REFERENCES:

1. KPMG [Electronic resource]. – Mode of access: https://assets.kpmg/content/dam/kpmg/ru/pdf/2020/04/ru-ru-hr-actions-in-pandemic.pdf. – Date of access: 10.03.2021.
2. HRdocs [Electronic resource]. – Mode of access: http://hrdocs.ru/poleznaya-informacziya/10-instrumentov-distatsion-rabota/. – Date of access: 11.03.2021.

Polina Zlotskaya
Science tutor *E. Matskevich*
BSU (Minsk)

BULLWHIP EFFECT IN INFORMATION TECHNOLOGY SUPPLY CHAIN MANAGEMENT DURING COVID-19

The COVID-19 pandemic continues sweeping across the globe leaving social dislocation. Plenty of measures have been taken to prevent the rising spread of coronavirus. The orders to stay at home are showing their impact not only on declining reported cases of disease but also within the global supply chain. Global manufacturing has been hit hard by closed factories. A rise in demand for both enterprise and personal computer products has put an incredible strain on the Information Technology supply chain.

The objective of this scientific work is to identify the main reasons for the occurrence of the bullwhip effect within supply chain management of Information Technology industry companies during COVID-19 and to propose potential ways of its minimization. The relevance of the study is the need for further dealing with issues in supply chain management that result from COVID-19 pandemic.

The bullwhip effect is a phenomenon in which slight shifts in end-consumer demand cause major deviations in stock and production planning for other supply chain participants such as distributors, producers and suppliers. Either growing or diminishing customer demand has a direct impact on the inventory of a business. Businesses frequently try to forecast demand, accumulating what they believe to be the appropriate amount of raw materials and resources required to meet customer demand efficiently and on time. As the supply chain moves up from customer demand to raw material suppliers, variations may become compounded, creating problems with time, expense, and inventory in supply chain management [1].

When the virus first spread across the world, there was a spike in sales of personal computers in the affected areas. Various companies that had faced a dispersed workforce were requesting to supply employees with peripheral devices. As more people started working from home, organizations were tasked with enabling an infrastructure to support them. These same organizations also turned to cloud providers to rapidly implement the infrastructure necessary to support remote employees. There was a rush for server platforms.

Information Technology companies were unprepared for the increased demand for their products which resulted in fluctuations in price, order delays, deviations from volumes of supply and poor communication across channels being the most widespread reasons for the bullwhip effect in the industry. Examples of companies facing it are given in the table [2].

Company name	Reason for the bullwhip effect	Supporting quotation
FireEye	Price fluctuations	"Our third-party manufacturers typically fulfill our supply requirements on the basis of Inventory individual orders. We are subject to a risk of supply shortages and changes in pricing terms"
Hewlett-Packard	Order delays	"Also experienced COVID-19 related challenges, in particular with performing on-site installations and meeting customer acceptance milestones given lockdown constraints and delays with order fulfillment"
Intel	Deviations from volumes of supply	"Where feasible and practicable, we increased inventory of raw materials as well as our supply of our finished goods"
Seagate Technology	Poor communication across channels	"We rely on sole direct and indirect suppliers or a limited number of direct and indirect suppliers for some or all of these components that we do not manufacture. Many of such direct and indirect component suppliers are geographically concentrated, making our supply chain more vulnerable to regional disruptions…we have experienced and continue to experience disruptions in our supply chain due to the impact of the COVID-19 pandemic"

Based on the reasons causing the bullwhip effect in Information Technology companies, the following decisions may be suggested for mitigating it:

1. To maintain a steady price point even during market fluctuations focusing on keeping prices at a lower level year-round with a smart direct-to-consumer model.
2. To keep track of orders and demand constantly in order to ensure timely ordering from suppliers and distribution to consumers.
3. Instead of bulk discounts, to retain smaller order sizes based on consumer needs.
4. To reduce the number of suppliers in supply chain for encouraging better communication across Information Technology companies and closely spaced suppliers. To use supply chain automation technology allowing all facets of the supply chain to be linked together and contact channels to be consolidated.

To sum up, the influence of the bullwhip effect should be always taken into account in emerging situations and supply chain management processes in Information Technology companies need to be streamlined.

REFERENCES:
1. How the bullwhip effect impacts the supply chain [Electronic resource] // Ohio University, 2020. – Mode of access: https://onlinemasters.ohio.edu/blog/how-the-bullwhip-effect-impacts-the-supply-chain/. – Date of access: 07.03.2020.
2. Building a more resilient ICT supply chain: lessons learned during the COVID-19 pandemic [Electronic resource] // Cybersecurity and infrastructure security agency, 2020. – Mode of access: https://www.cisa.gov/sites/default/files/publications/lessons-learned-during-covid-19-pandemic_508_0.pdf. – Date of access: 09.03.2020.

Alina Kamenets
Science tutor *V. Zazerskaya*
BSTU (Брест)

PERSONNEL RESISTANCE TO CHANGES AND METHODS OF ITS OVERCOMING

The aim of the research is to examine such an obstacle to introduction of new methods in business processes as staff resistance to changes and give possible methods of its overcoming.

Nowadays the application of digital changes in business processes is an integral part for companies, that want to remain competitive in the market. But it should be taken into consideration that digitalization implies not only the implantation of modern equipment or software, but also fundamental changes in approaches to personnel management and corporate culture of the organization.

Quite often employees fear changes due to a number of reasons, as a result of which they pose a resistance or oppose any kind of transformation in the existing ways of work or methods. All these reasons can be classified into the following groups:

- economic reasons – the potential threat of losing sources of income, fear of unemployment and deprivation of various privileges;
- organizational reasons – unwillingness to change the existing system of industrial and personal relations, a reaction to previous unsuccessful experience of changes;
- personal reasons – unwillingness to take on new responsibilities, threat of losing respect in colleagues' opinion, awareness of the incompetence to perceive the new [1].

To overcome these obstacles, Harvard University professors John Cotter and Leonard Schlessinger developed the methodology "Six Ways to Reorganize", which is designed to reduce resistance to change and innovation on the part of plant personnel:

1. Education and Effective Communication. This is one of the commonest techniques for minimizing resistance to change by educating people and promoting awareness through effective communication regarding the benefits of a planned change. By explaining the need for change and the objectives of change, the management can