



CONSIDERATIONS REGARDING ADAPTATION OF OPERATION SUPPLY CHAINS UNDER THE CONDITIONS OF BAD EFFECTS OF COVID-19 IN ROMANIA

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The current socio-economic conditions are unfavorable both nationally and internationally, due to the emergence, manifestation and spread in China and then globally of a new type of virus with adverse effects, Covid-19.

The minimization of national economic activities, as a consequence of the pandemic effects, will gradually determine the recession and then the economic crisis that will be felt from day to day, with undesirable domestic and international implications.

The gradual deterioration of the functioning of the national economy has obviously occurred as a result of the non-functioning of most supply chains with domestic, European or international components.

In this article we set out to address the particular (or not) aspects of the operation of the supply chains, based on a management adapted to situations of a crisis never encountered before, which led the Romanian state declare a state of emergency and then a state of emergency alert.

Through the originality of treating the aspects related to the economic and social risks with implications on the living and health of the population, we sought to highlight the risks and their management in the operation of supply chains in conditions of increased risk and uncertainty, generated by the adverse effects of the pandemic Covid -19.

Keywords: supply-delivery chain management; supply-delivery chain; turbulent economic environment; reconfiguration and adaptation of supply-delivery chains; socio-economic risks with implications on supply-delivery chains; risk management specific to supply-delivery chains; digitization of supply-delivery chains.

The concern for the defence and/or restoration of the health of people everywhere has led the world's states to decide to implement restrictive and coercive measures of an economic and social nature, to prevent the spread of the Covid-19 pandemic and limit its destructive effects.

Major changes in the national, continental and global economic environment, as a result of the emergence and expansion of Covid-19 effects, have led more and more economic actors to be concerned with identifying, procuring and applying the latest innovations in business digitalization, which can allow, first, the protection of the staff employed from the risks of pathological contamination, and then the design and development of efficient economic activities by minimizing as much as possible the losses inherent in the growing disturbances manifested in the national, European and global transactional climate.

In the current turbulent, uncertain and complex economic environment with short-term and medium-term forecasts that are not at all gratifying, economic activities must operate primarily to meet the requirements of citizens with critical goods and public services.

With each passing day, the rapid effects of restrictive economic measures taken in response to the destructive effects of Covid-19 are reflected in increasingly visible syncopes in supply-supply chains, due to the economic deadlock, but also as a result of the bankruptcy of some suppliers, producers or distributors very important for national and global economies.

In Figure 1 we notice the negative national economic effects (quite significant) in sixty-eight days from the declaration of the state of emergency, actually generated by the major disturbance of the normal functioning of the supply chains in Romania.

In order to maintain the current balance between supply and demand on national and international markets, both the European Union and the United States, as well as other countries in the world, have developed a series of economic policies that allow

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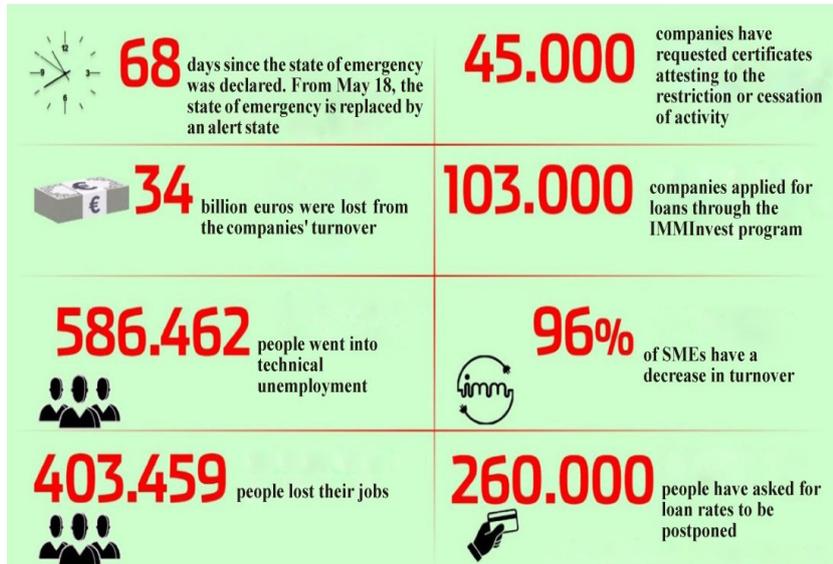


Figure 1 The economic effects of the Covid-19 pandemic in 68 days from the application of the first restrictive national regulation¹

companies, regardless of size, to operate in times of crisis of the effects of Covid-19 by allocating appreciable financial resources (reimbursable and non-reimbursable) in certain periods of time. In this way, the company's managers identified ways and means to continue the replenishment flows, first of all with goods of major importance in family subsistence, as well as those necessary to ensure individual pandemic protection measures in accordance with the requirements imposed at national and international level.

