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RESEARCH ARTICLE

Change management

REENGINEERING IN EMERGING BUSINESSES: A CONSEQUENCE OF THE COVID-19

REINGENIERÍA EN NEGOCIOS EMERGENTES: UNA CONSECUENCIA DEL COVID-19

REENGENHARIA EM NEGÓCIOS EMERGENTES: UMA CONSEQUÊNCIA DO COVID-19

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Abstract

This research explores the repercussions of COVID-19 on global trade and markets during the first half of 2020. The study examines the economic impact of the pandemic on companies, emphasizing the need to rethink the business or redesign it to ensure its response to the challenges that the quarantine represented, as proposed by reengineering in the second half of the 90s of the 20th century. The main objective of this article is to establish a connection between the principles of reengineering and the resilience of startups during the pandemic, reactivating the use of a tool that was used more than 20 years ago. Therefore, the study explores, from a qualitative methodology —with emphasis on documentary research— the relationship between the appearance of the pandemic and the use of some elements of reengineering that can be observed in emerging companies, finding several connections between them. The results highlight how, through reinvention and resurgence, emerging businesses met the challenges of the new normal by maintaining their operations and providing business continuity.

Keywords: entrepreneurship; business; growth; reform; technological innovation.

JEL: L26; M10; N10; P41; Q55.

Resumen

Esta investigación explora las repercusiones del COVID-19 en el comercio y los mercados globales durante el primer semestre de 2020. El estudio examina el impacto económico de la pandemia en las empresas, enfatizando la necesidad de repensar el negocio o rediseñarlo para asegurar su respuesta ante los desafíos que representó la cuarentena, tal como lo propuso la reingeniería en la segunda mitad de los años 90 del siglo XX. El principal objetivo de este artículo es establecer una conexión entre los principios de la reingeniería y la resiliencia de las empresas emergentes durante la pandemia, reactivando el uso de una herramienta que se utilizó hace más de 20 años. Por ello, el estudio explora, desde una metodología cualitativa —con énfasis en la investigación documental— la relación entre la aparición de la pandemia y el uso de algunos elementos propios de la reingeniería que pueden observarse en las empresas emergentes, encontrando varias conexiones entre ellas. Los resultados destacan cómo, a través de la reinención y el rediseño, los negocios emergentes hicieron frente a los desafíos que la nueva normalidad manteniendo sus operaciones y brindando continuidad al negocio.

Palabras clave: emprendimiento; negocios; crecimiento; reforma; innovación tecnológica.

JEL: L26; M10; N10; P41; Q55.

Resumo

Esta investigação explora as repercussões da COVID-19 no comércio e nos mercados globais durante o primeiro semestre de 2020. O estudo examina o impacto económico da pandemia nas empresas, enfatizando a necessidade de repensar o negócio ou redesenhá-lo para garantir a sua resposta aos desafios. que a quarentena representava, tal como proposta pela reengenharia na segunda metade da década de 90 do século XX. O principal objetivo deste artigo é estabelecer uma ligação entre os princípios da reengenharia e a resiliência das startups durante a pandemia, reativando a utilização de uma ferramenta que era utilizada há mais de 20 anos. Portanto, o estudo explora, a partir de uma metodologia qualitativa – com ênfase na pesquisa documental – a relação entre o surgimento da pandemia e a utilização de alguns elementos de reengenharia que podem ser observados em empresas emergentes, encontrando diversas conexões entre eles. Os resultados destacam como, através da reinvenção e do ressurgimento, as empresas emergentes enfrentaram os desafios do novo normal, mantendo as suas operações e proporcionando continuidade aos negócios.

Palavras-chave: empreendimento; negócios; crescimento; reforma; inovação tecnológica.

JEL: L26; M10; N10; P41; Q55.

Introduction

The first semester of 2020 was characterized by the identification, expansion, and impact of the coronavirus, through COVID-19, in the world and the consequences faced by both trade and local and international markets once the mandatory confinement was declared and social distancing.

