1. INTRODUCTION

Reverse logistics is a relatively new research area in terms of empirical and theoretical aspects. The English-language literature presents the following terms: reverse distribution, reversed Logistics logistics, reversed logistics, which means...
return logistics, reversed logistics or retrologistics. All listed concept, they ultimately represent the same field (Melissen & De Ron, 1999).

In the area of waste management, it is assumed that waste is a product that is not cannot be reused in any way. It follows that an attempt to narrow the term reverse logistics and its separation from other similar areas of science consists in on understanding what waste is. Reverse logistics deals with flows in which there is a possibility of recovering value from used products. A derivative of reverse logistics is the concept of green Logistics the task is to focus on aspects closely related to environmental protection logistics area. Green logistics also focuses its attention on traditional flows, i.e. those forward, not only on reverse logistics. The formulation of reverse logistics has undergone a major metamorphosis over the years when it appeared in the space of practice and science. Starting from the problem of recycling, environmental protection and ending with ecology. Definition returned to original assumptions and has been supplemented with further areas included in the concept reverse logistics (Rogers & Tibben-Lembke, 2001).

Reverse logistics is an undoubted challenge that must be taken up by companies dealing with stationary and online sales, starting from the collection of used products, their recording, storage, logistic customer service, as well as compliance with legal regulations related to complaints, and ending with re-use or disposal returned products.

This article aims to show the practical aspect of reverse logistics on the example of the Decathlon Sp. z o.o.. In the theoretical part based on the literature on the subject, a discussion was undertaken on the concept of reverse logistics and its role in the processes of recovery and recycling of equal goods. In the empirical part, the characteristics of the Decathlon enterprise were made, the processes of handling returns in the organization were illustrated and analyzed, with particular emphasis on the reuse of goods.

2. REVERSE LOGISTICS AS A PROCESS

Reverse logistics is a process that is based on three factors: controlling, implementing and planning the return of the product from the end customer to the retailer (place of purchase) and then to the manufacturer. The most important task that reverse logistics must meet is to discover the regularities in reverse flows, taking into account the economic and ecological efficiency of reverse logistics systems (Rogers & Tibben-Lembke, 2001). Moreover, the issue of reverse logistics is also the flow of information, financial resources and packaging.

The scope of return logistics should include not only the implementation of the reverse flow of full-value goods, but also the logistics system related to complaints and repairs.

To sum up, reverse logistics deals with many areas, e.g.:
- recycling and disposal,
- complaints and returns,
- reusing products and remanufacturing products (Flygansvær et al., 2021).

Basically, any processes over the returned unit do not generate revenue until it returns to forward supply chain, or directly to the market. In the significantly large number of
cases, reverse logistics provides the appropriate level of logistics services or can be aimed at creating brand awareness and positive image of "green" company. The mechanism of reverse logistics flow of goods rather strongly depends on the type of product, the market in which the company operates, also on existing technologies, integration of customers, suppliers, intermediaries in the logistics chain, the availability of management information systems, etc. General structure of reverse logistics flow of goods is displayed in Figure 1.

Reverse logistics is characterized by the opposite direction of product flows (from customer to supplier) than traditional flows (from supplier to customer) occurring in the

supply chain. There is an upstream flow in reverse logistics. The task of reverse logistics are the flows of returned goods and waste as well as information and financial flows related to them. In this context, the task for reverse logistics is the appropriate integration of the above-mentioned flows in space and time in such a way that, while optimizing costs, the appropriate condition of the natural environment is guaranteed and costs are reduced incurred by the logistics system in which these flows take place.

Reverse logistics differs from distribution logistics in many areas. The main challenges are: effective organization of flows from many points to one location, identification of products at various stages due to incomplete packaging or data on returned goods, time to process returns and their possible re-sale, high uncertainty as to time, quantity and quality returned goods, which results in chaotic inventory management and high costs of these activities.

3. REVERSE LOGISTIC IN TRADE

Nowadays, reverse logistics is a process that is associated with almost every company. The dynamically developing traditional and Internet trade, as well as other forms of competition on the market, resulted in an increase in the number of products returned by consumers. Customers have become more aware of their purchasing rights.

