COVID-19: Implications for the Business Models

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Abstract:

This paper analyzes the impact of COVID-19 on selected economic indicators of the European Union to bridge these impacts "marked as triggers" of changes to business models. The logic of the focus lies in the interconnection and integration of external changes in the connection of the reaction of managerial decisions for change, adaptability, and adjustment of the business model in newly formed economic systems. Economies are affected by the effects of the ongoing pandemic as part of restrictive and health-related measures, where there is a direct link to the performance of businesses that need to adapt to ongoing changes in response to the COVID-19 pandemic.

Our survey is mainly based on reviews in articles COVID-19 on business activities which enable businesses to share knowledge, decisions, and prospects including analysis of selected indicators as an industry, construction, wholesale and retail trade, and services when the Eurostat statistical data (2020b) are used. We combine the approach of mapping of literature review associated with the impact of a pandemic on business and impact analysis within the European Union on the economic indicators. Subsequently, we examine what and how businesses can do to respond quickly to the stimuli, our main focus is on business models that allow to quickly operationalize the current business situation and then take measures to create a basis for sustainability. The output is a discussion and proposals for the necessary business model shifts so that companies are resilient, flexible, capture value in the long term. For businesses looking to establish update business models during COVID-19, we recognize that hiring entirely new models maybe not feasible.

We focus on viability updates business models over fully comprehensive functions after crises COVID-19. We develop managerial recommendations for the growing demand for innovation and flexibility for the resilience business model to adapt to the new changed "post COVID" business environment.

Keywords: COVID-19 pandemic; business model adaptation; business model ecosystem; European Union, firm behavior, technological change.

JEL Classification: D22; M21; O33.

Introduction

There is no doubt that the current pandemic has affected negative economic indicators and knocked down economies. Europe is no exception, and many countries are facing severe economic shocks in almost all sectors. The aim of the paper is to analyze the impact of COVID-19 on selected indicators of European Union countries and subsequent implications on the business models. For reflexing these development trends, the analysis of selected economic factors is presented. We discovered points to the "wave break" that follows each epidemiological wave of COVID-19. The paper deals with COVID-19 on business under the conditions of the economies. This paper is intended for academics, businesses, and other stakeholders who are concerned with the effects of a pandemic on the functioning of companies and their ability to adapt, resist, and adjust to new market conditions.

Methodologically, the paper combines a search of available resources and the subsequent impacts of changes in the business models of companies based on a search of currently published sources within the ongoing changes in the European Union on selected indicators within a time series 07/2019 - 08/2020 based on statistical data from Eurostat (2020b). The paper is structured as follows, First, we present reviews in articles COVID-19 on

business which enables businesses to share knowledge, decisions, and prospects. To explore our questions, we conducted a review of actual papers resulting from crises COVID-19. Next, the viability updates on business models over fully comprehensive functions after crises COVID-19 was examined. For businesses looking to establish update business models during COVID-19, we recognize that hiring entirely new models maybe not feasible. Thereafter, a discussion part is presented, we intend to preserve stakeholders looped into the process when the result focuses on key business priorities models. The survey focused on assessing: (1) how are businesses navigating the economic disruptions resulting from COVID-19; (2) how will their business models affect their decisions and prospects?

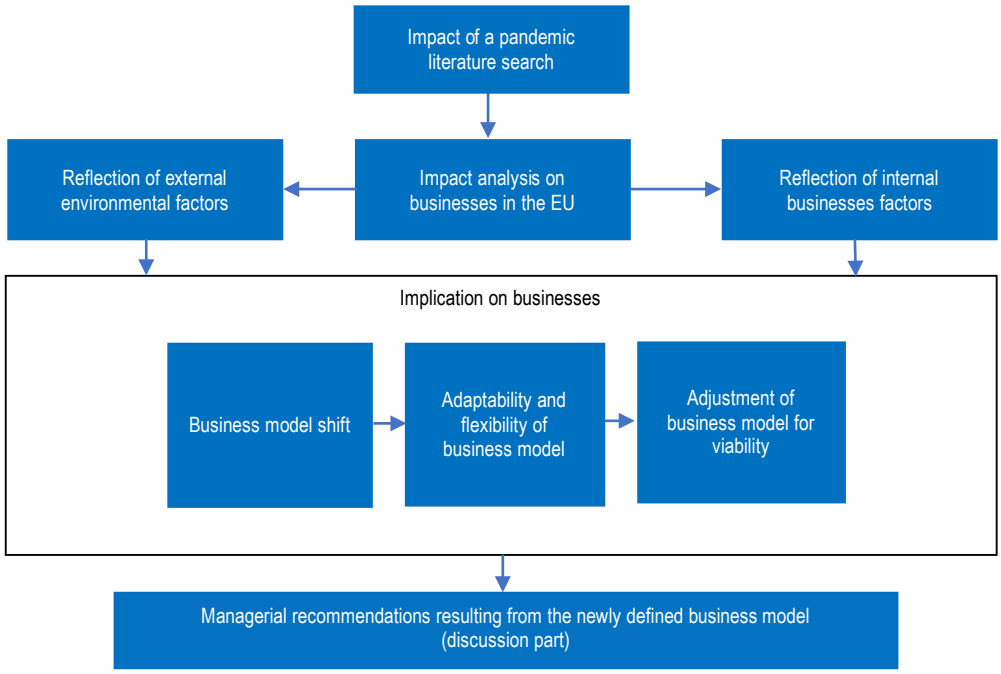
1. Research Design and Methodology

The methodology applied in the paper is structured around the mapping of literature review associated with the impact of a pandemic on business and impact analysis within the European Union on the economic indicators. Subsequently, we examine what and how businesses can do to respond quickly to the stimuli, our main focus is on business models that allow to quickly operationalize the current business situation and then take measures to create a basis for sustainability.

The study aims is to provide an analysis of the impact of the COVID-19 crises on the company's business model through respective indicators that cover the main areas of business models Osterwalder and Pigneur (2010). Short-term statistics indicators were chosen like industry, construction, wholesale and retail trade, and services because these indicators change significantly present waves of pandemics. These indicators are important tools for formulating and monitoring the economic and monetary policy of the EU and are the trigger for a cycle of business model changes (Eurostat 2020a). These describe, during the COVID-19, the key activities that the company must perform for its business to function as to obtain the sources of revenue that the company generates through its product portfolio and/or customer segment. These were particularly affected by the COVID-19 pandemic about to with concerning the decline in demand for services, retail trade, industry, construction, and their products.

Figure 1 presents the research design. Firstly, we have performed mapping the mapping of literature related to the current pandemic economic impact. Next, the impact analysis on the European Union businesses was researched. We continued by defining the impact on business model factors in relation to implication on businesses, specifically on business model shifts, adaptability, and flexibility of the business model in the business model ecosystem. Thereafter, the output is proposed by recommendations for managerial decision-making and a summary of related issues was revealed to determine the immediate situation of the elements of the company's business model with a view for adjustment and viability of the business model.

