

THE MANAGEMENT OF OPERATIONAL RISKS AND IMPACT OF PRODUCT AVAILABILITY

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ABSTRACT

This paper presents a brief analysis of the impact of operational risks and their impact on the delivery of value to consumers (loyal and potential) from the aspect of product availability. Operational risks, in this case, take priority over other types of risks such as external risks and risks of change. This hypothesis is also confirmed by some research with the finding that a large number of cases of unavailability of products intended for daily consumption have the same origin in the form of poor organization and orientation of the business process in retail outlets. Some of the consequences of inefficiency arise from: insufficient number of employees, uneven stocks in sales warehouses, inadequate implementation of internal logistics flows. The product availability is an integral part of the company's overall marketing concept with the intention of achieving goals through greater efficiency in business compared to its competition, and for retail it is creation, delivery and relationship with consumers in the delivery of value, in targeted market segments. From the customer's point of view, product availability is still treated by many retailers as a lack of stock. This leads to a situation when the demand (due to an insufficient amount of product) cannot be met and the orders are cancelled. Therefore, subsequent satisfaction of the demand is approached, upon receipt of a new quantity of the product. This understanding, especially in the conditions on the crisis, has been overcome and this paper represents an attempt to shed light on this phenomenon from different aspects.

Keywords: Product availability, market, retailers, risk management, marketing;

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INTRODUCTION

In delivering value to consumers, retailers, especially in conditions of general crises, are faced with a number of problems from the point of view of (non)availability of products. This problem leads to extremely negative consequences, primarily in the reduction of sales and dissatisfaction of customers and the absence of their loyalty. Therefore, retailers pay special attention to this phenomenon at various stages of the business process. From that point of view, it was necessary to define, identify and measure the causes and consequences of this important phenomenon in the process of placing products on the market. Then, by looking at numerous causes, it was important to see the relationship between effects and costs, the relationship of customers to (non)availability, treat all the characteristics of specific products as well as the retail facilities where they are placed. Finally, management is expected to propose and justify measures to increase the required product availability. All these activities fit into the concept of holistic marketing, which has basic principles for suggesting the breadth and interdependence of the effects of marketing programs and measures that are connected to the whole process and activities. Coordination includes all the complexity of numerous marketing activities and initiatives. The philosophy as well as the concept of operational risk (as well as product inventory risk management) is based on significant indicators. In addition, the basic indicators are the operational risk subcategory, business operations, that is, the overall business process in retail stores. As part of the integral marketing concept and philosophy, the availability of products can be treated as an important element of value for customers, increasing the value of which increases the delivery of value and reduces the potential risk of revenue reduction. On the other hand, in the modern holistic marketing concept of marketing relations, these activities are mainly directed towards consumers, suppliers and distributors. However, the possible appearance of operational risk (even external and change risk) represents the main problem in delivering value to consumers. That's why the problem of product availability needs to be viewed multi-layered, starting from defining, identifying, measuring, numerous causes and costs to customer reactions. In addition, important aspects of observation and analysis are the characteristics of products and all retail establishments in the context of creating and implementing measures to increase the availability of products in a certain market segment. When defining and explaining stock shortages, situations are analyzed from the point of view of customers and their attitude towards the problem. However, it is necessary to look at this problem from the point of view of the bidder, because he takes into account all the economic effects of the newly created situation. A realistic definition of stock shortages should contain a complex of factors: frequency, category importance, time interval, cost level, and the like. Then, close attention should be paid to frequent shortages of stocks of significant categories of products (most in demand) in time intervals that are characterized as the busiest. In the majority of definitions and analyses, inventory shortages are viewed from the point of view of customers and their relationship. However, one of the hypotheses starts from the fact that producers (from an economic aspect) should also be involved. Namely, the lack of stock should be analyzed with several elements such as: frequency, category importance, time interval and others. From that aspect, it is necessary to analyze the lack of stock of essential elements of the assortment in the periods that are considered the busiest. The second hypothesis refers to the fact that the availability of products in a retail store is one of the important indicators of the level of quality of retail service. Usually, and even very often, the normal availability of products is implied with the level of reliability of services in retail business, and is a significant indicator of efficiency and effectiveness in business. This affects the purchase decision among customers, which is made more easily, but also increases the level of satisfaction among loyal customers [1]. From a theoretical point of view, and over time, when it comes to the availability of goods in facilities, it is important to separate two terms - OSA (On shelf availability) and OOS (Out of shelf/Out of stock). The first term means that, when the consumer is in a retail store, he finds the product on the shelf for which he came with the intention of buying. In doing so, it is important that the product is named, marked with a price, undamaged and accessible to the consumer. However, the second term means the exact opposite, that the consumer comes to the store and does not find the desired product. This causes significant consumer dissatisfaction, contrary to the goal of making the consumer happier after the purchase. OSA has its components, and the availability of goods at the supplier stands out, because it is important that he has certain tools for planning demand and sales, and then for storing goods in the facility. In this way, he can avoid major delivery problems and reduce the operational risk to the lowest level.