The World Health Organization (WHO) explains that coronaviruses are:

Coronaviruses are a large family of viruses that can cause disease in both animals and humans. In humans, various coronaviruses are known to cause respiratory infections that

can range from the common cold to more serious illnesses such as Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS). (WHO, 2020, p.1)

Likewise, the WHO (2020) clarifies that COVID-19 is a:

(...) Infectious disease caused by the coronavirus that has been discovered more recently. Both this new virus and the disease it causes were unknown before the outbreak broke out in Wuhan, China, in December 2019. Currently, COVID 19 is a pandemic that affects many countries around the world. (p.1)

According to the newspaper Solís (2020), the first country to declare the confinement was China, specifically in the city of Wuhan, as noted by the WHO (2020); where the virus started, the declaration took place on January 23; to later become a generalized response by the other countries affected by COVID-19.

However, compulsory confinement took almost two months to be declared in the other countries, beginning, in most cases, in March.

As might be expected, the confinement forced the closure of commercial premises, restaurants, companies, and other economic entities, leaving only basic activities in operation, especially those related to health, food, banking services, and public services.

According to Vallejo (2020), only in Spain, in the month of March:

85,873 companies closed, according to Social Security records. This implies the disappearance of 6.5% of the business fabric in a single month, which has gone from 1,326,000 companies at the end of February to 1,238,000 at the end of March. (p.1)

While, Wolf (2020) pointed out in relation to large American companies that “Disney parks are closed, their films are not in theatres, their cruise ships are not at sea. The company reported on Tuesday that its profits fell 91% in the first quarter” (p.1). Then Wolf (2020) added that “Gold’s

Gym declared bankruptcy (...) Airbnb announced massive layoffs. Marriott and Hilton have employees on unpaid leave” (p.1).

The reality for SMEs was not different in the first half of the year. La Revista Semana (2020a) warned in April that:

The SMEs are with the water to the neck. More than 20 days after the start of social isolation in the country, a good part of the micro, small and medium-sized companies have run out of financial oxygen, and some are on the verge of collapse. Thousands of them, engaged in manufacturing, commerce, construction, and some services, do not produce their goods or receive income. (p.1)

Mauricio Toro, reviewed by Corte (2020), explained in the case of Colombia, that “hundreds of companies, micro, small and medium-sized, (..) are going bankrupt due to the crisis. These generate more than 94% of total employment and are more than 96% of all companies” (p.1).

The Inter-American Development Bank (IDB), quoted by Sulbarán (2020), reported, at the beginning of April, that “small and medium-sized companies that depend on daily sales and have little or no liquidity reserves can also be seen under severe financial stress and may have to lay off workers” (p.2).

In Colombia, the newspaper El Tiempo (2020), warned that the “economic crisis, which is global in scope and could lead the world to a depression like the one registered since 1929 and in much of the 1930s” (p.2).

Faced with this scenario, the search for solutions to face the crisis does not take long, both large and small companies are forced to rethink their businesses and the way they operate.

Based on the aforementioned aspects, the following question could be asked: What elements of reengineering are present in how emerging businesses responded to the challenges they faced due to COVID-19?

To carry out this research, a review of the concepts associated with reengineering and emerging businesses was carried out. A goal was established and a rationale of the study was written. In the same way, the methodology used was explained, which allowed the analysis of the contents related to the problem raised and its subsequent discussion. The conclusions include the business implications of this study. Bibliographic references consulted can be found at the end of the document.

Methodology

Aim of the study

In this sense, the main objective of this research was to establish a relationship between the principles of reengineering and the way in which emerging businesses coped with the pandemic during the first half of 2020.

Rationally of the study

In the 80s of the XX century, talking about Total Quality, Just in Time, Kaizen, and Continuous Improvement, among other tools, became a common theme and a requirement demanded by organizations almost all over the world.

In the mid-90s, of the XX century, reengineering appeared, this trend was interpreted as a way to shed the past and face the changes of a new era, but its radical interpretation did not always lead to growth and development, in some cases, it led to some companies out of business.

After more than 20 years, a reengineering term has reappeared, which is related to reinvention. This term has begun to be used without relating it to reengineering and, from a strategic perspective, it can generate the same erroneous expectations.

This study explores the relationship between the pandemic and the resurgence of reengineering as a result of it. Through analysis, it is hoped to offer an objective reflection of the changes that companies have had to experience due to COVID-19 and their connection with said tool.