Figure 1. Research design



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In the study, we selected sectors in which changes are monitored, such as the severity of the impact of government measures and the COVID-19 pandemic, in the order to analyze current developments. For selected indicators, the quarterly time series 07/2019 - 09/2020 was involved according to the Eurostat statistical data (2020b) and the value of the indicator was compiled based on the fixed base year Laspeyres formula. The base year is 2015 (2015=100) was used. These describe, during the COVID-19, the key activities that the company must perform for its business to function to obtain the sources of revenue that the company generates through its product portfolio and/or customer segment. The study analyzes only certain parts of the business model that significantly affect elements of the business model in times of crisis. There is a decrease in the total volume of income, business activities, and other related activities. Most importantly, the COVID-19 pandemic is forcing companies to change based on various challenges in today's rapidly changing environment. Therefore, business models allow the reuse of some parts and there is no need to invent a new business model. Using the existing knowledge and the business model design process, research questions are determined:

(1) Will key activities provide a competitive advantage in a crisis?

(2) Are the sources of income of companies generated in a crisis?

2. Literature Review

The COVID-19 pandemic has brought fast-moving and unexpected changes to companies, some of which existing crisis business plans and business teams weren't prepared to handle. Consequences are across the globe not only in the economic field; all of society is affected, which these dramatic changes lead to a change in the behavior of businesses and consumers (Donthu and Gustafsson 2020). Many SMEs successfully developed incident management plans specific to this crisis, and are now looking ahead. Even though that limited studies exist, the impact of significant historical pandemics over the last millennium has been associated with subsequent low returns on assets (Jordà, Singh and Taylor 2020).

Currently, most of the manufacturing and supply chain businesses are struggling to anticipate the negative consequences of COVID-19 in long-term perspectives Kumar *et al.* (2020). Changing global markets are shrinking and managers are looking for paths and mean to sustain production using new processes, materials (Cohen, 2020), there is potential in business model shifts to capture new values.

What organizational insights the crisis process has provided to help you strategize and capitalize on the opportunity for event-driven transformation describes multiple authors in their articles or reviews. Nicola *et al.* (2020) summarized the socioeconomic effects of COVID-19 on individual aspects of the world economy. Authors recommend medium and longer terms planning is needed to re-balance and re-energize the economy following the crisis COVID-19 because the epidemic outbreak is likely to cause bankruptcy for many businesses as consumers do not manage the goods and economies are shut down (Tucker 2020). In general, as too the development plan including sector by sector plans and an ecosystem that encourages entrepreneurship is also needed so that those with robust and sustainable business models can flourish.

According to the results of the study by Bartik *et al.* (2020), America's small businesses employ almost fifty percent of American workers. Their results underscore the financial fragility of many small businesses, and how deeply affected they are by the current crisis which represents a shock to America's small firms that has little parallel since the 1930s. That many of these firms have little cash on hand, which means that they will have to dramatically cut expenses, either take on additional debt, or declare bankruptcy. This highlights how the immediacy of new funding might affect medium-term outcomes. Small businesses' responses to their survey suggest that they would be open as of the end of 2020. If the crisis is transforming companies in a positively and importantly, for every company it is important that employees must be to work. This fact affects the company's new programs and employees are helping each other, asking each other how they are doing, and listening more than ever. Trust in business leaders has gone up and employees have trust and confidence in the job being done by senior execs. The bottom line on this crisis COVID-19 is an important lesson in business: When the company takes care of its people, the people take care of the company (Joshbersin 2020).

Crises and the aftermath of events can have negative effects on societies if not measured properly (Coombs 2007, Pedersen, Ritter and Benedetto 2020) but they are also a source of novelty (Bernstein 1996, Chisholm-Burns 2010, Goffin and Mitchell 2010). Despite the importance of crises and unexpected events for changes in business models, they have not received so much attention, only the term business model innovation is used in this area (Foss and Saebi 2015). The lack of knowledge on this important topic has led to the search for companies in changing adaptation approaches in business models (Ritter and Pedersen 2020).

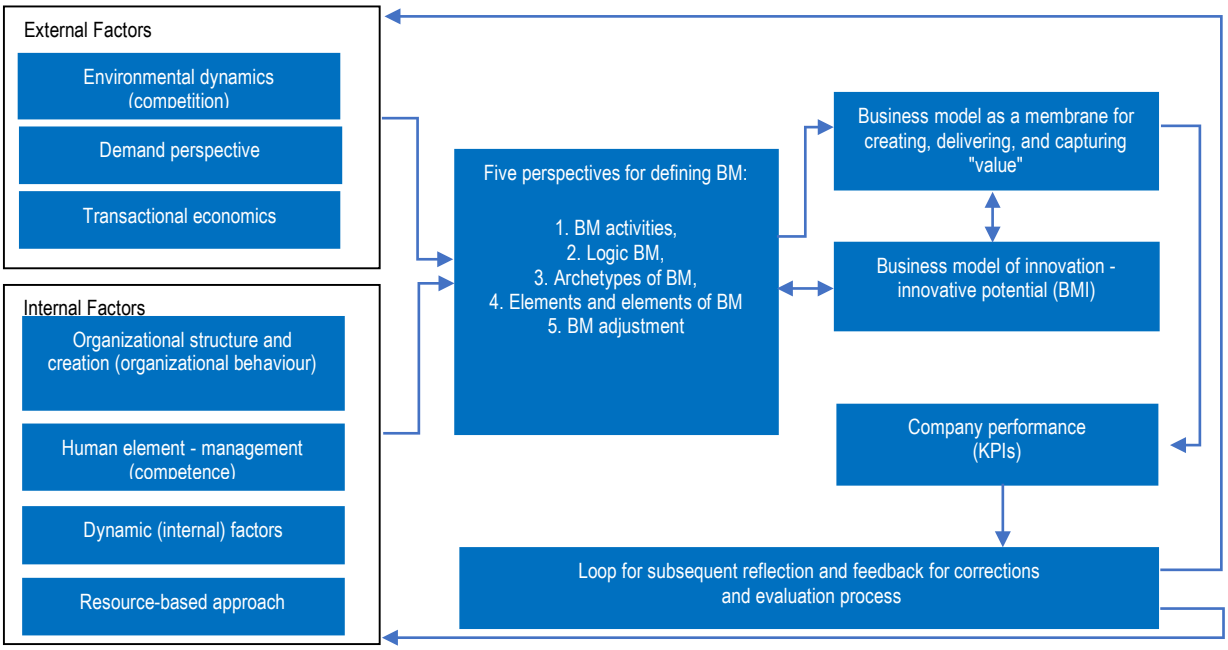
While the pandemic tests the viability, resilience and flexibility of organizations, it is necessary to focus on deeper insights into the assumptions on which managerial decision-making is based on theoretical business model frameworks that provide basic frameworks for operationalizing organizational activities. Therefore, in this paper, we examine the impact of the COVID-19 pandemic on research into factors influencing business models in the sense of the complex dynamic systems. We believe that space here is precisely in the approaches to the individual factors of business models, which provide the basic framework for the functioning of any organization.