The result of such changes is a greater number of returned products and complaints, and thus the logistics of returns is gaining in importance. For many companies, returns are the most difficult area of management, because they create high transport costs and generate costs associated with increased control of returned goods. There are many reasons for returning products by customers: the wrong size, damage to the product, lack of elements in the products, it also happens that customers order goods in order to try them on at home. Often there are also mistakes on the websites of companies or errors when packing orders and packaging the order (Fleischmann, et al., 2001). The main disadvantage of handling returns in commerce is the unpredictability of the level of returns that a business can expect, and thus to plan logistics activities and ensure logistics potential. In addition, the logistics systems of enterprises are generally not adapted to the flow of products upstream in the supply chain.

Due to the specificity of trade in the B2C segment, consumer returns are the key type. Retailers' customers have the right to return products within a certain period of time without giving any reason. Consumer returns include products: that do not meet the buyer's expectations (e.g. wrong size, color, appearance, quality, non-compliance with the description or photo, etc.). incorrectly delivered (mistakes when packing the order), defective and damaged by customers or during delivery. If the returned goods are in poor condition and cannot be repaired, refurbished or reused, then the returns are classified as end of life product return (EOL) and are recycled or disposed of in the next step. Products that can also be returned to repair non-working devices or defective goods - also under warranty. The repaired goods are then returned to customers. Products unsuitable for further use are subject to operations specified for EOL returns.

The reverse logistics process in trade is complex and includes a number of activities related to the collection of products from
consumers: organization of transport, handling of warehouse processes, including quality control of returned goods and their introduction for resale or recycling, as well as preparation of documents and flow of information and funds (Abdessalem, et al., 2012).

Depending on the type of company—operating only on the Internet (pure player) or having a network of traditional outlets in addition to an e-shop (brick and click)—various channels and return options are available. The resources and infrastructure that can be used to handle returns are also diverse. Brick and click companies especially chains with a large number of brick-and-mortar retail stores, can achieve synergy effects by using their logistics resources and traditional facilities to accept and handle returned goods. Some retailers offer customers the option to return a product to a physical outlet not only because of consumer expectations, although it is a significant reason. The experience of brick and click retailers shows that consumers visiting a branch to pick up a parcel or make a return get acquainted with the store's offer and buy other products. Companies that only sell online (pureplayers) depend to a greater extent on the infrastructure and offer of logistics service providers. In both cases, companies must decide whether to build their own system for handling returns or to outsource the entire process (one stop e-commerce) or its individual stages to specialized logistics companies CEP and post office (Skurpel & Wodnicka, 2023).

The organization of an efficient and effective returns handling process in e-commerce is a major organizational and cost challenge, especially for small and micro online stores, which in Poland account for approx. 85%. E-shops, both those that want to make the return policy a distinguishing element and create value for consumers, and the others should take into account the growing expectations of online buyers regarding a clear and friendly return policy. According to the 3C rule (convenience: choice, channel) defining the needs of customers in online commerce, the key factors in ensuring an appropriate return policy are: convenience in returning goods, system flexibility and selection among several return options. equally important; free returns for customers (Kazancoglu et al., 2020). Some companies have made free returns an element of their business strategy and an element that distinguishes them on the market. Others differentiate the rules for covering the costs of collecting goods from the consumer depending on the type of customer (e.g. registered in the store system), his location (in the country or abroad), the value of purchases and the return channel and type of service (e.g. by courier, at a post office, via in the case of equipment. In other cases, customers return purchases at their own expense.

In the reverse logistics process in commerce, it is important to determine the reason for the return at the earliest possible stage and make the return route of the products dependent on it. Thanks to this, it is possible to shorten the process implementation time and reduce logistics costs (e.g. inventory and transport costs). To efficiently manage the process, visibility of the shipment is essential thanks to the real-time flow of information between retailers and logistics companies and consumers. This is possible thanks to the development of applications and IT technologies by logistics operators and KEP, as well as the integration of IT systems of business partners (Nitsche, 2021). In addition, the following are equally
important: system flexibility, due to high uncertainty, which is of key importance for retailers operating in industries with a high percentage of returns (e.g. clothing or footwear), products with a short life cycle, seasonal products, with a short shelf life and goods with high value.

