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IMPACT OF COVID-19 PANDEMIC ON BUSINESS ENVIRONMENT AND THE PACKAGING INDUSTRY

The article investigates the key challenges which Ukrainian enterprises faced for the past two years (lack of raw materials, working capital deficit, absence of workers etc.). COVID-19 pandemic has forever changes the functioning environment and the consumption patterns. Previously, selecting the products, customers more focused their attention to such characteristics as quality, shelf-life, convenience of packaging, product safety and purchasing conditions. Nowadays, the hygiene and safety have become the most significant factors during product selection.

The coronavirus pandemic has negatively affected a multitude of industries around the world. To survive in business environment, Ukrainian enterprises should implement the best modern practices of doing business. Such practices include the implementation of principles of circular economy, which involves reusing and recycling existing materials and products. Cradle to Cradle (or C2C) concept of regenerative design evaluates the product safety for society and the environment and aims to reduce production costs by continual reuse of materials.

In this paper, it has highlighted the need of creation of an Extended Producer Responsibility Organization. Extended producer responsibility (EPR) focuses on the responsibility of the producer for the impacts of their product in the final stage of its life cycle, after consumption, and gives producers a greater motivation to design products that minimize environmental and health impacts. The world's largest companies have a great experience in implementation of such projects. EPR is aimed at decreasing total environmental impact from a product and its packaging, by ensuring that the producers of the product take responsibility for its entire lifecycle especially in recycling, and final disposal of their products, including packaging. Such practices increase the enterprise efficiency and promote the sustainable growth of Ukrainian companies.

Keywords. *pandemic, changes, circular economy, consumer behavior, packaging, Ukrainian enterprises.*

Problem statement. Changes that take place in the economy are characterized by a high degree of dynamism. The business environment for Ukrainian enterprises has become more complex under the COVID-19 pandemic and has created the need to adapt to present-day challenges. Enterprises face serious problems of maintaining business activity, financial stability and jobs.

Ukrainian enterprises have been gradually implementing innovative technologies, improving production processes to be more competitive and able to enter international markets. However, the pandemic has substantially reduced the innovation activity of enterprises, and has become the most severe obstacle to their growth.

COVID-19 has triggered a crisis and caused challenges of running the domestic enterprises. A study of business environment and modern concepts of sustainable development prompted the need for this research.

Analysis of the up-to-date publications. Thus, V. Yemtsev notes a significant decline in innovation activity of domestic enterprises [1]. V. Marchenko, E. Danilova, I. Fedulova, M. Dzhulai, T. Mostenska, E. Yurii identify the opportunity to improve enterprises adaptability to changes in the external environment considering efficiently use of all available resources [2-4]. Survey of centres for business analytics (Deloitte, ACC (The American Chamber of Commerce in Ukraine), Federation of Employers of Ukraine, KMPG, Tetra-pak) provides information regarding changes in the business environment and, in particular, customer requirements for food packaging [5-8].

Statement of research gap. Quarantine restrictions and constant changes in the external environment need further research of doing business taking into considerations challenges and increased customer requirements for product packaging.

The purpose of the paper is to interprete information about the impact of external environment factors and consumer behaviour on domestic business, consider food packaging market trends due to the pandemic.

The methodology of the research. In the research surveys carried out by Deloitte, ACC (The American Chamber of Commerce in Ukraine), Federation of Employers of Ukraine, KMPG, Tetra-pak and the Antimonopoly Committee of Ukraine report for 2020 were used [5-9].

The basis of the study is a set of general and special methods. Thus, inductive and deductive methods were used to identify the key problems of enterprise development in Ukraine during the COVID-19 pandemic; statistical observation – to learn consumer opinions and perceptions of product packaging, to analyze the impact of the pandemic on businesses in different sectors of the economic activities; logical – to identify a number of positive effects of the circular business model; generalization – to draw conclusions about the impact of packaging on the environment and the need of digital transformation of the packaging industry, including online distribution channels.

Research results. The main problems of Ukrainian enterprises, according to the survey results conducted by the Federation of Employers of Ukraine (Figure 1), are the incapability of business partners to operate normally and incapability of suppliers to provide inputs.