Since, common ground can be found for defining the basic framework of the business model (Zott, Amit, and Massa 2011), we are convinced that it is appropriate and easy for companies to operationalize their current business by analyzing the value creation by the business model. Business models describe stakeholders, their roles, they also describe value creation, and the logic of appreciation, both from a core stakeholder as well as from the business ecosystem perspective (Chesbrough 2006, Osterwalder and Pigneur 2010). Much has been written about the definition of business models and their elements (Fielt 2013). The common language in terminology we discovered in the business model ontology domain from D´Souza *et al.* (2015).

The individual components of the business model and its dynamics can be a source of competitive advantage, where companies can revise their factors, contexts, and focus on significant innovations or changes. Ritter and Lettl (2018) claim that in connection with business models exists five meta-theoretical perspectives: business-model activities (*i.e.* business activities), business-model logic (*i.e.* consequences and business flow), business-model archetypes (*i.e.* a framework of the existing business model reflecting the specifics of the industry), business-model elements (i.e. description of individual components of the business model) based on Osterwalder and Pignerur (2010) with business model canvas (nine elements), and business model alignment (*i.e.* description of mutual relations and alignment). This theoretical perspective is given in a comprehensive approach and alignment is one of the factors that affect the organization of the business model not only in its factors (elements) but also in the interrelationships and consequences.

For the logic and definition of the influence related to the creation and influence of the business model, we have developed a conceptual business context model (Figure 1) that formalizes the logic of creating a business model from the influence of external (macroeconomic) and internal factors (source factors of companies) to define the basic five perspectives defining the business model to the subsequent creation (compilation) of a business model, which is then the basis for business model innovation potential to achieve the required KPIs and satisfaction of all stakeholders and shareholders. The perspectives for defining BM are used as the streams of business-model research (Ritter and Lettl 2018).

Figure 2. The conceptual business context model



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This model is developed for subsequent research, which will consist of iterating the change in the factors of the external and internal environment of companies to identify changes in business models caused by pandemics COVID-19.

The adaptability of the business model

The *business* model approach has been defined in a variety of ways (Table 1). There is interest from academics and practitioners in creating and composing a business model, but within its alignment, there is still room in terms of integrating the business model into mutual interactions, where external and interventional influences on the creation of an innovative or operational business model are incorporated. In general, business success is given by the effectiveness of creating individual elements of the business model in their interconnection and the ability to transform inputs into outputs (KPIs). The definitions present the fact, where they contain a logical framework for the functioning of a business entity that meets the expectations of stakeholders and owners. Therefore, they provide a simplified framework and perspective for other stakeholders who can to understand how society works.

Table 1. Selected business model definitions

Author	Definition
Afuah (2004, 2)	▪ "It is the set of activities which a firm performs, how it performs them, and when it performs them so as to offer its customers benefits that they want and to earn a profit"
Amit and Zott (2001, 511)	▪ "A business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities"
Mason and Spring (2011, 1032)	▪ "the business model notion was invoked to explain how novel types of business … would actually make money"
Osterwalder and Pigneur (201, 14)	▪ "describing a rationale of how an organization creates, delivers and captures value"
Zott and Amit (2008, 219)	▪ "the business model is a structural template that describes the organization of a focal firm's transactions with all of its external constituents in factor and product markets."

Source: Ritter and Pedersen (2020)

Some progress can be observed in the study by Globocnik, Faullant and Parastuty (2020), who develop this static concept into the principles of decision making, which are formed by control loops. These loops are interconnected from strategic management to tactical, where business model operations take place. This is where the potential for incorporating rapid change and corrections for the tactical level lies. But for companies to be resilient and flexible, it is necessary to develop all levels of control loops (from strategies, the basic type of business model to operations). Our paper contributes to this debate and develops the concept of this approach into a comprehensive Conceptual business context model. For business adaptability, it is necessary to adjust the speed of change and respond to the required time. The willingness of business owners to respond and invest additional funds in technology and digitalization of business plays an important role here. Industry 4.0 technologies have the capability of providing better digital solutions for business operations (Grasselli *et al.* 2020). These improvements can be identified in various elements of the business model (for example in value creation, cost reduction, ancillary services, supply chain creation, and delivery methods). Industry 4.0 provides a solution for manufacturing and other related areas enabling the collection, transferring, analyzing, and proper monitoring information in the business model's element (Javaid *et al.* 2020).

These events from COVID-19developed the importance and active role of owners (executive management) of companies in monitoring relationships with their main stakeholders (Paine 2020). Therefore, it will be important for directors to have a shared understanding of the company's goals and strategies, as well as defining the framework of relationships with interest groups and the impact on individual elements of the business model.

The changing circumstances this year also show a shift towards the integration of technologies in terms of data collection, product offerings, production organization, and delivery of value to the customer. This approach also extends the connection of the Information Intensity Matrix (Seetharam 2020), which links information content of product and information intensity to the value chain (Tronvoll *et al.*2020). The current and future state of the business model is associated with dynamic capacities, which can configure inputs as input parameters. The idea of business model innovation, which can be referred to as business model modification (Casadesus-Masanell and Ricart 2011), business model reinvention (Govindarajan and Trimble 2011), and business model transformation

(Aspara *et al.* 2013), is growing in importance for the ability to adapt and be flexible to change. While there is a direct connection between business-model activities and business-model elements (typically, activities are one element), the importance of business-model research for the resource-based value lies in the opportunity to connect value creation and value capture with resources. A central question in the RBV is the value of a resource. Business-model logic can provide a structured method for assessing that value (Ritter and Lettl 2018).

3. Pandemic Impacts on Businesses in the European Union

Due to the COVID-19 pandemic, the European Union has been hit by one of the biggest economic shocks of decades. The consequent effects are therefore also unparalleled. The government measures in place since the outbreak of the COVID-19 pandemic have almost halted the successful operation of companies, which has been hampered by restrictions. The realized impacts will have an impact on future economic development. It is possible to identify the main impacts in the area of, for example, differences in recovery, which will vary across the EU (due to differences in economies, national policies, and health care). Another impact is to define the impact of individual government measures (fiscal support and liquidity assistance) to avoid layoffs and protect businesses. Supporting instruments have emerged in the EU, such as Support to mitigate Unemployment Risks in an Emergency, and Next Generation EU plan to support member states hardest hit by the COVID-19 crisis with a €750 billion fund (European Commission 2020).