4. REUSE OF RETURNS

Considering the fact that reverse logistics generates many costs, enterprises should bear in mind the need to introduce alternatives solutions and seeking opportunities to reduce them. An important element in the activities of companies should be recovery flows, that provide some value that can be reused. In the 1990s, authors perceived reverse logistics in two ways (Majerýák & Majerýákova, 2013). The first the group saw it in terms of recovery and obtaining a new return value product, while the second group understood reverse logistics from an environmental perspective - waste disposal and recycling. Current literature combines both elements. Logistics feedback is part of today's business strategy of enterprises and thus has an impact on the profit they earn.

The main goal of reverse logistics management is to reduce waste resources, achieving a longer life of the product and its components, and if so also possible to recycle. Organization is the basis of reverse logistics processes and management of the recovery of older products - processing, repair, disassembly, use of parts. “It's about making it possible to reuse products and minimize waste as much as possible. Through re the use of used or discarded goods is prevented from having to the use of raw materials to produce new products, which translates directly to reduce the cost of their production, as well as to reduce the consumption of energy and resources natural resources and reducing environmental pollution (https://www.mecalux.pl).”

There are several actions to recover economic value used or broken products. These include:

- Repair - restoring the correct operation of the product;
- Renovation - restoring the equipment to working order and good condition, but usually worse than the original;
- Cannibalization - obtaining possible components from the used product reuse to repair, renovate or regenerate others products;
- Recycling - the use of components and materials from the used product to create new products that do not have to be identical to original product (Krykawskyy & Fihun, 2015).

A large number of products which are returned to the manufacturer or other institutional units logistic chain usually incompletes its journey, and can be restored both in direct or in the recovery process option. In Figure 2 a hierarchical pyramid of recovery options is shown. In particular the following stages are distinguished: resale, reuse, re-distribution, repair, improvement by replacing old or worn parts, remanufacturing, cannibalization, recycling and disposal (Krykawskyy & Fihun, 2015).

The purpose of the above activities is to extend the "life of return elements, which depends on the technical parameters, the method of returns and economic and ecological benefits they will bring (Lysenko-Ryba, 2015).” Exploitation returned equipment, waste materials, and the use of older parts positive impact not only on
Enterprises, giving a second life to products, minimize the unfavorable environmental impact. By implementing recovery flows, manufacturers eliminate the need to use new components, which reduces redundancy consumption and contributes to lower energy consumption. What's more, recovery Logistics favors better organization of the stock, because it eliminates the need having storage places for products that are no longer suitable for use. Efficient and organized handling of returns, as well as the care of companies in the environment is highly appreciated by consumers. These activities developed on high level, improve the company's image and increase customer satisfaction, which will translate into increased consumer loyalty and maximization of profits. Positive customer experience will translate into the choice of an offer belonging to this particular brand.

5. DECATHLON'S REVERSE LOGISTICS PROCESS

Decathlon is an international company with a network large-format French sports stores operating in the industry in 54 countries and regions around the world. The company was founded by Michel Leclercq in 1976. The company currently employs over
90,000 employees from 80 different countries. The company's headquarters in Poland is located in Warsaw. Currently, the store's offer includes clothing, accessories, supplements, and equipment for over 90 sports disciplines.

Decathlon Polska offers 24 own brands, of which 30 products are manufactured in Poland. There are 60 stores in the country, as well as two warehouses - in Gliwice and Łódź. Decathlon Polska employs over 3,500 employees. Considering the unique culture of the company, it employs sports enthusiasts and people closely related to it. To guarantee the best quality of services, the company sells both stationary and via the Internet. By this, the consumer has the opportunity to make online purchases and ask questions to specialists in every field of sport, who will answer any problems via chat on the Decathlon website or a dedicated hotline.

The user has the option of purchasing goods remotely with the option of online payment and cash on delivery, upon receipt of the order. To pick up the order, he can use the "Click & Collect" option, in which it will be possible to collect it in the store of his choice after an hour from the purchase. The condition that must be met is the physical availability of the article. Another way to collect the goods is to choose a courier service provided by the selected company.