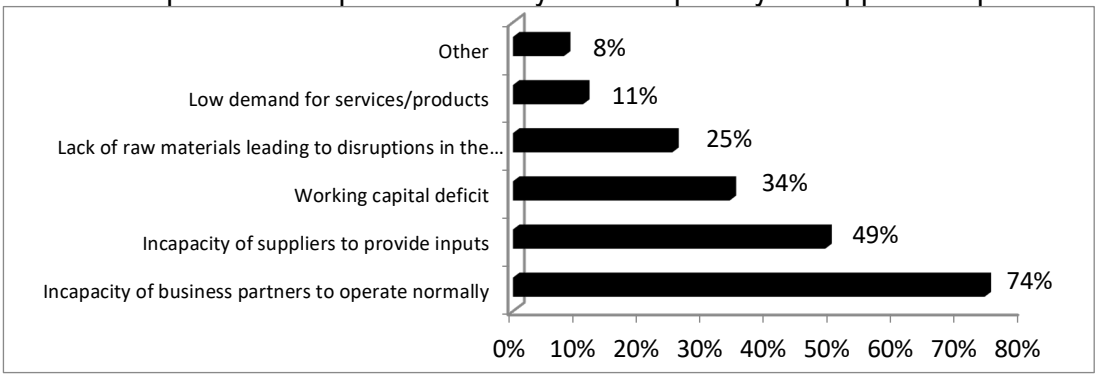


Fig. 1. Key challenges to Ukrainian enterprises during COVID-19 pandemic.
Source: [7]

For the past two years, businesses have witnessed a downward trend and demonstrated failing at problem solving. Significant impact is caused by lack of raw

materials, working capital deficit, absence of workers etc. All these things lead to loss of income and bankruptcy of small and medium-sized businesses.

Entertainment industries (theatres, cinemas, exhibitions, fitness clubs etc.) and the hotel and restaurant business had the most significant losses due to quarantine measures during the COVID-19 pandemic [10].

At the same time, food delivery and sales in pharmaceuticals and hygiene products are increased their profitability. Some areas of business operate remotely, such as distance education.

The pandemic changed the consumption patterns, for instance, improving sales of hygiene products and services of home delivery (and consequently increasing the demand for the different types of packaging materials). The customer profile has changed significantly. Selecting the products, customers focus their attention to such characteristics as quality, shelf-life, convenience of packaging, product safety and purchasing conditions.