The study is justified because it seeking to highlight how the paradigm of reengineering has changed according to the demands of the contemporary market, and as a consequence of the challenge that mandatory confinement meant for the business sector.

Design of the methodology

Through the use of a qualitative methodology, based on documentary research, and supported on inferential and deductive reasoning, the research question has been answered.

Recent publications were used in a good part of the study because, at the time of the study, there was no specific literature that made direct reference to what the research required.

The documentary review was carried out mainly with online sources.

Inferential and deductive reasoning was used to give context to the problem raised and thereby provide an answer to the research question.

Review of literature

Emerging businesses

According to the Pérez (2018) emerging businesses “are all those that arise with a clear intention: to satisfy the needs of consumers that companies or brands that operate in a given market have not yet been able to cover” (p.1). This institution also ensures that “they are proposed as an alternative, a resource, a response to something that is identified as a lack (...) almost always [they are] linked to factors such as innovation, creativity or transformations” (p.1).

For Pineda (2016), the term emerging business refers to the initiative:

(...) of any economic sector (...) [which] is normally closely related to the technological field, given that (...) it tends to make intensive use of scientific and technological knowledge or is it directly related to the world of Internet and ICT. (p.144)

For the Higher School of Commercial Engineers or ESIC (2019) —for its acronym in Spanish— there are five fundamental steps to create an emerging business, the first two steps are:

[1]. Identify real and relevant needs in a customer segment, which are not resolved or require a more satisfactory solution than those available. [two]. Develop a solution (product or service) and a business model capable of solving those needs effectively and better than other businesses. Do it from the launch and validation of an MPV¹. (p 2)

Being the two last following steps:

[3]. Make sure that the market target is large enough and affordable, in size and purchasing power. [4]. Define correctly what is the value that is provided to customers. [and 5]. Direct all emerging business strategies (commercial, operational, management, personnel and financial) to produce and provide the maximum of that value to customers. (ESIC, 2019, p.2)

However, it is prudent to emphasize that not all emerging businesses are closely related to the use of technologies, some ventures are characterized by the exploitation and exploration of traditional and well-known operations.

Difficulties of emerging businesses before and during the pandemic

It cannot be said that emerging businesses have been affected exclusively by COVID-19, a study carried out in 2019 by Pietrovito & Pozzolo (2021) explains the difficulties that this type of business has been facing, especially in countries where development, where they present financial restrictions for exporting as well as the benefits that arise from it.

¹ MVP stands for Minimum Viable Product

However, it is clear that during the peak of the quarantine, start-ups were limited in their operation due to reduced international trade, forcing them to close their doors or significantly reduce their operations.

Due to the pricing logic that small businesses use, as explained by Curran et al. (1997), in the establishment of prices, they can be observed as price-takers due to the little influence they have in the market and the financial conditions they have, being subjected—in some way—by the price-makers, who have greater capacity for influence and power regarding commercial transactions and the establishment of financial exchanges.

This situation is of significant importance for emerging businesses during the pandemic, because in the absence of supply and increased demand, these businesses experienced increases that affected their projections for production and/or sale of services, in addition to the low or no activity that they could respond to during quarantine.

According to Singh & Kaur (2019), small and medium-sized companies have problems accessing banking or the benefits offered by the financial sector, regardless of their operational capacity or the longevity they have in the market, this leads to infer emerging businesses, which have little capital, present the same limitation of access to credit or economic benefits given their condition.

The foregoing, coupled with the scarce or null production, absence or diminution of clients, caused by the quarantine, would have widened the gap between the need for financing and the impossibility of access to it.

As Everett & Watson (1998) pointed out, almost two decades ago, —and that still is the case— regarding one of the reasons why an emerging company (micro, small or medium) ceases to exist, it is related to the economy, being this the cause that at least a third of these businesses do not exceed two years in duration or are extinguished before reaching the age of seven.

As the economy is a decisive factor for the survival of an emerging company, it is logical to infer that when commerce and economic activity paralyzed due to the pandemic, the rate of disappearance of these businesses must have accelerated, especially those that do not. They considered re-engineering themselves to face the situation due to COVID-19.