Therefore, a new way of approaching the management of existing supply chains, and especially the new ones created in order to ensure the necessary resources to quickly counteract the harmful effects of the Covid-19 pandemic, is required. To this end, the new configuration of the domestic and international business environment determines important logistical changes adequate to the creation or development of supply chains according to the requirements and needs of citizens, faced with critical situations, unprecedented.

The realities of the business environments of the Member States of the European Union have highlighted the increased risks of continuing the transactions initiated before the pandemic, of setting up new ones, according to the requests of the medical structures, as well as of the national anti-pandemic bodies. Therefore, national facilities have been granted in order to refurbish and change the production profiles of some companies,

which have already started to produce medical equipment and sanitary materials necessary for the specific protection of both hospital staff and citizens, according to the requirements of current regulations².

Elements of adaptation and reconfiguration of supply chains

In the mechanism specific to the normal economic functioning of any state, the rapid emergence and expansion of Covid-19 has led to a number of effects with implications for the existence, operation, and abolition of supply-chain chains or the establishment of others with new missions.

Given the usual structure of a supply chain, it is obvious that even during the Covid-19 pandemic such an economic system is adopted to achieve superior performance in inter-firm business (network type), as a result of the satisfying of requirements of consumers and/or end-users.

Therefore, according to those specified, an extended supply chain, which is subject to efficient profile management, includes: suppliers; suppliers'suppliers; producers; distributors; logistics service providers; retailers; consumers and/or users (individuals; legal entities)³.

In Figure 2 we present a simple succession of the components of a supply chain presented previously, taking into account the real (variable) distances between the partner companies.

Within each company within a supply chain, there is an *internal logistics* that includes: *materials management*; *distribution management*. *The management of the production support* (with raw materials, materials, etc.) also works for the companies with a productive profile within their own logistics⁵.



Figure 2 A simple presentation of a supply chain⁴

According to the experts' appreciation determined by the economic practice, currently in business, there is a change in business conduct by moving from traditional competitive relations – manifested between companies as independent entities, to competition between supply chain systems that include partner companies interrelated and functionally interconnected, such as those specified above (suppliers, manufacturers, distributors, retail entities, as well as logistics service providers, type 3PL, 4PL etc., consumers or end users)⁶.

Below we present some of the effects and implications specified above, which have a major impact on the normal and efficient operation of national and/or multinational supply chains.

- The pandemic disturbances in the supply-demand relationship have produced and cause major imbalances by the sudden reduction of consumption and/or use of products, as well as the continuous decrease of the requirements for the provision of services.

- The functional adaptation of supply chains, as a result of the reduction of consumption (use) or due to the application of the restrictive provisions of national and/or EU regulations reveals, from our point of view, based on economic practice, some aspects of reconfiguration:

- continued operation of existing supply chains before the pandemic with the restriction or expansion of specific activities (eg expansion for some products: agricultural-food; family/household use; nature of fuels and lubricants, etc.).

- The cessation of operation and/or abolition of supply chains during the pandemic (for example for car sales) due to the drastic reduction of demand or due to the application of restrictive legal provisions (for example the closure of the mall for a certain period of time, restaurants, hotels, etc.).

- The establishment of new supply chains during the pandemic that may or may not include factories that have changed their production profile (according to the needs to respond to the effects of the pandemic⁷).

Specific risks and management elements in the operation of a supply chain in the current economic environment

The current realities with a strong economic and social impact require, for business people, new risk management options adequate to prevent dysfunctions (syncope) that can manifest themselves acutely in the supply chains.

The socio-economic transformations generated by the pandemic effects of Covid-19 obviously involve the rapid transition of supply chains from traditional modes to digital mechanisms.

- *The identification of pandemic risks with implications on the supply chain* in the conditions of the continuous evolution of the Covid-19 virus pandemic at national and global levels, manifests, according to our assessment, a series of socio-economic risks, with implications on supply chains, as follows:

- numerical decline in national and continental labor force;
- the sudden reduction of economic activities at national and international level;
- major bankruptcy of companies in all economic sectors;
- deepening national, regional and global economic disparities;
- the removal of people from God, as a result of restrictive and coercive policies and measures regarding access to places of worship;
- the decrease of the quality level of educational activities, as a result of the prohibitions and their development mostly in the online environment;



- the slow manifestation of the actions specific to inventions and innovations appropriate to the moment of socio-economic balance;

- disorder of managerial and execution actions of medical-sanitary nature with zonal and national implications, as a result of variable pandemic manifestations;

- frequent manifestations of managerial errors in the socio-economic fields;

- regulated cancellation of several civil rights, sometimes unjustified;

- the closure of many economic activities in areas unaffected by the virus with major consequences for the national and continental economic decline;

- increasing the number of patients with mental disorders due to fear of infection, but also as a result of restrictive state policies and actions, for non-compliance with the rules of social and individual distancing;

- the decrease of the purchasing power of the citizens, due to the increase of the prices for the consumer goods etc;

- failure to apply effective management of the socio-economic risks involved in the continuing threat of Covid-19;

- other types of risks.