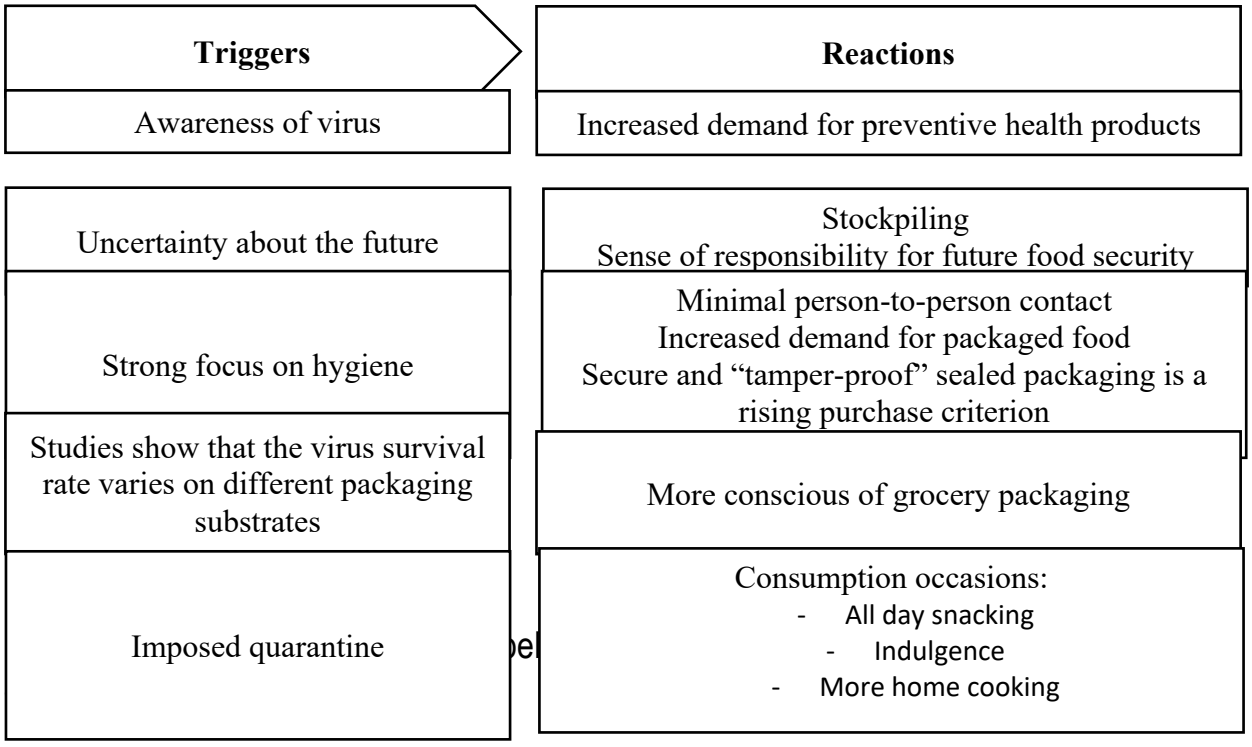


Fig. 2. The result of changing the human behavior in response to COVID-19

The coronavirus pandemic has negatively affected a multitude of industries around the world, including the packaging industry. Before the COVID-19 crisis, packaging companies were coming up with innovative technologies that were friendly to the environment, reusable, and biodegradable. But concerns about the hygiene and safety of reusable packaging temporarily halted the packaging industry's progress towards a sustainable and circular supply chain [11].

However, despite the complicated operating conditions, enterprises abandon the linear model of economy, in which raw materials are collected, then transformed into products that are used until they are finally discarded as waste. Value is created in this economic system by producing and selling as many products as possible [12]. The disadvantage of the linear type of production is low resource efficiency and significant amount of wastes.

The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value [13].

Within a circular economy not only the ecological impact is minimized, but the ecological, economic and social impact is even positive:

- ecological effect – saving energy and resources (reducing air pollution, preventing climate change);
- social effect – ensuring customer safety (good working conditions, protection of human rights);
- economic effect – attracting business investment (stimulating economic growth, fair competition).

Packaging requirements are increasing in today's condition. Customers believe that packaging should ensure that the product is free from contamination and that it is well protected [8, p. 11]. The other top characteristics of packaging are reliability, hygienic, ergonomics and environmental friendliness (recyclability).

The problem of reducing plastics consumption has been a top priority for the world's largest companies. Many countries began banning single-use plastics to be environmentally conscious. Unfortunately, with the spread of COVID-19, consumers became concerned about transmission of the coronavirus from different types of packaging [14]. Thus, the sustainable development programs were suspended during the first months of the pandemic. Some countries allowed to use single-use plastic and even temporarily banned the reusable bags. There has been an increase of plastic water bottle consumption and single-use disinfectants (disposable towels).

Environmental challenges are complex and cannot be solved by individual enterprises, so only mutual actions at all levels (micro-level, mezzo-level, macro-level, mega-level) can create positive changes. An action plan should be complete and measure the achievement of outcomes to resource conservation, manufacturing process improvement etc. In this research it has highlighted the need of increasing responsible of all stakeholders (suppliers of raw materials, intermediaries, consumers, the state) to society.

For instance, Cradle to Cradle (or C2C) concept of regenerative design, which was founded in 2005, is getting more popular in Ukraine now. Regenerative Design Principle is an independent certification system that evaluates the product safety for society and the environment. The aim of the Cradle-to-Cradle concept is boosting the spread of technologies that reduce wastes in the production process and create "healthier" rather than simply "less harmful" products [15].

The Cradle-to-Cradle concept aims to reduce production costs by continual reuse of materials and increase resource efficiency. The challenge facing businesses is to take responsibility for their products and production processes.

Eleven international and Ukrainian companies have recently signed a Memorandum of Understanding on cooperation in the field of creation an Extended Producer Responsibility

Organization to increase recycling rates (up to 4300,000 tons of packaging in the first five years). The challenge of waste sorting is particular vital topic for Ukrainians.

In 2017, Ukraine adopted the National Waste Management Strategy and committed itself that the share of plastic packaging waste that is recycled should be at least 50% in 2025 and 55% in 2030 [16, p. 8]. More and more companies are stepping up and announcing initiatives to curb their environmental impact, from reducing carbon emissions to tackling waste [17].