International, national and local companies all around the world are fighting the most dramatic global public health emergency of our time, which had become an economic, social and human crisis touching all key dimensions of our working and family lives (Ferrannini *et al.*2021). The decline in all sectors from spring 2020 to autumn 2020 is due to the introduction of various government measures against the spread of COVID-19. In particular, the closure of stone branches and services and the reduction of industrial production supported the spring decline in the development of Figure 3, 4, 5 and 6. In the current, the potential economic crisis caused by COVID-19 has negative economic effects in countries and needs to take measures to mitigate the economic effects (Oravsky, Toth and Banociova 2020). The sharp decline in the closure of stone branches (Figure 3) and services (Figure 4) in all EU countries has affected the activities of many sectors, especially tourism, services or the suspension of production and construction operations, pointing to obstacles affecting areas of the business model (Eurostat 2020a). While this may benefit some sectors, such as those that do not rely on face-to-face contacts, it hurts several other sectors (*e.g.* restaurants and entertainment) more severely. Renewed pandemic restrictions are set to impose more sunk costs. Despite some cushioning from policy support, firms that have to constrain their activity or suffer from protracted weak demand are increasingly facing solvency problems (for example corporate zombies, Banerjee, Hofmann 2020). The pandemic has increased uncertainty, which may motivate postponing investment decisions. In the first half of the year, restrictions to economic activity and the decline in economic activity translated into higher solvency risks for firms. These have been addressed by a series of emergency measures that have kept the company solvent and helped in the near term to protect jobs and incomes. They included loan guarantees and direct equity injections. Moreover, changes in bankruptcy procedures have lowered the number of filed bankruptcies to levels well below those registered in previous years. These measures have been complemented by central banks, which have ensured favorable financing conditions, enabling companies to build cash buffers (European Commission 2020). As Feixiong *et al.* (2020) state, many companies have been affected by the financial crisis. Their experimental results show that the occurrence a financial crisis can be predicted in advance and is the result of multiple factors during the COVID-19 pandemic.

Economic activity fell abruptly: in the first half of the year, real GDP fell at double-digit rates in both the euro area and the EU - rates were never seen before. Employment also declined more than ever, although less than what could have been expected, thanks to massive policy support by the Member States and the EU. GDP in some countries was hit much harder than in others, declining over three times more in the most affected than in the least. The combination of renewed fear about the spread of the disease and lockdown measures is weighing on economic activity in the short run and putting the nascent recovery on hold (European Commission 2020).

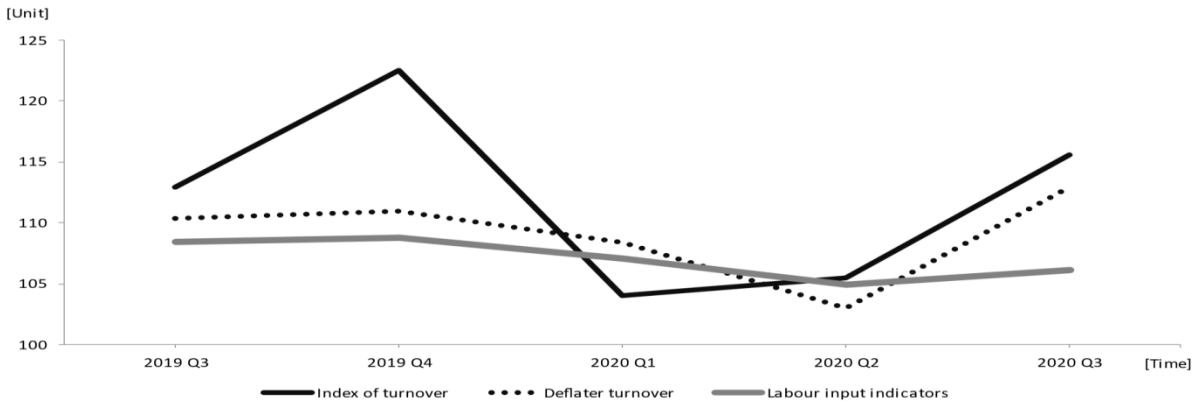
The European economy saw a dramatic, sudden reduction in economic activity between March and May 2020, resulting in a technical recession in the first half of the year. After falling by 3.7% (q-o-q) in the first quarter, euro area GDP declined by 11.8% in the second. Over the first half of 2020, all Member States recorded declines and 24 Member States fell into a technical recession. While most reported economic contractions are in the range of 10-15% of GDP since the last quarter of 2019, the economic cost of the pandemic is also highly asymmetric. Among the six largest Member States, Spain (about 22%), France (18 ¾%), and Italy (17 ¾%) saw larger declines than Germany (11 ½%), the Netherlands (9 ¾%), and Poland (9 ¼%). Between April and June, euro area retail trade was up by 27% after having fallen by 21% from February to April, and thus fully returned to its pre-crisis level.

Following some retrenchment in July, partially related to the postponement of the summer sales season in many countries, retail volumes continued their rebound in August. As a result, euro area retail trade volumes were about 10% above their second quarter reading. A recovery in euro area industrial production is also underway but still incomplete. In May and June, industrial production rose by 23%, after a cumulative drop of 27 ½% during the two preceding months (Figure 3). Despite further increases in July and August 2020, industrial production was still about 6% lower than in February. There is a large heterogeneity in the performance of different sectors. For example, production is already at or above its January levels in the manufacture of textiles, and furniture but remains about 20% lower for motor vehicles, trailers, and semi-trailers (Eurostat 2020b).

These tendencies are also supported by the results of volume of retail trade (Figure 3), where differences in consumer behavior and business activities of European Union countries have been identified based on different mentalities and different experiences of consumers and retailers. During spring 2020, retail demand for food soared. Sales of frozen and packaged foods in particular increased dramatically: at their peak in the second half of March, weekly sales of frozen foods were 63% higher than the year before in France, while sales of packaged foods were 56% higher year-on-year in Germany. Similar demand spikes were seen in other countries. Following this initial spike, retail demand for fresh, frozen or packaged foods has remained about 15-20% higher than usual (OECD 2020). Increasing stability of a long-term volume of retail trade of all companies depended heavily on consumer behavior and his/her needs, instead of having just new great better products or services. In particular, in the situation of COVID-19 pandemic, consumer behavior was changing every day, due to during the high-speed transmission of COVID-19, the disease the number of online shopping were increasing dramatically (Safara 2020).

Some businesses were struggling or revoked, some businesses are thriving (Figure 3). Several number of Internet-based businesses, those related to online entertainment, food delivery, online shopping, online education, and solutions for remote work are increasing all year 2020 (Donthu and Gustafsson 2020). However, the spring retail trade decline, despite increased sales of computer equipment, books and medicines, was insufficient. Only the increase in May and June 2020 compensated for the deep decline in retail sales of previous months due to the easing of government measures. Internet shopping has brought about new possibilities for innovation and radically changed business activities. It is expected that internet shopping will accommodate more than a quarter of the total retail sales worldwide in the next few years. Especially, the responsiveness of the internet plays a significant role to establish strategic targets in new business models. That is, the financial and non-financial factors will drive changes in the future state of the financial performance of the product in the long term; considering such aspects may help avoid upended decisions (Pourhejazy 2020). Anastasiadou *et al.* (2020) examined how consumer and business behavior changed in the face of fear and crisis and future developments in Greece and Sweden. Mutual communication and behavior brought changes in management, supply, sales methods and logistics based on differently issued government measures.

