized
3. Cruz, R.: Protocolos de Actuação em Caso de Emergência (Publicação oai: digitool.fe.up.pt:57773) [Tese de Mestrado, Faculdade de Engenharia da Universidade do Porto]. Repositório Aberto da Universidade do Porto (2009). http://hdl.handle.net/10216/59200
4. Gupta, M., Abdelmakssoud, A., Jafferany, M., Lotti, T., Sadoughifar, R., Goldust, M.: COVID-19 and economy. Dermatol. Ther. 2020, e13329 (2020). https://doi.org/10.1111/dth.13329
5. Supriya, G.: The impact of e-business and competitive advantage. Int. J. Innov. Sci. Res. Technol. 2(6), 2456–2165 (2017). https://www.scribd.com/the-impact-of-e-business-and-competitive-advantage
6. Putra, P., Hasibuan, Z., Sunarya, P.: Depicting E-business application adoption for small and medium enterprises (SME): the e-business triangle model. In: 2017 International Conference on Computing, Engineering, and Design (ICCED), pp. 1–6 (2017). https://doi.org/10.1109/CED.2017.8308135
7. Farrugia, P., Petrisor, B., Farrokhlyar, F., Bhandari, M.: Research questions, hypotheses and objectives. Can. J. Surg. 53(4), 278–281, 4p (2017). https://eds.a.ebscohost.com/eds/pdfviewer/pdfviewer?vid=12&sid=78d5b7ad-fa67-4398-ad1d-863cb90f7246%40dc-v-sessmgr01
8. Ahmed, S., Shah, M., Wakil, K.: Blockchain as a trust builder in the smart city domain. IEEE Access Access, IEEE. 8, 92977–92985 (2020). https://doi.org/10.1109/ACCESS.2020.2993724
9. Donato, H., Donato, M.: Etapas na Condução de uma Revisão Sistemática 32(3):227–235. https://doi.org/10.20344/amp.11923
10. Slisko, J., Dykstra, D.: The role of scientific terminology in research and teaching: is something important missing? J. Res. Sci. Teach. 34(6), 665–660 (1997). https://doi.org/10.1002/(SICI)1098-2736(199708)34:6%3C655::AID-TEA7%3E3.0.CO;2-M
11. Chang, S., Chen, Y.: When blockchain meets supply chain: a systematic literature review on current development and potential applications. IEEE Access. 8 (2020). https://doi.org/10.1109/ACCESS.2020.2983601
12. Ward, R., Usher-Smith, J., Griffin, S.: How to produce a systematic review. Innov. Educ. Inspiration Gen. Pract. 12(3), 155–157 (2019). https://doi.org/10.1177/1755738018794715
13. Eby, L., Shockley, K., Bauer, T., Edwards, B., Homan, A., Johnson, R., Lang, J., Morris, S., e Oswald, F.: Methodological checklists for improving research quality and reporting consistency. Ind. Organ. Psychol. 13(1), 76–83 (2020). https://doi.org/10.1017/iop.2020.14
14. Sheble, L.: Research synthesis methods and library and information science: shared problems, limited diffusion. J. Assoc. Inf. Sci. Technol. 67(8), 1990–2008 (2016). https://doi.org/10.1002/asi.23499
15. Cooper, H., Hedges, L.: The Handbook of Research Synthesis and Meta-Analysis. Russell Sage Foundation, New York (1994)
16. Leite, A.: Fatores de Sucesso no E-commerce - Uma Perspetiva Operacional (Publicação no. 10400.14/19297) [Tese de Mestrado, Faculdade de Economia e Gestão da Universidade Católica Portuguesa]. Veriati - Repositório da Universidade Católica Portuguesa (2015). https://repositorio.ucp.pt/handle/10400.14/19297