The coronavirus pandemic has negatively affected a multitude of industries around the world, especially the packaging industry. The food and beverage application segment led the global plastic packaging market in 2020 with a revenue share of more than 51% [18]. Its size reached a value of US $ 28 billion, the average annual rate of growth is approximately 2,5%. Meanwhile, making new plastic has become less expensive than its recycling. Ten years ago, the U.S. Environmental Protection Agency (EPA) noted that 23% of the waste in landfills is food packaging [19]. So, companies must pay more attention to innovative packaging solutions, creating new packaging or using packaging alternatives.

The global plastic packaging market size was valued at USD 348.08 billion in 2020 and is expected to grow at a compound annual growth rate of 4.2% from 2021 to 2028 [20].

In July 2019, the UK government has published the information about its proposed Plastic Packaging Tax that will apply to plastic packaging containing less than 30% recycled plastic content from 1 April 2022. Companies who manufacture in, or import into, the UK 10 or more tonnes of plastic packaging over a 12-month period will need to register and account for the tax at the rate of GBP 200 per metric tonne of packaging containing less than 30% recycled content [21].

Selecting the different types of packaging, companies need to focus on main requirements [22]:

1. Packaging sustainability.
2. Food hygiene and safety.
3. Packaging design for e-commerce (the direct-to-consumer model).

The consumer's awareness of hygiene and safety concerns has increased dramatically and will probably persist long after the pandemic subsides. A recent survey showed that more than two-thirds of US consumers worry about contracting COVID-19 from food packaging and that more than 40 percent use household disinfectants to clean the products they buy. In the short term, during the crisis, the consequences seem to be an increase in single-use packaging – for example, take-out food typically requires more packaging than food at quick-serve restaurants. Retailers are applying new safety and hygiene approaches to protect consumers – among other things, banning reusable bags, requiring face masks to be worn, and limiting the number of shoppers in stores [22].

Changes in consumer preferences emerged towards a transformation in packaging. More consumers are consciously willing to pay extra for environmentally friendly packaged products (Fig. 3).

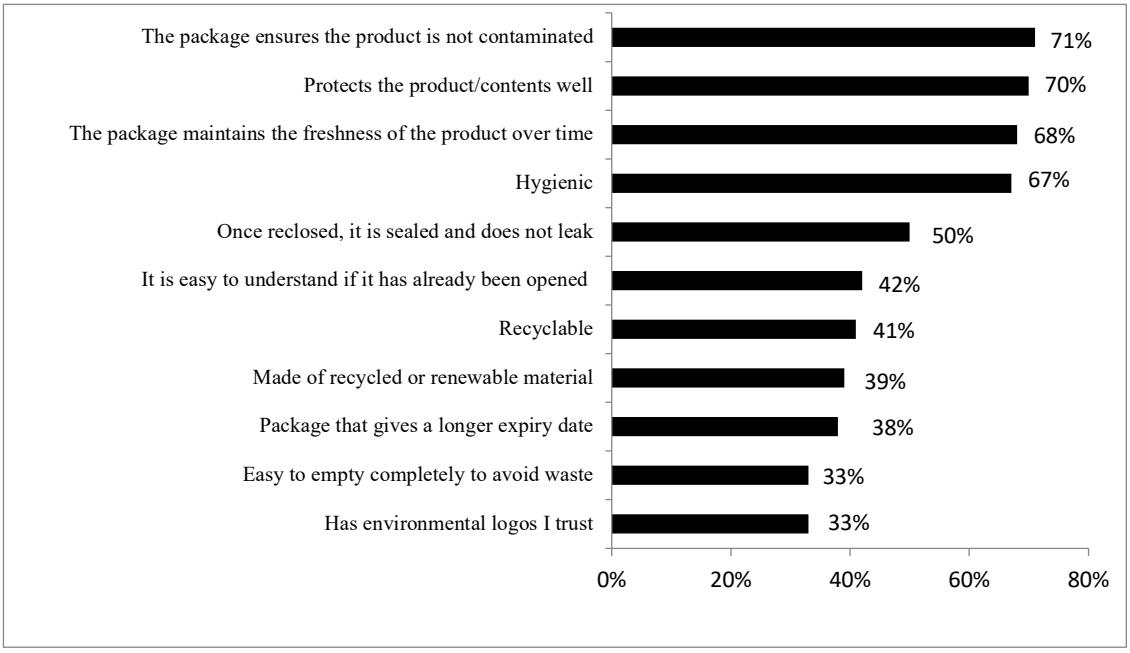


Fig. 3. Consumer perception of product packaging
Source: [8, p.12]

The pandemic has had a significant impact on the transformation of product marketing strategy. There has been an increase in online purchases, which changed packaging design. Medallia Zingle's research showed that 54% of consumers had changed their shopping habits and limited their in-person visits to stores, took advantage of delivery or curbside pickup [23].