SUBJECT OF RESEARCH: SUPPLY CHAIN IN RETAIL

In retail, operational risk is usually classified as a type of non-financial risks that arise in everyday business, as a result of errors caused by subjective factors (human resources) during the performance of the business process. The occurrence of operational risks, from the aspect of product availability in low-permeability facilities, may be the result of various factors or causes. It is also influenced by a multitude of external factors and (un)predictable events [2]. In general, all business supply chains represent the same principles and methodology of operational marketing, but they also have their own specificities depending on the configuration and location of retail establishments. However, experience in operational risk management contributes to overcoming the variability of demand, which is an important part of the attention of operational management. The applicable, new concept of retail stores foresees a minimum storage space of only 20% of the total area of the store, so the challenges are greater: a place to store the increased assortment, and to meet the demands of consumers. It is believed that in order to somehow solve the problem of storage space and ensure the availability of goods, it takes 8 to 10 hours, sometimes less, from the moment of need to the delivery of the goods. On the other hand, it is necessary to increase the frequency of delivery, so that the goods (arrive) every day. In the case of Of Stock, it is considered that it is not only the responsibility of that facility, but of all participants in the chain. Precisely, in order to determine the satisfactory degree of availability of goods, it is necessary to analyze the entire supply chain and all participants in that chain. It is necessary, from the aspect of physical check (the minimum would be every day), to check the shelves several times, and for now this check is done once a day. Research has shown that in recent years, management's ability to forecast with confidence has changed dramatically in retail, and that many tools and processes that used to be "good enough" simply no longer help in increasing business efficiency. In such situations, demand in retail stores has become more unstable and complex, affecting not only the planning of finished products, but also raw materials and semi-finished products. With the introduction of new sales channels, which represent more signals of effective demand, shorter product life cycles and growing geopolitical and economic uncertainty. Therefore, many business entities believe that their current opportunities for effective business are inadequate, and this affects and increases operational risks [3]. In many situations where a particular product of a desired and acceptable customer brand, shape or size is outside the retail premises (at the usual point of sale), it comes as a result of a significant shortage of stock in the supply chain. In practice, three basic forms of visible defects are generally distinguished [4]:

- Classic, usual, lack of stock (empty shelves) – the product cannot be found in the retail store, on previously marked shelves;
- Lack of stock in cases of promotional activities – there are no products at the designated promotional places;
- Relative lack of stock – the product is in the building but not in the designated places (used by employees);

In real situations, the lack of stock can be temporary (not available for a certain period) or permanent (if the seller reduces the assortment) if viewed from the time dimension. The problem of temporary suspension of product delivery is an easier problem for the retailer compared to overcoming the operational risk. However, it is also more difficult for him to make a decision (which is of a permanent nature) about reducing the assortment of a specific product. He makes such a decision because he is trying to reduce the total assortment due to: (1) reducing costs, (2) encouraging the sale of other products or (3) limiting cooperation with suppliers. Therefore, retail management performs inventory shortage differentiation in different ways. There are two forms of inventory shortage research: (1) Permanent Product Unavailability and (2) Temporary Product Unavailability. Depending on whether the lack of stock is recorded in the entire facility or only on the sales shelf, numerous current situations are considered as well as anticipation of future business moves and operational risks.