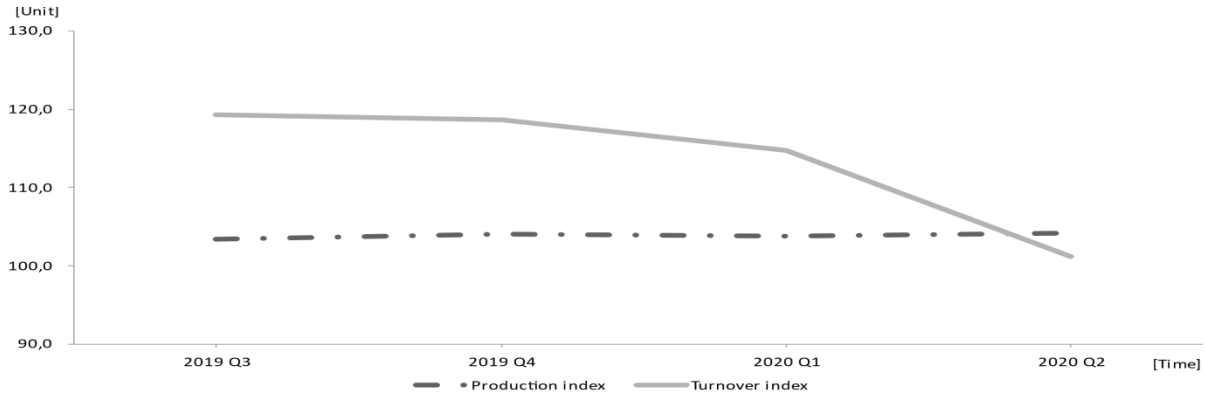
Figure 3. Wholesale and retail trade and their respective indicator



Source: own processing based on Eurostat statistical data (2020b)

In the impact analysis in services (Figure 4), there was a sharp wave, starting in January-February (value 113.3) to the values in March-April 2020 (86.8-91.7), when it is a decline compared to 2019 by 36% within the EU27. This wave is observable in all countries, differing only in the rate of decline (Eurostat 2020b). The COVID-19 pandemic is a drastic change that has impacted all like services, retail trade, industries sectors alike including the health-care sector, education, retail, travel, food, and government agencies.

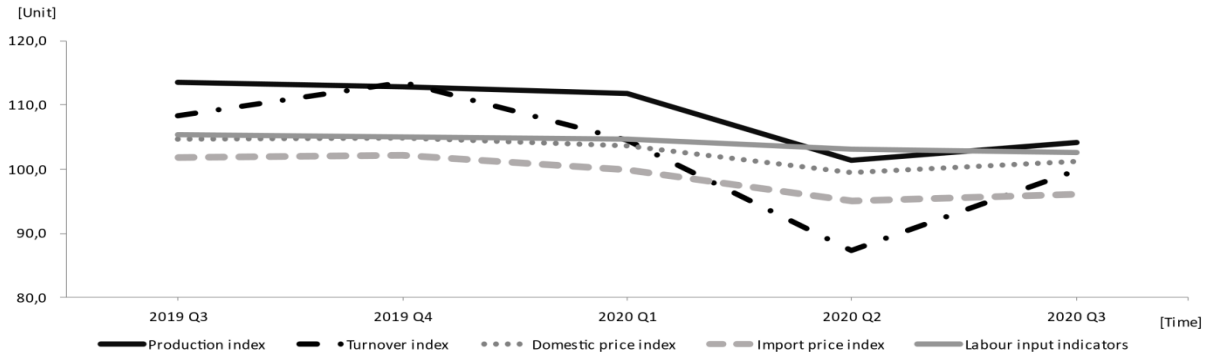
Figure 4. Services and their respective indicators



Source: own processing based on Eurostat statistical data (2020b)

However, some industries are developing well like healthcare and medicines, as well as herbs and vitamins that they are growing (Donthu and Gustafsson 2020). In terms of the industry (Figure 5), the most affected countries are France, Italy, and Slovakia, which produce durable goods. The smallest decline was recorded in food-producing countries such as Greece or Lithuania. Companies have realized that in many industries, the business will no longer be the same. Smaller and younger firms are more exposed to negative impacts while most firms seem to be able to cope, still a significant number is struggling. For large industry manufacturers, the crisis has so far mainly slowed down product deliveries and mission deployments, due to social distancing measures and supply-chain delays, with only limited effects on revenues. The negative short-term impacts have been concentrated among smaller suppliers, many of which are dependent on contracts from larger firms and must wait for payments to trickle down (OECD 2020).

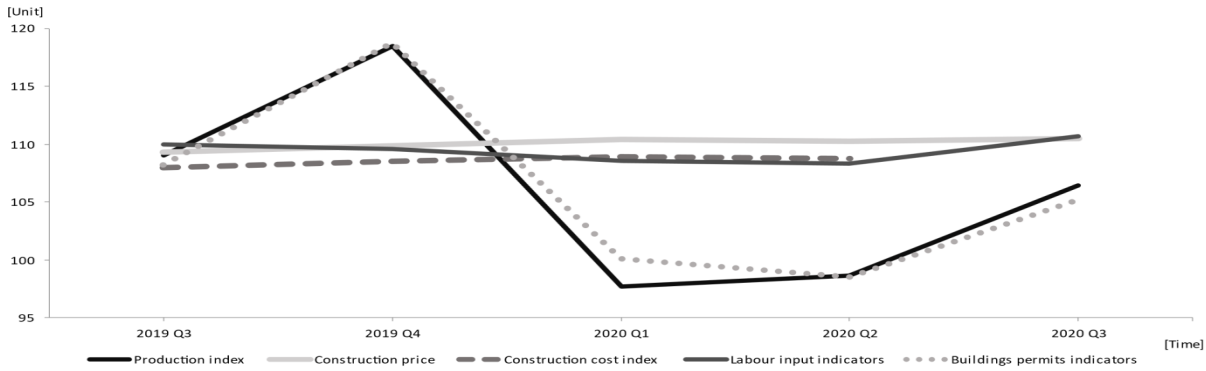
Figure 5. Industry and its respective indicators



Source: own processing based on Eurostat statistical data (2020b)

COVID-19 has affected not only the industry, but construction also suffered (Figure 5). Construction sites in many countries have shut down or interrupted. Open companies have faced disrupted supply chains and operational restrictions. The result was the disruption has been reflected in sources of income. Since February, public engineering, construction, and building materials companies have dropped significantly more than average (McKinsey & Company 2020). Thus, the construction and industry sector has been highly disrupted by the current pandemic. According to the analysis of Araya (2021), it was found that the spread of COVID-19 among construction workers may reduce the workforce of a project by approximately between 30% and 90% due to the spread of COVID-19. Companies should investigate to classify the activities involved in construction projects as low, medium, and high risk regarding the spread of COVID-19. Companies should know which activities need to be re-design to minimize the spread of the virus. They have to find new areas for business or expand their variability, which is often not possible without new investments. Unfortunately, it is not yet entirely clear where business will move worldwide. It should also be mentioned that the new type of COVID-19 pandemic is not a closed matter, but one of the variables in the business environment.