Reengineering

Ventocilla (1992), affirms that the reengineering had its origin “in the second half of the decade of the 80’s” (p.1). and that it was first known as systems reengineering and later adopted in the field of industrial engineering, which gave rise to process reengineering.

According to Hammer & Champy (1993), reengineering means “starting over, starting from scratch (...) forgetting how the work was done (...) and deciding how it can be done better now” (p.2). However, these authors define it as “the fundamental revision and radical redesign of processes to achieve spectacular improvements in critical and contemporary performance measures, such as costs, quality, service and speed” (p.49).

Hammer & Champy (1993) also claim that reengineering is based on discontinuous thinking, or else, on “the identification and abandonment of outdated rules of fundamental assumptions that underpin current business operations” (p.3).

Reengineering must be **fundamental**, which means that it must affect the way in which the business is thought and carried out, it must also be **radical**, so superficial changes are discarded and, finally, it must be **spectacular**, or what should be translated as significant jumps in performance, as stated by Hammer & Champy (1993).

According to Bustos (2005), reengineering “seeks results of great impact unlike other approaches that are characterized by seeking incremental and continuous results” (p.4).

Now, there is a fundamental element in the reengineering process that stands out and that could be related to the way in which companies can rethink their operation, it is what Ventocilla (1992) called «Information and Engineering of Knowledge» and that, according to him, consists

of “the compression of time and space through the use of information technology for the design and redesign of communications networks and the information flows, processes and systems that articulate internally and externally to the organizations” (p. 6).

In his book of 1996, *How to Reengineering*; Raymond L. Manganelli and Mark M. Klein, cited by Probidad en Chile (2015), highlight 10 steps to successfully carry out this process:

[1]. Start with critical processes with great added value. [two]. Attend the support processes, which the client does not see, but which are fundamental. [3]. Incorporate computer technology into basic value-added services. [4]. Rethink borders with suppliers and customers. [5]. Analyse outsourcing or outsourcing options. [6] Rethink centralization versus decentralization. [7]. Segment inputs or processes. [8]. Modify the order in which things were done [9] Relocate controls trying to create control centres. [and 10]. Simplify interfaces and information flows. (p.2)

It should be noted that, for Busto (2005), reengineering “is severely questioned and dire consequences are argued for the companies that apply it, such as massive layoffs of personnel, costly investments in capital goods and low return on money to long term for shareholders” (p.8).

However, it is possible that the use of technology, business redesign and other aspects that characterize reengineering, have found their place in the 21st century without the negative effects that it showed in the late 1990s.

Based on all of the above, a relationship could be established between the behaviour of emerging businesses and reengineering, during the COVID-19 pandemic.

Results

Reengineering and COVID-19

As already explained, reengineering is a process that requires rethinking the business, so it can be related to the action of reinventing it, as well as redesign processes.

According to Ribó (2020) the pandemic caused some previously working business processes to become inefficient or generate excessively high costs. which forced companies to detect these inefficiencies in the most affected processes and redesign them (using technology), as a survival measure for the organization.

In relation to the previous paragraph, Sáez et al. (2006) affirm that, when speaking of reengineering, it should be understood that it is “facing a process of reinvention (...) of the business and not before an attempt to improve or modify it slightly” (p.53).

For their part, Escalera y Escribano (2009) assure that in “reengineering must completely forget about the current process and concentrate on how it should be, that is, reinvent how we can do our work again” (p. 41).

As can be seen, reengineering, as a concept, has reappeared in business language and as a solution to the problems that the virus represents. In a publication of *The Economist*, quoted by the newspaper *El Tiempo* (2020), it is highlighted that “companies that manage to survive [this] pandemic (...) must adopt new technologies, make drastic adjustments in supply chains (...) And above all, to have the capacity to assimilate to what will be a new world” (p. 1), what in a thought typical of the use of reengineering.