The lack of stock is also noted in situations where the customer leaves the store because he did not find the desired product that he intended to buy. Apart from the fact that the product is not in the usual marked place in the store, there can be several other situations, product defects, in which the customer finds himself [5]:

- Finds the product, but not the sales staff to help get it, on the high shelves;
- Sales staff help, but they don't have access to the product either;
- Does not make a purchase, because the conditions of sale deviate from those that were promoted earlier;

In research that indicates operational risks, in addition to short-term and long-term reductions in sales, emphasis should be placed on a number of other effects of value reduction in the retail chain, which affect the level of operational risks.

Therefore, it should be borne in mind that the indicators are measures used to identify risk exposure during a certain period, and from that aspect they can measure individual or total risk exposure, the effectiveness of the application of risk mitigation measures, etc.[3]. Each analyzed indicator becomes "key" when it follows a special exposure to risk (some key risk) or provides exceptional "key" information about risk, during the business process in retail [6]. Many retail companies were mainly engaged in storage, transportation, distribution, but now they are increasingly oriented to the challenge of product availability, because that task has been raised to a higher level, and the entire company and then all levels of management are involved in the task set in to that project. For example, in the "Delihaze" company, about 800 employees are engaged in ordering goods in 404 facilities, so the availability of goods was between 92 and 94% in 2022. Research has shown that those 6-7% of the total amount of goods that are not found on the shelf affect different reactions of consumers. Namely, according to research, on average 37% of consumers buy another brand if they don't find what they are looking for, and about 20% go to another retail chain, while about 9% leave the premises without making any purchases. However, this company has set a goal that the availability of goods on the shelf is between 96 and 97%, however, it is considered that the higher the percentages are, the more difficult it is to improve the realization even by 0.5% of product availability.

RESEARCH FLOW: IDENTIFYING AND MEASURING PRODUCT AVAILABILITY

In the business process of retail stores, there are various methods and models for measuring the availability of products for potential customers. It stems from different attitudes and definitions of the interpretation of the problem of lack of supplies. However, practice has revealed two basic methods that are generally applied in practice[7] : (1) quantitative or physical counting (retail facilities are visited by authorized persons at certain time intervals and gaps are identified), (2) application of the POS ("Point of sale") system (records of daily sales - reduction of sales or interruption of sales). This way of measuring the availability of products can be achieved by directly engaging the company's employees or specialized agencies. Taking into account more data obtained based on the application of the POS System, a complex measurement model was developed in retail stores [8]. Over time, a third method of measuring product availability came into use known as the "PI" ("Perpetual Inventory Data") measurement method [9]. However, the application of these Systems shows its effectiveness only in cases where the products are not found in retail stores, and is rarely applied. In general, identifying the lack of stock in retail stores was influenced by many changes and innovations, especially the application of modern information systems. For example, in inventory optimization, the solution is found in the use of "RFID" (Radio Frequency Identification) technology, which facilitates the control and monitoring of production flows in marketing channels [10]. Other experts believe that the future is in "smart shelves", which, since they have special sensors, can record all important data about products along with their dimensions and weight as the basic data offered by the shelves. However, in practice, one of the most important prerequisites for identifying both the causes and effects of that problem is the establishment of an appropriate system for measuring product availability. Some, more detailed, research indicated that in more than 70% of cases, the lack of stocks of products of daily consumption is the result of poorly organized business activities in retail stores. This occurs as a result of: a significant lack of employees, excess stock in sales warehouses, inefficient implementation of internal logistics flows. Numerous studies have confirmed the hypothesis that the problem of lack of supplies usually occurs in the so-called "last meters" of retail establishments and retail supply chains. The researchers compiled a list of 13 basic and 49 supporting patterns, among which the first four occur in operational business processes -Roland Berger Consultants, 2003:

- Operational ordering of products (35%),
- product listing (30%),
- up-to-date filling of sales shelves (12%),
- timely exchange of information (11%);

Other researchers came to the conclusion that the lack of stock, most often, occurs due to mistakes in the organization of promotional, merchandising and logistics activities. Then, some researchers, in addition to these causes, also list errors that occurred when forecasting demand. Therefore, special attention is directed towards the process of sealing and controlling the state of stocks, as an important reason for their lack. It is precisely by analyzing the causes of these shortages of stocks of products of daily consumption in retail stores that the basis for detecting the effects produced by this phenomenon is formed. Prominent, negative consequences led to research that was supposed to show the level of sales reduction and the extent of the loss of loyal customers [8]. Therefore, operational risk management must be part of the comprehensive decision-making process in every company, and the survival and development of every organization depends on effective risk management, especially in times of general crises caused by sudden geo-economic disturbances, which cannot be predicted for how long they will last.

Therefore, numerous studies investigated the factors that influence the "accumulation" of stocks in retail stores (using descriptive and inferential statistics), so the results indicated not only the delay of suppliers, but also the underestimation of demand and bad inventory management practices were the main reasons for the unavailability of products [10]. In practice, a good number of small poisoners still use numerous sophisticated programs and techniques of stock control and there are not enough trained human resources for permanent control of product availability. This means that the effective application of information and communication technologies and cooperation with suppliers is still the main obstacle to the implementation of timely inventory control. Therefore, the full implementation of already known effective inventory control techniques is necessary in order to raise product availability to a higher level. In modern business trends, electronic commerce, as a distribution channel, represents an important lever for gaining a competitive advantage. It is precisely the characteristics of logistics in such trade that are adapted to the specifics of product ordering, inventory management, storage, overall distribution and product packaging. Traditional logistics is radically changing with the expansion of electronic commerce, because the essence of this way of commerce changes the way logistics function, and this brings new challenges in the efficient functioning of the overall logistics system in retail [11] has shown that the IT sector of the "Delhaize" company has developed the possibility for each facility, when it lists its empty shelves, i.e. missing articles, to apply a specific algorithm that will point to the reasons for Out Of Stock. Based on these analyses, the most important reason will be singled out and the company will be able to focus on neutralizing them. It is observed who is responsible for non-delivery to warehouses, non-delivery of suppliers, whether the responsibility is in the chain of delivering goods or the manager - sales staff. It is possible that an item was not ordered at all or an insufficient quantity was ordered.

CALCULATING THE TOTAL COSTS RESULTING FROM THE LACK OF STOCK

A number of other types of research have focused on valuing costs arising from a situation of inventory shortages, current and future demand. In this sense, a model was developed to identify their short-term and long-term opportunity costs [12]. The total cost of loss of sales at retail establishments can be expressed quantitatively, that is, in money. In essence, it is the product of the stockout rate, the average rate of loss of sales of a certain product category, and the annual sales value of that category. However, some researchers include in the model the costs of stock shortages of all participants in the retail chain - buyers, retailers and manufacturers [10]. Looking at the specific and permanent insufficient level of inventory from the "service aspect", the researchers calculate the resulting costs by applying a slightly more complex change that can be presented in this way:

$$C_{oos} = \omega \{ (t_{1sp}, M + t_2 Ip, M) + (\beta cs + \delta vp, M, S),$$

and the indicated symbols mean the following parameter:

C_{oos} =- cost of inventory shortage

P – retail

M – manufacturer

S – customer

ω – type and duration of stock shortages

sp, M – short-term loss of sales s, for retailer p and manufacturer M,

I_p, M – long-term loss of sales I , for the retailer and manufacturer M ,

C_s – cost (c) out-of-stock for the customer (s)

V_p, M, S – reduction of value (v), for p, M and S ,

t_1 - impact of customer reaction n asp, M ,

t_2 – impact of the customer's reaction to $1p, M$,

β – the coefficient of the effects of stock-outs for S ,

δ – the coefficient of stock-out effects for p, M and S .