Decathlon, in order to give its customers even more opportunities, decided to go towards sustainable development and prevent unnecessary waste by expanding its offer with "2nd Life" goods. This service is aimed at extending the life of the products sold by the company. "2nd Life is based on equipment that can no longer be treated as new, but still presents a high enough value that after proper service and safety checks, it can be put back on sale. As part of the service, products after testing, display, with minor damage during delivery will be sold and after customer returns." The customer receives all information about the article and the reason for its discount. Therefore, he can get acquainted with the goods and, in the case of insignificant product defects, buy it at an attractive price. This action is beneficial both for the consumer, who can afford better equipment at a lower cost, and for the company, which thus builds customer loyalty and reduces disposal costs.

Reducing waste by offering 2nd life goods is not the only Decathlon activity that aims to extend the life of goods. To make their customers enjoy their equipment for as long as possible, the company also offers spare parts. Just like in cars, sports equipment also has parts that wear out as a result of use, for example: a bicycle chain, roller bearings, a motor in a treadmill or a drive belt in an elliptical bike. Decathlon offers a wide range of products so that the consumer can try to repair their device instead of buying a new one. This is a more favorable solution both for the user, who in the event of a minor fault can repair the equipment himself, at lower costs, and for the company, which builds consumer confidence and contributes to ecology, preventing excessive disposal of equipment that can still be used for years. In the event of consumer dissatisfaction with the purchased goods, Decathlon offers many solutions through which the customer will be able to return the goods back to the store in a convenient way.

The first option to return the article is to take it to one of the Decathlon stores. The return is free of charge, and the only document that needs to be prepared when visiting the store is the proof of purchase. This document may be in electronic or paper
form. When returning goods purchased online, the consumer returning the product does not need the packaging in which he received the order, but only the product itself. The exception is the goods that are originally packed in a box. If the item returned by the customer agrees with the proof of purchase, an employee of BOK (customer service office) accepts it from the customer and informs that he will receive a refund within fourteen days, in the same form as the purchase.

Another option to return the product is to return it using the InPost courier company. The customer opting for this method must go to the "Return or exchange" tab in their purchases in Decathlon account and select the goods they want to return. Then, after selecting the remote return option, he has the option of choosing a free return via the InPost. After selecting this option, the customer is redirected to the carrier's
website, where he must complete the return form. After completing it, he will receive a waybill and a ten-digit number sent in an SMS message, which he must put on the shipment. When the goods are prepared for shipment, the customer must go to the nearest Parcel to send the product. After the shipment is accepted by the returns department at the regional warehouse in Łódź, the customer will receive a refund within fourteen days, in the same form as the purchase. When purchase has been paid for on delivery, Decathlon's finance department will contact the customer to obtain the account number for the refund.

The last form of returning Decathlon goods is "Return at a distance". If you choose this option, note that the shipping cost is the customer's responsibility. To return an item, you must create a return in your Decathlon account under the "Return or Exchange" tab in your purchases, and then select the items to be returned. After doing this, a message will appear with the address to which the package should be sent. However, it should be remembered that by choosing this form of return, the customer bears the cost of shipping and sends it on his own. After delivering the shipment to the regional warehouse in Łódź, the customer will receive a refund within fourteen days, in the same form, which he made the purchase. When the purchase was paid for on delivery, Decathlon's finance department will contact the customer to obtain the account number to which the refund will be made.

Extending the life cycle of Decathlon products is noticeable, for example, in the complaint process of Domyos fitness equipment. From July 2021, the central service located in the regional warehouse in Łódź took over the acceptance of all fitness complaints in Poland, thus unifying and analyzing the needs in this sector of the company. This department deals with receiving, coordinating and making decisions regarding complaints about fitness equipment. The number of accepted

![Figure 4. Complaints of fitness equipment divided into warranty and post-warranty in the period from July 2021 to March 2022](Source: Own elaboration)
complaints broken down into warranty and post-warranty orders is presented in chart on Figure 4.

The chart on Figure 4 shows that the predominant form of notifications are warranty notifications, i.e. those in which customers report a device defect within 2 years from the date of purchase. The chart also shows an upward trend from July 2021 to January 2022. This trend is caused by the winter period, when athletes do not always have the opportunity to train outdoors and must practice their physical activities at home. In January 2022, the highest number of accepted notifications was recorded, amounting to 377 notifications, including 327 warranty notifications and 50 post-warranty notifications. Then in February and March, the number of registered applications began gradually decrease. There can be many cases of complaints. From the small ones, in which it is enough to adjust the device, to the more complex ones, in which parts need to be replaced. There are also cases where Decathlon is unable to repair a consumer's device. In this case, it is recommended to replace the device with a new one or make a refund. Data on the execution of orders are presented in chart on Figure 5.