O’Ryan (2020) also outlines the need to be reinvented when he explains that:

At the beginning of June, it will be three months since the first confirmed case of Covid-19 in the country. After that day, various industries were forced to stop operating to cope with the spread of the virus and adapt to the new reality. The situation for the majority is critical (...). Against this background, some companies were forced to reinvent themselves. (...) Companies that for health reasons should be closed, but that have changed their business focus and thus continue to operate. (p. 2)

While there is still no statistical pattern to show that the COVID-19 pandemic has driven the use of reengineering as a tool to reinvent the business, there is proof that it is a reality. In a

report by the Spanish Entrepreneurship Observatory (or GEM Spain Network), cited by Granada Empresas (2020) it can be read that “as a solution to this crisis from the sector, the search for new markets and new clients is proposed (57%). In general, already during these first days, one in four companies has 'reinvented' itself” (p. 3).

Rethinking the business, access to new technologies and analysing outsourcing options are some of the characteristics of the implementation of a reengineering process.

Regarding the analysis of subcontracting, Micha (2020) explained, in one of its publications that:

Outsourcing has proven to be present in sectors such as industry and tourism, which are activities closely related to the economic and labor ties between Mexico and its northern neighbor. Thus, even for the rearticulation of international work chains, outsourcing will play a leading role in the short and long term. (p.2)

Outsourcing was (and still is) one of the main ways to deal with the economic and labour crisis that has caused and will continue to generate COVID-19. Thanks to this scheme it is possible to increase formal employment, give work to the most vulnerable sectors of the population.

Restaurants and/or processed food outlets, as well as grocery stores, were one of the sectors that showed a growing behaviour in the use of both technology and subcontracting (elements of reengineering).

According to a Yelp’s report, cited by Wolff-Mann (2020), food delivery, in its different forms, showed an increase of 300% between March 22 and 29, which meant high traffic in what it concerns not only the use of the technology present in the virtual applications destined for it, but also in the traditional traffic that the service operators usually have.

An example of the aforementioned topic is reviewed by the Revista Semana (2020b), when it explains that a store in the centre of Bogota, “which mainly sells organic food and packaging

from small producers and local artisans” (p. 6), was obliged “to change its operation (...) preparing deliveries, [which required] finding a bike-messaging service” (p.6).

The foregoing aspects, coupled with the behaviour of emerging businesses during the pandemic, shed light on the impact of COVID-19 on the use of reengineering as a tool.

Emerging businesses and COVID-19

The mandatory confinement due to the pandemic not only affected the way entrepreneurs see the business, in this sense, Carvajalino, (2020) stated that:

Large, small, medium and micro, [even] independent companies and everyone who aspires to undertake, must find a way to include both technology and digital marketing in their processes. These two tools that are not only the cheapest to operate a business, but are also now the only ones that are feasible in many cases. (p. 4)

Carvajalino, (2020), also refers to the use of one of the elements of reengineering when he commented that “technology and social networks are the most efficient lifeline that we can use, not only to cope with these moments of isolation, but to be competitive in the new normal that is coming” (p. 4).

In fact, only in Spain, traffic through private networks increased by 36% in the week of March 9-15, as recorded by Moreno (2020).

Moreno (2020) also explained that “in many other countries affected by COVID-19, such as Italy, the United States and Iran, there was a similar growth in the use [of the networks], according to an analysis of 50,000 users of the aforementioned company” (p. 1).

This represented a benefit for companies that had the technological means to face the increase in demand, and at the same time, a challenge for companies whose operation did not depend on the use of technology, which, therefore, were called to rethink their business.

In an article by BBC Mundo, cited by Revista Semana (2020b), seven emerging businesses that reinvented themselves during the quarantine were listed, one of them is related to the sale of bread through an application.

BBC Mundo, quoted by Revista Semana (2020b), explained that:

Antonio Bertasio [Argentine citizen] used to lament that investment he made about five years ago in an app that was not so successful for his bread-making business. Today, he claims that it was that mobile tool, called I Want Pannet, that is saving their business. (...) [Went] from supplying (...) to restaurants, canteens, supermarkets and public institutions, to private consumers. (p.12)

The previous case shows how an emerging business, of a traditional nature, although prepared in advance with an application to fulfil orders, saw its sales increase due to the pandemic, but had to redefine its target market and, therefore, the characteristics of their business because their demand did not come from legal clients but from natural persons.

