

IMPROVING THE PROCESS OF CUSTOMS CONTROL TO COMBAT THE IMPORT OF COUNTERFEIT GOODS

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Abstract

The European Union customs policy and customs controls play a key role in protecting the market against counterfeiting of original goods and various types of losses. Detecting counterfeit goods is a complicated task. This problem is also relevant for Lithuanian customs, which in 2000–2025 is facing significant volumes of counterfeit goods imported into Lithuania. Therefore, Lithuanian customs face the need to strengthen control of counterfeit goods. The methods used in the research include analysis of the EU legislation, analysis and interpretation of Lithuanian customs activity reports; analysis, synthesis, generalization, and comparison of scientific literature. An analysis conducted by the European Union Intellectual Property Office (EU IPO) revealed the increase in the trade of counterfeit goods in the EU in the period 2020–2024. In Lithuania in the 2022–2024 period counterfeit manufacturers and traders are increasingly using modern technologies to protect their supply chains and evade customs control. After conducting the analysis, two strategies for improving the customs control process were proposed: a strategy for improving the control process and a technological strategy for improving the detection of counterfeit goods. It is proposed to implement and improve the following technologies: Internet of Things solutions; Blockchain technology, use artificial intelligence to detect counterfeit goods.

Keywords: customs, counterfeit goods, counterfeit goods control.

Introduction

In the context of increasing globalisation and competition at international level, the European Union (EU) customs policy and customs controls play a key role in protecting the market against counterfeiting of original goods and various types of losses (Männistö, Wong & Doherty, 2025; Ihnatiev, 2025).

With the rapid development of e-commerce since 2014, which has increased by 59 percent over 10 years, EU customs authorities are facing increasing challenges in controlling counterfeit imports (Eurostat, 2024). According to an analysis carried out by Davies (2025), 5.8 percent of all goods imported into the EU are counterfeit goods with a value of EUR 119 billion. Counterfeiting goods has been found to have a very negative impact on EU economies, as EU producers lose EUR 50 billion each year as a result of counterfeiting. EU governments lose around EUR 115 billion in tax revenue due to counterfeit goods.

Miller (2025) points out that detecting counterfeit goods is a complicated task. It is difficult to distinguish counterfeit goods because of their similarity to the original goods. They are also difficult to detect due to large flows of imported goods. Besides, the X-rays technology, currently the most commonly used control technology in EU customs, limits the ability to effectively detect counterfeit goods. This problem is also relevant for Lithuanian customs, which in 2000–2025 is facing significant volumes of counterfeit goods imported into Lithuania (GRU, 2024). Therefore, Lithuanian customs face the need to strengthen control of counterfeit goods.

In this context, theoretical and practical possibilities to improve the process of goods control at the Lithuanian customs in combating the import of counterfeit goods are analyzed in this paper.

Research object – process of customs control to combat counterfeit goods

Research aim – to evaluate the possibilities of improving the customs control process to combat import of counterfeit goods.

Research objectives:

1. To analyze the situation regarding the seizure of counterfeit goods imported to the EU and Lithuania, and the role of customs control in this context.
2. To analyze scientific literature on improving the process of customs control of goods in combating counterfeit goods.
3. To propose ways to improve the process of customs control of goods to combat counterfeit goods more effectively.

Research methods: analysis of the EU legislation, analysis and interpretation of Lithuanian customs activity reports; analysis, synthesis, generalization, and comparison of scientific literature.

Analysis of seizures of counterfeit goods in the EU and Lithuania

The trade in counterfeit goods in the EU has an overall upward trend between 2020 and 2024. According to a study conducted by the European Union Intellectual Property Office (2024), the volume of counterfeit goods seized by customs

increased significantly between 2022 and 2023. In 2021, EU customs authorities seized 46 million consignments of counterfeit goods worth a total of EUR 20 million, while in 2023, EU customs authorities seized 152 million consignments of counterfeit goods worth EUR 14 million.

According to the activity reports of the Customs of the Republic of Lithuania (Lietuvos Respublikos muitinės ..., 2022, 2023, 2024), the number of cases of counterfeit goods in 2022–2024 was very different. The largest number of cases of counterfeit goods detention was recorded in 2023 (1120 cases), the smallest in 2024 (337 cases). Analyzing the dynamics of the number of counterfeit goods detained by the Customs of the Republic of Lithuania, it was found that in the period 2022–2024 it has a tendency to decrease, compared to 2022 (Lietuvos Respublikos muitinės ..., 2022, 2023, 2024).

According to the EU IPO (2024) report, counterfeit goods manufacturers and traders are increasingly using modern technologies to protect their supply chains and evade customs controls. This trend is observed not only in Lithuania but also in other EU countries.

According to a study by the EU IPO, the distribution of counterfeit goods has very negative consequences for various EU industrial sectors EU IPO, 2024). In the period 2023–2025, counterfeit goods in the EU account for 5.8 per cent of all goods imported into the EU. Their total value reaches 119 billion euros. These losses occur because low-value non-original goods are imported, and consumers buy fewer original goods.