The chart shows that the vast number of complaints ends in an average of 85% repair of the device, which positively translates into the economic and ecological results of the company. The highest number of repaired devices was recorded in January 2022, however, the largest number of complaints were received in the same period. It can also be deduced from the graph that if the device cannot be repaired, most customers decide to refund the costs instead of replacing the device with a new one, free of defects. In the analyzed period, 137 replacements of devices were made for new devices, and 146 refunds for damaged devices. The main indicator monitoring the service activities of fitness equipment is repairability, which is presented in chart on Figure 6.

It defines the ratio of repairs of fitness equipment to all complaints accepted by the central service. This indicator is of high

![Figure 5. Finalized complaints about fitness equipment in the period from July 2021 to March 2022 (Source: Own elaboration)](image)
importance for the enterprise, because with the increase in repairability, the number of orders completed with the replacement of the product with a new one or the refund for the purchase will decrease.

The chart shows a downward trend, which lasts practically throughout the period under review, except for November and March. The average repairability in the analyzed period is 85.48%. The highest value was recorded in July 2021 and amounted to 91.74%, while the lowest value was in February 2022 and amounted to 78.4%. The downward trend is mainly caused by problems related to the supply and distribution of spare parts, which mainly affect the improvement of fitness equipment. The global situation caused by the pandemic has significantly affected raw material stocks and distribution. This made it problematic to import spare parts from the main warehouse in France.

All actions that Decathlon takes both to satisfy the customer and to focus on sustainable development are absolutely correct. The more emphasis a company puts on projects aimed at reducing waste, the more it will gain support from consumers who are becoming more and more environmentally friendly nowadays. One of the easiest ways to avoid complaints, returns and disposal of sports devices and equipment, which at first glance may seem impossible to repair, is to provide the consumer with a set of information through which he can diagnose his problem. For this purpose, the "Decathlon Support" page was created, which, after selecting a specific device, displays a list of frequently asked questions along with instructions from specialists and manufacturers on how to proceed to eliminate the fault. The company also offers spare parts for Decathlon products, thanks to which, together with tips included on Decathlon support, the consumer is able to extend the life of his
product. The website includes video instructions in which the consumer has the opportunity to learn step by step how to proceed in the case of assembling a spare part.

6. CONCLUSION

With digitalization and the growing expectations of consumers in terms of sales, logistics in the enterprise plays an increasingly important role. Globalization and the dynamically developing economy create new challenges that retailers must cope with. Innovative solutions and quick response to market needs make customers more willing to make purchases in a given store. A well-developed logistic structure of the company, which nowadays prevails over the quality of the goods offered, is a key element of every company.

Due to the popularization of the e-commerce market, there is a strong need to develop reverse logistics. Retailers face an increased number of returns, which requires more attention in this department. The organization of this process is extremely important for the individual, because it mainly affects the final satisfaction of the consumer. Reverse logistics is a broad topic that covers issues related to the flow of goods in the opposite direction than in a standard supply chain. It is a series of processes, starting from distribution and transport, ending with the disposal of goods or their re-marketing.

Decathlon is a company that has a high level of reverse logistics. The conducted analysis showed that 98% of returned items are re-sold, and a small percentage is recycled. Thus, this company is an example of a unit that has a well-developed logistic structure, and the activities it undertakes minimize the costs associated with it. The vast majority of complaints about fitness equipment end with the repair of the device, which has a positive impact on the economic and ecological results of the company.

Despite the already existing logistics solutions that reduce returns and complaints in the Decathlon network, there are areas in which the company can expand your services. The recommended action is to improve the support page Decathlon, as well as creating the possibility of returning goods remotely, in case making a purchase in a stationary store. These actions will contribute to greater customer satisfaction and will allow you to enjoy using sports equipment for longer Decathlon.

There are many opportunities for innovation and creativity in the company solving reverse logistics problems. However, they all require creation appropriate positions and departments responsible for these processes. But with a small contribution, the company has the potential to guarantee the best service consumer on the market.

References


Flygansvær, B., Samuelsen, A.G., &


**The Internet sources**