In total, the value-presented total costs of inventory shortages (along with expenses related to their holding and acquisition) refer to important factors in analyzing the financial results of retail businesses. All these results can be used in situations of determining the level of safety stocks and when making important business decisions regarding the procurement process.

In other types of research, the availability of products was considered from the aspect of the quality of the retail process, that is, consumer satisfaction. The RSQS model was applied, in which five basic indicators are analyzed: physical availability, reliability, numerous interactions, problem solving and business policy elements. The effects, that is, the results of this type of research indicated that, practically, all dimensions are important for the quality of retail service, including reliability, which is largely reflected in product availability [12]. Then, research shows that only one manager is not able to monitor all purchases, and therefore it is necessary to engage entire teams that will be able to monitor all relevant information and offer proposals for implementing solutions. For example, an effective merchandising team can perform effective control based on reports and point out deviations if they exist: Out-Of-Stock control. Control of the implemented planogram, control of set regular and/or promotional prices, control of facing, control of competition activities, from the aspect of market share and prices, control of POS material settings and marketing activities.

RESEARCH RESULTS: PRODUCT AVAILABILITY AND CUSTOMER REACTIONS

Exact research indicates that many reactions of customers, of all categories and groups, significantly influence the level of costs of maintaining a certain level of inventory or their lack [10]. The researchers, by analyzing the reaction of customers due to the lack of stock, have set a benchmark for more detailed research on this issue. The focus was on alerting all factors in the supply chain to increased costs resulting from inventory shortages. This led to the possibility of categorizing all customer reactions. Mainly, three characteristic categories of buyers are distinguished (1) reactions of substitution - replacement of a brand, a specific item or a sales object; (2) delay or cancel the purchase; (3) reaction to product category replacement;

From the aspect of product substitution, customers are divided into two basic groups: substitutable and non-substitutable, with three basic customer reactions (listed above). Retailers, from the level of global and regional reports, from the aspect of product availability resulting from a lack of stock, five main causes are cited (Roland Berger Consultants, 2013): a) the main reaction of customers is the substitution of the sales facility, b) then the substitution of the Brand, c) replacement of the article, d) postponement of the purchase and e) cancellation of the purchase.

From the aspect of product characteristics and types of retail stores, the availability of products can be looked at in more detail, with a special approach to solving operational risks. The phenomenon of the availability of products (especially those from everyday consumption) is not unique, but differs in relation to the corresponding category. The range is different and the highest as well as the lowest rate of lack of stocks depends on their usability, whether they are food or e.g. textile. The highest rate of stock shortages is recorded by those products that are sold irregularly. Generally, this rate is directly dependent on the turnover ratio of specific products. The greatest attention in research is paid to those products that are most in demand on the market. In this sense, in addition to indicators of sales frequency (indicators are: turnover ratio, sales oscillations and market share rate) and long more significant characteristics (e.g. packaging, packaging, price level, product size and volume, shelf life, after-sales service, etc.) which affect the level of their availability in sales facilities, but also the level of operational risk arising from those characteristics. As with the type (characteristics) of the product, the out-of-stock rates also differ among different retail establishments (location, size, equipment, etc.). Research in "Delihaze" showed that when there are promotions, sales are ten times higher, but that it is unrealistic that someone has such a quantity of goods in the warehouse at that moment, so it is an important

challenge that needs to be solved. Total sales depend on a number of factors: price, discounts and even weather conditions in some cases. The growth, that is, the percentage of OSA can be improved in several ways: (1) by joint cooperation with suppliers (they all integrate together); (2) everyone cooperates, in the supply chain, follows its flows, in an effort to realize common goals. Precisely because of the excellent cooperation, the percentage of OSA increased by 2-3% compared to the previous period. In the process of complex controls, through the analysis of product availability, a conclusion is reached that can be useful for increasing the placement of goods. This means that all activities carried out by management can only pay off if they generate a satisfactory return on investment in all resources.