If Lithuanian Customs suspects violations, the goods are detained, an assessment is carried out, and if it is determined that they are counterfeit goods, they are destroyed. The importer is fined (from 300 to 3,000 euros for illegal marking of goods with a foreign mark), criminal liability might also arise (Lietuvos Respublikos muitinė, 2025). Lithuanian and other customs authorities of EU countries use the COPIS system, which is designed to facilitate cooperation and sharing of information on the protection of intellectual property rights (European Commission, 2025).

Theoretical solutions for improving the customs control process in combating the transportation of counterfeits

Counterfeit is a product manufactured and sold in violation of intellectual property rights (Bogdanov & Sorokina, 2020). The history of counterfeiting goes back to ancient times. The business of counterfeiting goods already existed in the Middle Ages, when jewelry, weapons, clothing and other goods of famous craftsmen, that gained greater value and recognition from buyers, were counterfeited (Blakeney, 2023).

It is known that counterfeit goods manufacturers skillfully manipulate the concept of counterfeit goods in order to circumvent the law and avoid legal liability for counterfeit goods. Therefore, it is appropriate to analyze the concept of counterfeit goods (Table 1).

Table 1. The concept of counterfeit goods

Author	Definition
Bogdanov & Sorokina (2020)	Counterfeiting is the production and sale of goods similar to those of well-known manufacturers by individual companies, with these companies illegally using well-known trademarks in the market in order to obtain financial benefits.
Malik et al. (2020)	A counterfeit product is a product that imitates the product of another company so closely that it looks like the product of that company.
Evans, Starr & Brodie (2019)	Counterfeit goods are goods manufactured without the permission of the copyright holders of the intellectual property embodied in the goods.

Analyzing the definitions presented in Table 1, it was found that counterfeit goods are understood as goods that are deliberately produced in violation of the exclusive rights of the copyright owner.

Researchers, Roux, Thébault & Roy (2019), who analyzed the characteristics of counterfeit goods and consumer behavior when purchasing such goods, found that these goods have several attractive characteristics:

- They are visually similar to the original goods;
- The price of counterfeit goods is significantly lower than that of the original goods;
- The functionality of counterfeit goods is equivalent to or slightly lower than that of the original goods;
- The quality of counterfeit goods is inferior to that of the original goods.

The protection and defense of intellectual property rights is ensured by a complex mechanism of legal regulation, which forms a four-level system (Wilson et al., 2016; Afonin, Lebedeva, 2019; Haase, 2022; Dimita, 2023):

1. International agreements and conventions.
2. Normative - legal acts at the European Union level.
3. National regulatory level.
4. Customs counterfeit control system.

International agreements and conventions (1). An important step in the fight against counterfeit goods was taken in the 19th century, when international agreements and conventions were signed. International legal acts aimed at combating counterfeit goods began to be formed at the end of the 19th century, when the Paris Convention for the Protection of Industrial Property (1883), the Berne Convention for the Protection of Literary and Artistic Works (1886), and the Madrid Protocol Concerning the International Registration of Trademarks (1891) were created (Wilson et al., 2016; Afonin, Lebedeva, 2019).

A new stage in international legal agreements regulating the intellectual property market is associated with the second half of the 20th century, when the Universal Copyright Convention (Geneva, 1952), the Rome Convention for the Protection of the Rights of Performers, Producers of Phonograms and Broadcasting Organizations (1961), the Stockholm Convention (1967), on the basis of which the World Intellectual Property Organization was established, was adopted. The Agreement on Trade-Related Aspects of Intellectual Property Rights (Marrakesh, 1994) is also important (Afonin, Lebedeva, 2019; Blakeney, 2023).

Normative - legal acts at the level of the European Union (2). The EU's fight against counterfeit goods is closely related to the protection of copyright. In the period 2001–2025 the EU intellectual property legal system was modernized in order to adapt it to the challenges of the development of the global economy and digital trade (Dimita, 2023).

The EU intellectual property protection system is based on directives and regulations, which aim to harmonise laws between Member States. The main legal acts include (Dimita, 2023; Mihus, 2024):

- Copyright Directive (2001/29/EC);
- Digital Single Market (DSM) Directive (2019/790);
- Trademark Regulation (EU) 2017/1001;
- Trade Secrets Directive (2016/943).

The Copyright Directive (2001/29/EC) aims to ensure the protection of intellectual property in the physical and online environments. The Directive provides that creators and rightholders must receive fair remuneration for the use of their works, including in various digital formats, including music, films, software and video games (Copyright Directive, 2001/29/EC; Mihus, 2024).

The Digital Single Market (DSM) Directive (2019/790) was adopted to modernise EU copyright law to meet the challenges of the digital economy. Mihus (2024) found that the DSM Directive (2019/790) was instrumental in ensuring the intellectual property rights of creators of games and other digital content and in creating the legal framework to combat counterfeiting.