Another example of a reengineering in an emerging business, also reviewed by Revista Semana (2020b), corresponds to the 2MD Laser company. The magazine explains that this company was dedicated to providing printing services to architecture students or clients in the field, but, with the arrival of COVID-19, its business began to print protective visors for the medical sector, making a radical change in its operation, At the time of the interview, more than eight thousand visors had already been produced.

Finally, the MediVaric company is another case of business reinvention. Becerra (2020) explains that this company:

(...) manufactures compression stockings and also girdles, thanks to a distribution business for its products in the US, it received a proposal to manufacture and export [masks] (...) about a month and a half ago. [The company] made two models, made from copper

spinning, a material known for its asepsis and for helping to eliminate bacteria (2020, p. 2).

As can be seen, the aforementioned companies underwent a reformulation of their businesses, the transformation of their products and radical changes in terms of customers and the market they served, elements that are characteristic of the result of the application of reengineering.

Conclusions

Although the examples mentioned here do not represent the total number of changes that emerging businesses have experienced, as well as the application of reengineering as a result of the appearance of COVID-19; The data available —at the time of carrying out the study— allows to infer that the pandemic generated significant interest in a tool that had its rise and fall in the 90s of the 20th century.

Today, more than 20 years later, reengineering has reappeared under the figure of «reinvention» and, thanks to it and existing technologies, the entrepreneurial sector, or emerging companies, were able to weather the pandemic and, in some cases, remain in operations with revenue even higher than the pre-coronavirus period.

Among the most notable aspects, the following can be inferred: i) The pandemic caused significant disruptions in global trade and markets, which gave rise to the need to resort to disruptive strategies. ii) Companies were forced to rethink their operations and strategies in response to the crisis, with special emphasis on technological integration and adaptation, elements of reengineering. iii) Reengineering became a valuable tool for companies that consciously or not used it to address the challenges posed by the pandemic. iv) Flexibility and the willingness to reinvent (re-engineer, redesign) were crucial aspects to overcome the changing market conditions caused by the pandemic.

It can be said, then, that both emerging businesses and other commercial activities have made use of reengineering as a consequence of the appearance of COVID-19, which was possible

thanks to the existence of technology and social conditions that did not exist ago, more than twenty years ago, when this tool was considered for redefining processes, organizations, and businesses.

Now, it is possible to deduce that the reengineering that has been applied in the 21st century, although it has entailed a radical change in the market or orientation to the client, has not been characterized by being as drastic and costly as was experienced more than two decades ago.

The reengineering approach, as a consequence of COVID-19, in emerging businesses and other commercial expressions in 2020 complied with five of the ten stages outlined by Raymond L. Manganelli and Mark M. Klein in 1996, these were: i) emphasis on support processes, ii) incorporation of technologies, iii) reformulation of the relationship with suppliers and clients, iv) outsourcing, and v) modification of the business order in which things were done.

The businesses explained here responded to three of the five steps to create an emerging company, as explained by ESIC (2019), which are: identifying needs, developing a solution (product or service), and developing a business model capable of solving those needs; All of these aforementioned aspects are oriented towards the need to rethink the business as proposed by reengineering, and the use of one of its main elements, such as the incorporation of technology.

Finally, from the perspective of change management, the inferences explained here can be considered as bases to promote the transformation of emerging businesses through the use of tools that may not have been totally successful in the past—for different reasons that have not been explored. in this study—, as is the case of reengineering, but that currently offer a valid and operational alternative to face the changes and challenges that have arisen during and after the pandemic caused by COVID 19.

Ethical considerations

The present study did not require the endorsement of an Ethics or Bioethics Committee because it did not use any living resource, agent, biological sample or personal data that represent any risk to life, the environment or human rights and, in addition, because a large part of the study was based on a documentary review.

Conflict of interest

All authors made significant contributions to the document and declare that there is no conflict of interest related to the article.

Declaration of authors' contribution

Félix Oscar Socorro Márquez: Conceptualization, Methodology, Software, Validation, Formal Analysis, Research, Resources, Data Curation, Writing - Original Draft, Writing: Review and Editing, Visualization, Supervision, Project Management and Funding.

Giovanni Efraín Reyes Ortiz: Formal Analysis Research, Resources, Writing: review Visualization.

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