Figure 6. Construction and its respective indicators



Source: own processing based on Eurostat statistical data (2020b)

Obviously, much in thinking about future business models will have to change as the viability of companies changes. These must increase the chances of survival and were not dependent only on the product or customer portfolio or gradually break out of the subcontractor trap. This puts strong pressure on innovative business models for several reasons, including established government measures.

The current crisis caused by the COVID-19 pandemic has significantly affected many problems caused by the general deterioration of world production, trade and services, which have increased the uncertainty of export firms. It was the growth of protectionism and trade disputes. Exporters were mainly bothered by logistics problems. Exports were greatly complicated by restrictions or even the cessation of logistics, bureaucracy or long-term controls imposed by government measures. Some companies also could not import the ordered goods from suppliers and thus faced a shortage of raw materials or parts in the industry. Another big problem was the restriction of cross-border movement of persons, when, for example, foreign specialists for servicing production facilities were missing. The suspension or cessation of business activities had an impact on the spring significant increase in unemployment. Unemployment was particularly responsive to health shocks and the unemployment fluctuation are attenuated almost everywhere (Milani 2021, Thill, Houssemand and Pignault 2020). It also confirms the development of the labor index Figure 3, 4, 5, and 6.

Common elements can be found in existing business models (Osterwalder and Pigneur 2010). These are useful and allow you to reuse certain parts and there is no need to always invent the whole business model from the beginning. At present, if companies can understand the crisis environment, they will be able to create a better and more competitive business model. The complexity of the crisis, uncertainty and irregular market disruption lead to business model innovations in a changing environment. An innovative business model can shape, change, and introduce new standards using knowledge from crisis periods.

However, the strategy of innovative business models of companies may meet with the monitoring of contacts in the context of employment, transit, retail services and business activities in the period when the country returns to the normal period. Current national pandemic COVID-19 surveillance applications currently overshadow privacy, human rights and business (Scassa 2021). In conclusion, the main question for the future EU development remains whether and, if yes, at what pace the economic rebound will continue and how long it will take to return to pre-pandemic levels of economic activity.

4. Discussion – Business Model Shifts Forced in Response to a Pandemic

In order to bridge and react quickly from management, it is necessary to issue stimuli to quickly stimulate change, referred to as business model shifts. One of the approaches to dealing with the effects of a pandemic is these "shifts", which represent small changes in the business model. For example - a shift of a value proposition; a shift of a customer segment; a shift of a revenue stream; and a shift of a resource. A combination of small shifts is grouped into five business model shift movements: the platform shifts, the technological and digital shift, stakeholder shift, circular shit and the product and service shift. However, *the question remains how to translate these changes into new business models?* To do this, it is necessary to develop the existing business model in more detail, it is possible to use the one created by us (Figure 2), which can be a basic framework for reflection on the existing business model and a basis for introducing the changes. This comprehensive framework is a contribution to the debate and an extension of the theoretical framework.

Based on the set questions, we develop a debate on the possibilities of using and identifying business drivers' activities and resources generated in the difficult conditions of the crisis in the following reactions.

(1) *Will key activities provide a competitive advantage in a crisis situation?* The environment of the COVID-19 pandemic has moved the market towards an online environment. The impact of Digitization 4.0 is entering society very quickly. The online environment has brought about new possibilities for innovation and radically changed business activities of companies (Pourhejazy 2020). The influence of usefulness in opportunities and trends and rules of development of new business models was also manifested. These are moving from convective approaches to digital ones (Paiola and Gebauer 2020, Naglič, Tominc and Logožar 2020). The key activities have become the internet, the technology and information systems management that companies carry out to make their business work. It is evident that to business activities, companies have to not only use different types of technologies but emphasize the most appropriate practices and policies. It has been confirmed that the observations made by the COVID-19 pandemic provide us with valuable insights for technology management and information systems. Companies are forced to change the strategic decisions in company´s behavior and identification of significant factors influencing the business models (Herath and Herath 2020). Results of the analysis do confirm the online marketing strategies of the retailers are effective and very clear (Pastiu *et al.* 2020). Companies had to start taking the "pre-corona," "during-corona," and "post-corona" environments as an opportunity to enhance business management. It has been confirmed mainly the role of Digital Technologies in enhancing productivity and performance in Small and Medium Enterprises. At the SME level, appropriate systems and support staff have in place to ensure that infrastructure will be always available, ensuring smooth operation of all business operations (within the digital platforms of the SMEs used). Especially, SMEs had to need to (re-) think on how to revitalize their strategies incorporating crises scenarios and business continuity plans while looking at increasing revenues using alternative/additional sale channels. SMEs had to take also a proactive, integrated approach that will improve the everyday life of the local, national and global communities (Papadopoulos, Baltas and Balta 2020). There are five key innovation areas to revamp for such the retail trade: in-store technology, the role of sales associates, leveraging a mobile channel, data analytics, and collaborations (Jocevski 2020);

(2) *Are the sources of income of companies generated in a crisis situation?* The COVID-19 pandemic environment presents some important opportunities for companies to become innovative in their sources of revenue so as to help explain financial results, which may vary from sector to sector. The current development of COVID-19 in terms of work, culture, life and social leads to reactions and changes in business models to manage crisis situations, in the short and long term (Ratten 2020). Defining the main market segments, describing their attractiveness and finding new customer segments also has an impact on rising prices and determining the amount that customers are willing to pay. Countries with a higher degree of specialization in business services tend to have higher incomes (Lo and Yang 2020). Nevertheless, companies try to influence pricing according to the valid legislation (European Union 2020). It has been confirmed that also the space for social distancing mean taking out some gondolas or merchandise in some retail environments, reducing the number of traders in some markets, or 'barrows' in shopping centers which can influence on the financial perspectives and may result in adverse impacts in the long term (Ntounis *et al.*2020). Repercussions from economic downfall due to closed businesses from governmental policies have made many small businesses lose operation mechanisms and see a decrease in profit and sales. Having high costs for productivity and supply and a loss of demand for the product, caused many businesses to fall into debt. In general, small companies have suffered the worst losses, seeing a decrease in business sales and a lower revenue margin (Kyung and Whitney 2020).

The questions that businesses have to look for answers are structured into a level: What platform (type) of business model is suitable for us? How can we integrate digitization and technology into internal factors (capacities)? How can we use digitization for remote access to enthusiasts? We need to move away from a short-term shareholder wealth to a long-term stakeholder approach, *i.e.* How to change attitudes towards all stakeholders? How to profile segments? How to capture them with our added value? How can we use the current situation for circular business modeling? What types of products and services are in demand by our customers? How to involve them in creating value for these products? These are the basic questions for any business entity looking for firmer ground to overcome the current pandemic situation. These effects will be in the horizon of about 1-2 years, when companies can use their potential and find new competitive advantages. Everything is possible in the form of a suitable approach to the adaptation and flexibility of business models, its elements, influence factors and inputs for resource-based value to meet the requirements of stakeholders.