CONFIRMATION OF THE HYPOTHESIS: PERSPECTIVES OF CONSUMER SATISFACTION

Logistics operations occupy a very important place and role in the successful operation of retail establishments. All those operations are no longer perceived as just an operational activity (which includes operational risk) but as a strategic variable that is an essential factor of consumer satisfaction [13]. The importance of services and shopping experiences is gaining more and more importance in retail businesses. In doing so, customers and their satisfaction with their purchase decisions are perceived as critical factors in managing product availability. Although many researchers confirm the need to examine product availability experiences from the perspective of the customer, there is still much that more detailed research should point out. For example, these are: (1) the importance of the "customer-employee relationship" related to service and shopping experiences for different age and gender groups, from the aspect of product availability, and (2) the effect of service and shopping experience on customer satisfaction, loyalty and intention to recommend. Research results [14] show that age and gender of consumers deserve an even more significant role in satisfaction with service and shopping experiences, and this in turn leads to increased intensity of satisfaction with product availability, service and shopping experiences, retention and word-of-mouth communication about product availability, and/or effectiveness of the specific supplier. In addition, research has shown that a negative experience of product availability can be significantly "restored" by a positive experience of shopping in a store and vice versa, and that these effects are not influenced by the gender or age of the consumer. Fresh products that are distributed in different retail formats, such as supermarkets or shopping centers, require a special problem or treatment [15]. The purchase of these products, from the consumer's point of view, depends on numerous factors such as: satisfaction with the service, product quality, contents, cleanliness and hygiene of the place, assortment and Ph.D. Supermarkets have taken the place of street markets in the sale of fruits and vegetables due to the convenience and form of payment, and mostly due to the quality of services (especially the dimensions of tangibility and reliability) and the availability of products. In supermarkets, unlike street markets, modern equipment is used, prices are highlighted, product information is legible, which increases the level of customer orientation and safety. Subsequently, a number of studies have produced projects that investigate the trade-offs between shelf availability and profitability of major perishable food categories, in the context of substitutability and consumer loyalty. An optimal level of availability is necessary to ensure maximum service and profitability and to consider the effects of this trade-off on consumer substitutability and loyalty. The researchers, assuming that products with high profitability should have high availability, developed a general matrix for evaluating shelf availability and prioritizing stock-keeping units. The created matrix provides three strategic suggestions for products with poor profitability performance: (1) increase the availability of highly profitable inventory holding units, (2) increase profitability for high availability products, and (3) decrease availability for low profitability products if cost reduction can be achieved [16].

CONCLUSION

The paper analyzes the definitions of product availability, in the supply chain, with a number of specifics related to this problem and several characteristic situations, especially from the aspect of customers and their reactions. Two basic methods of measuring and identifying product availability were then pointed out. The impact of the application of modern technological and information systems in retail stores is exceptional. The creation of an appropriate model and even the entire Product Availability Measurement System is a very important prerequisite that allows recognition of the causes and effects of the availability of appropriate products. The four main causes are: ordering products, listing them, filling sales shelves and exchanging information. In addition to these, mistakes made during demand forecasting

can also be classified as important causes. This results in numerous analyzes of the cost of sales losses in retail stores. The paper deals with three more phenomena of product availability in the context of operational risk management: (a) product availability and customer reactions - substitution reactions, (b) delay and abandonment of purchases, (c) product category replacement. An important part of the research is related to product availability in the context of product characteristics and retail outlets. At the end of the paper, the key measures that enable greater availability of products in retail stores are pointed out. Basically, risk management (as an integral part of the overall business process) must be part of the comprehensive decision-making process in every retail company, and the survival and development of every organization in the field of trade depends on effective risk management. With the emergence of increasingly frequent business crises, managers in retail chains are intensifying the implementation of projects whose goal, above all, is to increase the availability of goods, satisfied consumers, sales growth as well as increasing competitive advantage in an increasingly turbulent market.

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