Many packaging has been designed for the traditional stores and supermarkets. The durability of packaging has become crucial to protect products in the e-commerce space. There is an urgent need to adapt packaging to an online channel preventing product damage.

The new trend is to combine primary and secondary packaging, a combination that involves minimum amount of transport and protective packaging, the product can be shipped in its own container - a 'direct-to-consumer' model. It is expected that packaging recyclers can be a partner with e-commerce retailers.

COVID-19 pandemic has accelerated digital transformation using automation and artificial intelligence to improve cost-efficiency, productivity, sustainability and real-time supply chain transparency. As a result, there is a need to integrate technology – Radio Frequency Identification (RFID) into packaging for tracking goods around the world.

Blockchain technology works by storing and exchanging information in real time using a network in the virtual space. For the food and beverage industry, benefits may include a shelf-life extension, partner network optimization, food safety improvement and waste reduction. Such systems also help to validate environmental safety products and methods of production.

Thus, Nestlé has scaled up and diversified the use of blockchain platforms to bring its transparency and sustainability efforts to life for consumers. By scanning the QR code on the packaging, consumers can follow the coffee journey from the growing locations to the Zoégas factory in Helsingborg where the beans are roasted, grounded and packed. The data includes information about farmers, time of harvest, transaction certificate for the specific shipments, as well as roasting period [25].

Conclusions. COVID-19 pandemic is the growing dilemma around food safety. Packaging must reduce the environmental impacts, be fully recyclable, but at the same time, it should be convenient and safe for consumers.

Producers are responsible for the product quality. They should implement best modern practices to increase the efficiency and be more friendly to the environment.

Prospects for further research. It should be additionally study the application of international experience while overcoming a business crisis. Reviewing the modern practices of the world's largest companies, the development of measures to mitigate the negative impact of external environment factors on domestic enterprises can be defined.

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ВПЛИВ ПАНДЕМІЇ COVID-19 НА БІЗНЕС - СЕРЕДОВИЩЕ ТА ПАКУВАЛЬНУ ІНДУСТРІЮ

У статті досліджуються ключові виклики з якими стикалися українські підприємства протягом останніх двох років (нестача сировини, дефіцит оборотних коштів, відсутність працівників тощо). Пандемія COVID-19 назавжди змінила умови функціонування підприємств та моделі споживання. Раніше, обираючи продукти, споживачі, перш за все, звертали увагу на такі характеристики як якість, термін придатності, зручність упакування, безпеку продукту та умови здійснення покупки. Зараз, гігієна та безпека стали найважливішими факторами при виборі продукції.

Пандемія коронавірусу негативно позначилася на більшості галузей промисловості по всьому світу. Для виживання в бізнес-середовищі українські підприємства повинні впроваджувати найкращі сучасні практики ведення бізнесу. Такі практики включають впровадження принципів циркулярної економіки, які передбачають повторне використання та переробку наявних матеріалів і виробів. Концепція регенеративного дизайну (Cradle to Cradle (або C2C) оцінює безпеку продукції для суспільства та навколишнього середовища та спрямована на зниження виробничих витрат за рахунок постійного повторного використання матеріалів.

У цій статті наголошується увага на необхідності створення Організації розширеної відповідальності виробника. Розширена відповідальність виробника (EPR) зосереджується на відповідальності виробника за вплив його продукту на останній стадії його життєвого циклу, після споживання, і дає виробникам більшу мотивацію до розробки продуктів, які мінімізують вплив на навколишнє середовище та здоров'я. Найбільші світові компанії мають великий досвід реалізації подібних проектів. Розширена відповідальність виробника спрямована на зменшення загального впливу на навколишнє середовище, гарантуючи, що виробники продукту беруть на себе відповідальність за весь його життєвий цикл, особливо за переробку та остаточну утилізацію своєї продукції, включаючи пакування. Такі практики підвищують ефективність підприємства та сприяють сталому зростанню українських компаній.

Ключові слова: пандемія, зміни, циркулярна економіка, споживча поведінка, упаковка, українські підприємства.