A procedure can be created to gradually deliver value to its participants in subsequent steps. The businesses should first profile their strategy and project it into a product portfolio (what and how they are able to implement depending on the changing environment), revise pricing strategies as well as the availability of products and services to customers. In the next step, the organization must look inward, it must provide creative workers with the potential for added value, who are stimulated to quickly reflect on change. Furthermore, it is necessary to define

the approach to employees, review the status and approach, create a suitable mindset of people and culture in the organization (each crisis will test the resilience and loyalty of the relationship between management and employees themselves). The next step is a system and process analysis - revision of the current functioning of the company, optimization of processes, orientation to the set goals with regard to the interests of stakeholders. All changes and shifts must be revised with the required KPIs, where appropriately set indicators will help restructure companies' budgets, make a more efficient allocation of capital in relation to the stabilization of society. The next step is to develop engagement in relation to external stakeholders and use the current situation to understand the meaning and purpose of the company. Businesses can benefit from the extensive business support that has been developed in the EU in order to stabilize employment, stimulate supply and demand.

When the variability of the environment is very high and this is exactly the situation of C-19, the organization tries to adopt "temporary adhocracies" (Seetharam 2020) which are a sense of innovation. These innovations are then drivers in the sense of "business shifts". For the implementation of adhocracies, it is necessary to use an internal view of the resources used, which must be strengthened, for example, in terms of human capital and its knowledge of creativity, experts in information technology, digitization, and creativity in marketing and logistics. These are the reasons to focus on evaluating the current business model and its individual elements. It is evident that the ability to maintain relationships not only with employees but also with major stakeholders is key to overcoming the unfavorable economic situation. Therefore, it is essential to build business ecosystems that will allow them to carry out this transformation and adapt to new conditions, the need to be agile and quickly adaptable is key (Tronvoll *et al.* 2020).

One of the impacts is therefore to influence organizations for a higher rate of digitization and finding ways to deliver products and services to their customers in order to eliminate physical contact. These circumstances force companies to make changes, to innovative and creative changes, such as in supplier options, product customization or full integration of digital services (comprehensive digital customer response management).

Based on the above, new questions arise. The first question is whether companies are looking for passive help in the form of government support programs adopted by member governments. The second question is whether companies are taking an active approach and looking for ways and means of overcoming this situation. It is the implementation of internal self-evaluation and finding out the state of business and its model before the crisis and the identification of possibilities during and after the crisis is important. Time plays a role here, inspeed of integration of changes from the management view.

For the purpose of reflecting the current situation, we have adopted the composition of the business model according to Osterwalder and Pinger (2010), which has the advantage of simplicity and easy access of management and business owners (Table 2). We verified the simplicity and applicability of this methodology on a sample of owners of 8 Czech businesses, where they all agreed that clarifying the formulated criteria (questions) helped them respond quickly to changes, applying this approach to economic system conditions before and during an ongoing pandemic. The acquired reflection (almost) immediate helped them to realize what are their possibilities of internal factors, how they can use the approach of digitization and how to perform business model shifts, so as to maintain the business model viability of their business activities. A sample of companies and their output in the form of a detailed case study is the subject of another article, which follows the presented methodology.

Table 2. Design of circuits for quick reflection of business on the business model of the company

Key partners	Key activities	Value propositions	Customer relationships	Customer segments
We create a stakeholder matrix for cooperation with stakeholders	Key activities are carried out efficiently.	We provide solutions to a real problem in the market	How strong relationships we have with our customers	The return of customers is acceptable.
We have positive relationships with key partners / stakeholders	Key activities are carried out efficiently.	Our offered values (products / services including their properties, appearance, design) are well aligned with the needs of customers	Relationships vary by customer segment	The customer base is segmented appropriately.
We maximize the material resources offered by key partners	Key activities are difficult to copy.	Our offered quantitative values (price, speed of service, etc.) are aligned with the needs of customers	How strong is our brand	We perform segmentation according to sales and turnover

Key partners	Key activities	Value propositions	Customer relationships	Customer segments
We maximize intangible resources offered by key partners.	The resources required by key activities are specifically identified.	Our offered qualitative values (design, quality, functional use, usability, etc.) are aligned with the needs of customers	Our services are tailored to customers	Significant customer segments are business to business (B2B)
The definition of the relationship between key partners/ stakeholders and key resources is clear.	The key activities required for each value proposal are specifically identified.	We are constantly working to expand / improve our offered value	Employees are committed to building relationships with customers	Significant customer segments are business to consumer (B2C)
The relationship between key stakeholders and value creation is clear.	The activities required to provide services / products are obvious to employees.	We use service / product combinations to differentiate the value offered	Employees are committed to maintaining relationships with customers	For segmentation, we distinguish between B2C or B2B
We know the relationship between key partners and relationships with consumers and we can build them.	We have a combination of standardized and customizable activities.	There is a strong synergy between our products and services	Our customer relationships meet customer expectations	Our customer segments are prioritized
Key partners can / cannot be replaced.	Key activities are used synergistically.	Our service / product packages are different for different customers and their needs	Customer relationships are well integrated into the business model	We are aware of the needs of each segment
In our company, we have retained key knowledge and demonstrate elements of a learning organization.	How we are able to use internal and outsourced business activities.	Our service / product combinations are clearly communicated	We are aware of the financial costs of establishing and maintaining relationships	We know the motivators of each segment
	Activities aimed at the company's strategic goals.	The expectation of services / products from the customer corresponds to our offer	How we evaluate the cost-effectiveness of building and retaining customers	We know trends in every customer segment
	Key resources	The roles of customers in services / products are clear	Channels	Segment needs are prioritized
	Key resources are used efficiently.	Our channels (communication, distribution) facilitate the co-creation of customers	Customers can use our offer through various channels	Employees have easily accessible information about customer segments
	Key physical resources (property, machinery, real estate, etc.) are used efficiently.		B2B customer segments can take advantage of our offer through various channels	We are able to gain new customers
	Key human resources are used efficiently.		Customer segments in B2C can take advantage of our offer through various channels	Key customer segments are growing / falling

Key partners	Key activities	Value propositions	Customer relationships	Customer segments
	Key financial resources are used efficiently.		Channels are efficient and effective	Other customer segments are rising / falling
	Power supplies are delivered reliably and stably.		The reach of the channel is strong among customers	
	Resource requirements are partially predictable.		Customers can easily see our channels	
	Resources can be used to provide economies of scale.		The channels are strongly integrated	
	The capital resources required for each value proposal are specifically specified.		Channels provide economies of scale	
	The financial resources needed for each value proposal are determined and clear.		The channels are well adapted to customer segments	
	The human resources needed for each value proposal are obvious.		Employees understand and promote our offers	
			Employees are competent and efficient in delivering our offer	
			Employees are entitled to resolve emerging situations	

Cost structure	Revenue streams
Are our costs predictable or not?	We are convinced of our pricing strategy.
Our activities are cost-effective.	Our income is predictable.
Our cost structure is properly aligned with our business model.	Our incomes are diverse.
We know the total cost of each value proposal.	Our incomes are sustainable.
We know which key activities were the most expensive.	We have repeat revenue streams and frequent repeat purchases from customers.
We know which key resources were the most expensive.	We know which customer segments generate the most revenue.
Costs can be easily linked to each building block of a business model.	We know the percentage contribution of each segment to total sales.
We are able to accurately predict the variable costs of a company.	We know which value offer generates the largest sales.
We have fixed cost control systems.	What amount of turnover do we report
We have invested time and money in frontline employees.	
Our goal is to constantly reduce costs without compromising quality.	