At some point, many of these risks can be combined, which could lead to major economic and social bottlenecks with a direct impact on the existence of human, material and financial resources necessary for the normal and efficient operation of each supply chain partner to a company. In this sense, the managers of the respective companies can identify pertinent solutions to overcome the crisis periods by applying a risk management appropriate to each situation⁸.

- *Elements of supply chain risk management during the pandemic*

The immediate organizational and relational changes produced in the micro-environment and macro-environment components of the partner companies within the supply chains, as a result of the adverse effects of Covid-19 generate a series of new strategies in risk management behavior revealed by the management staff. Therefore, from our point of view, the most important directions to follow in the implementation of risk management strategies and policies would mainly aim at:

- the continuous development of educational actions within the member companies of the supply chains-focused on the epidemiological manifestations of Covid-19, as well as on the taking of appropriate measures to prevent infection;

- taking into account possible situations of increased absenteeism among employed staff, as a result of the possibility of infection (up to full recovery and reintegration into work teams);

- making the work within each partner company of the supply chain more flexible, taking into account the establishment and application of the staggered staff program, in order to comply with the measures established at national and organizational level for individual and social distancing;

- the organization by each company of the work in digital system from the employee's domicile, for some categories of personnel, without affecting the normal development of the economic flows within the supply chains;

- promoting actions that are the object of planning and carrying out the acquisition of resources necessary for the modernization of IT systems, according to the evolving requirements for digitization of management and execution subsystems within each member company of the supply chain⁹;

- training at the level of each company integrated in a supply chain of managerial plans appropriate to the crisis situations generated by Covid-19, for each situational level of managers: top; medium level; lower level);

- rapid movement within supply chains of products requested in crisis situations by consumers (users) through direct logistics channels (related to e-commerce) or with intermediaries (based on the same system or correlated with the classic one);

- transforming the traditional linear configuration of the supply chain into a system of the same profile, but with specific digitized operations, functional in networks and with a much increased flexibility and visibility¹⁰.

Therefore, through adequate risk management in the context of the Covid-19 pandemic, the supply chains must allow, according to the new requirements, viable alliances between key companies (partners), in order to achieve fast and efficient logistics flows, which allow the full satisfaction of the demands of products and services identified with certainty in a market or in

several types of markets (local, territorial, national, European, international)¹¹.

Conclusions

Given the continuing expansion of the threats and adverse effects of Covid-19, the current economic crisis at national and international level is also due to the failure of the responsible factors of various companies to ensure the reserve resources (through alternative variants) necessary to overcome current functional bottlenecks, as a result of the cessation of economic activities specific to many national, European and global supply chains.

Thanks to the intervention with financial resources of the competent body of the European Union, for the support of the member states in order to restart the national economies, our country will be able to grant, according to the requirements, the necessary help first of all to small and medium companies. In this way, some existing supply chains will be restarted before the pandemic and new ones will be set up instead of the ones already abolished, as a result of the bankruptcy of the partner companies.

The decline in the purchasing power of citizens, caused by the abolition of jobs and the unemployment of employees of dissolved companies, has led to nationwide government actions to support business people in the remuneration of staff to be hired by existing or newly established companies (in order to reduce unemployment, already at alarming levels). In this way it is possible to create those supply chains that can capitalize on the national possibilities of using the resources available for the supply of raw materials, manufacturing and distribution of finished products needed to meet the wishes and requirements of current and potential consumers and/or users (in these times crisis caused by the adverse effects of Covid-19).

More than ever, it is now necessary, in the mentioned pandemic conditions, to procure and use modern technical systems adequate to carry out digital operations both in the restarted supply chains and in the newly established ones. In this way it is possible to obtain quite a reduction in the costs related to inputs and outputs that involve transport, storage, handling, conversion operations, as well as the reduction of expenses involved in the supply relationship management, customer relationship management, reverse logistics, etc.

Despite all the undesirable effects of the current crisis caused by Covid-19, many companies will embark on the new path of their economic evolution, benefitting from the need and obligation to ensure human and technological resources at levels that allow them to integrate and operate more efficiently through digitalization within supply chains competing with others of the same profile at national level and with possible favorable European or global implications.

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