Source: own processing based on methodology of Business Model Canvas (Osterwalder and Pigneur, 2010)

If businesses reflect using the given values (Table 2), then this framework will help them to identify the current business situation. This approach has a practical application, where it can be applied to the period before C-19, how businesses operated and then do the same for the period when the current epidemic is taking place. The confrontation of these two findings is the basis for the subsequent awareness of "changes" and the adaptation of the business model. We tested this methodology on the example of eight companies (a family business, a central company in the field of IT, a small business owner, a large company in the energy sector, a company producing components for cars, a restaurant operator, a company in the processing industry and a provider of financial

services). We received positive feedback from all of them that this awareness was the trigger for subsequent changes, which were reflected in the business model shifts and adjustment for the viability of their business.

By creating a basis for change, it is desirable to combine with a conceptual business context model (Figure) where the created business model is understood as a membrane for the creation and delivery of values leading to the integration of innovations and impacts on KPIs. Before a given "new" model is created, it is necessary to go through the process of evaluating external factors (environmental dynamics, demand perspective and transactional economies), including internal factors (organizational structure and creation, human element - management, dynamic (internal) factors, resource-based approach). The output of these factors is the transformation into the basic five perspectives necessary to define the business model (BM activity, logic, archetype, building blocks and adjustment). Subsequently, the detected values are reflected in the innovative potential (BMI) and the way of creating, delivering and capturing the value is then reflected in the basic KPIs. This is where the managerial evaluation begins and the move into the feedback and re-evaluation loop of external and internal factors. In this process, the role of time and viability is crucial for the preservation and sustainability of business.

Businesses cannot rely on quickly overcoming the current situation (1-2 years horizon), but must look strategically to the future. Therefore, it must make changes and "tailoring" in relation to finding an equilibrium between internal resources, stakeholder requirements, and external influences of the pandemic. If businesses succeed, they have a foundation for building permanent values and business sustainability. The post COVID era opens anew challenge for sustainable business transition (Cohen 2020), and strengthen supply chain and production and business system more resilient (Sarkis *et al.* 2020). Generally speaking, the businesses have to sell and generate value in order to pay their liabilities and ensure an acceptable level of profit for shareholders. If imbalances occur in this cycle, then the consequences are far-reaching not only in business but also in society as a whole. The decision lies in its own conditions (Davison 2020), when no one generally looks for disruptions in general and wants to strike a new balance.

Conclusion

The paper is not based on detailed mathematical modelling (limited research), but provides a framework for further research and detailed elaboration of implication logic in the subsequent subsequence within external and internal factors that affect the operating of companies with impacts on stakeholders and owners. The ability to "adapt" businesses to rapid changes in the environment plays a crucial role here. This element is more fundamental and relevant than ever, because it decides whether companies survive, succeed and generate, for example, a new competitive advantage.

The ongoing pandemic has set a new trigger in the intensity of change, which just evokes exponentially in the possibilities of adapting business models. It is at this time that the pressure to build the long-term dynamism and value of companies is demonstrated, which can make appropriate use of ongoing changes to introduce the dynamics of change and adaptation into their business models as basic frameworks operationalizing their business. It seems that companies that adapt changes more quickly and are able to operate with a development of value not only for the customer create a competitive potential for survival or, conversely, finding a competitive potential.

The requirement for new and innovated business models will emerge for the above reason. Therefore, it is desirable to develop a business model shift, which are changes in the factors and logic of specific elements of the business model. A viable business model is fundamental to long-term survival of the businesses (Magretta 2002).

In conclusion part, the materials for discussion and recommendations for the required changes are being developed, which are the driving force for the subsequent change of reality in approaches to business model innovation. These conclusions are generalized due to the broader implementation level of businesses, stakeholders and owners.

In order for companies to be able to react quickly, they must be agile, flexible, equipped with the right resources. These resources are dynamic capabilities that allow for subsequent changes in the new business ecosystem. Such as to create digital platforms, simplify technological processes, identify partners and key stakeholders in a given ecosystem, realize what and which elements in the business model generate value for me that I can deliver. Everything depends on the human element and its ability to be aware of change, its creative approach, integration and the production of new managerial decisions into new value-creating strategies (Eisenhardt and Martin 2000). Companies must not ignore the interests of stakeholders in the new ecosystem; on the contrary, they must draw them into interconnections and build, structure core values and mechanisms for more agile survival responses in the post-C-19 situation (Silva and Hirschheim 2007).

Therefore, in response to the evaluation of the current impact of the ongoing C-19 pandemic on the example of selected indicators in EU member states, it is clear that the reactions of companies are desirable. We find here

a direct link between the effects of the crisis on the functioning of a number of sectors and businesses, where reactions are needed. Therefore, companies must ask what reactions we should make, what changes and how to integrate them, how quickly, how flexibly, how to connect to the ecosystem, what business platform (business model) is most appropriate to consider external and internal factors as well as the interests of stakeholders and shareholder, creating a new equilibrium between these factors is crucial.

The article provides an operationalized framework and a number of questions that each business must answer and determine their business model and its links in the original and new ecosystems. We contribute to the debate on the possibilities of using business modelling for the needs of rapid adaptation and adjustment of companies in response to the ongoing pandemic.

We encourage future research that investigates how the businesses perceive and assess the current crisis situation using a comprehensive case study using a case study based on a methodology of background and questions reflecting the external and internal environment in new ecosystems. Subsequent research will use comparisons on a sample of companies to assess and compare the difference before and during a pandemic on business models and the ensuing business model shifts and adjustment. These validations will then support our ideas and, most importantly, serve companies quickly and operatively evaluate the current situation, which is critical for viability. Due to the fact that this study took place immediately after the ongoing crisis. We employed available data, professional articles and studies and only the subsequent validation on a sample of the companies will show whether the procedures we propose are correct and valuable for managerial decision-making.

Awareness of what the company has done before and what it can do during and after the pandemic is key to surviving in a new ecosystem, where digitization and information technology make it possible to bridge new barriers. In conclusion, we can add that there is a need to create an internal business model of a platform that is able to respond quickly to change and is a source of desirable creativity, innovation and cooperation with stakeholders. The level of digitization and industry 4.0 creates a condition for the delivery of core businesses (George, Lakhani and Puranam 2020).

We finally would like to encourage researchers to do further studies in the business model issues reflecting the businesses impact to reach affected business entities.

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