The Trademark Regulation (EU) 2017/1001 establishes a unified system for the protection of trademarks throughout the EU (Trademark Regulation (EU) 2017/1001). The directive facilitates the registration and legal protection of trademarks in EU countries. The directive ensures the protection of a trademark and its individual elements that form its identity at the international level. This is very important for all manufacturers, as a unique brand identity is associated with high value, ensuring a competitive advantage. It provides a unified system for trademark registration, allowing EU manufacturers to protect their trademarks throughout the EU (Mihus, 2024).

Trade Secrets Directive (2016/943) ensures the protection of business information, including information about products, prototypes being developed, new innovative technologies developed, etc. (Trade Secrets Directive, 2016/943).

The Union Customs Code (UCC) is a modernised system of customs rules and procedures with uniformly applied customs control standards (Union Customs Code, 2016). The UCC defines the functions and duties of customs authorities and supplements them. The UCC provides that in addition to collecting import duties, customs authorities perform other important functions, such as ensuring the implementation of trade policy rules, carrying out control and monitoring of dangerous goods and goods posing a health risk, combating counterfeit goods and other forms of fraud in customs procedures, and participating in the fight against organised crime and terrorism (Haase, 2022).

The identified and analyzed legal acts and regulations create the prerequisites for combating counterfeit goods and intellectual property violations.

National regulatory level (3). The basis is the civil code of the EU countries, which provides for the procedure for the protection of intellectual property. This code states that in the event of infringement of intellectual property rights, the law of the country in which these rights are sought to be protected applies to their defense (Czermińska, 2020).

Customs counterfeit control system (4). Control of counterfeit goods in the customs offices of EU countries is implemented by applying control procedures established in legal acts (Haase, 2022):

- Verification of the accuracy and completeness of the information in the submitted declaration or notification. The aim is to determine whether the correct description of the goods, their country of origin and value have been provided. This verification aims to determine the authenticity of the transported goods, their actual value, and the exact duties that must be paid;

- Verification of the presence, authenticity, accuracy and validity of documents provided for the verification of declarations for correctness, completeness and validity;

- Physical inspection of goods, including inspection of vehicles, inspection of luggage and goods carried by other passengers, and sampling. The aim is to determine whether contraband or counterfeit goods are being transported.

The country Customs' control of counterfeit goods is an integral part of the fight against smuggling and counterfeit goods, implemented through documentary control and physical inspections. During documentary control, customs declarations are checked for their correctness, completeness and validity. Physical inspection of goods includes sampling and counting their quantity according to the customs declaration.

Customs control is implemented in two ways. One of them is a reasonable risk analysis, which is carried out using electronic data processing technologies and risk management algorithms. These systems help to identify consignments of goods that are characterized by an increased risk of smuggling or transporting counterfeit goods, as well as other possible violations. After identifying such consignments of goods, a thorough inspection is carried out. Another method of inspection is random. In this method, consignments of goods are selected for inspection at random. In the fight against counterfeits, the detection of counterfeit goods plays a very important role. For this, special information systems are used that allow registering information about trademarks, and also provide an opportunity for cooperation between right

holders, customs and law enforcement authorities on issues of intellectual property rights protection. Such databases store information on the routes, volumes, and transportation routes of counterfeit goods (EU IPO, 2020; Blakeney, 2023).

The main information system is COPIS (anti-Counterfeit and anti-Piracy Information System), which contains confidential information on applications from right holders and information on original trademarks and products marked with them. Another information system for customs cooperation with intellectual property holders is the Intellectual Property Enforcement Portal (IP Enforcement Portal; IPEP), which is designed for intellectual property holders to provide information and data on trademarks and products. Also, to submit requests to customs for ensuring intellectual property protection actions. The COPIS and IPEP systems help customs detect counterfeit goods and provide opportunities for cooperation with manufacturers in the fight against counterfeit goods. COPIS enables the European Commission and the customs authorities of EU countries to share certain data and available information (Czermińska, 2020; IP Enforcement Portal, 2025).

The existing system of goods inspection helps to optimize the inspection process (Haase, 2022). However, such inspection creates the prerequisites for importing counterfeit goods and developing trade in them within the EU territory. Because customs officers do not always have sufficient data to identify counterfeit goods. There are cases where counterfeit goods are almost indistinguishable from the original. Therefore, it is important to look for strategies and methods that allow increasing the efficiency of customs' fight against counterfeit goods.

Based on theoretical analysis, the following solutions are identified that could be applied in customs to improve the goods control process (Table 2).

Table 2. Theoretical solutions to improve the process of controlling goods at customs

Tools	Description	Objective	Author
Magnetic strips	Special strips that encode data. These strips would be placed in the original goods.	Identify counterfeits	Yadav & Verma (2025)
Smart cards	Cards with a microprocessor that allows you to encode important information that confirms the originality of the goods.	Identify counterfeits	Choudhury et al. (2025)
Electronic seal (eSeal)	A digital code integrated into the mechanical seals of the packaging system.	Identify counterfeits	Kadir, Rosa & Gunawan, (2016)
Internet of Things (IoT)	Ecosystem of technological solutions designed to collect information and automate control processes.	Control process management	Sallam, Mohamed & Mohamed (2023)
Blockchain technology	Technology that ensures secure data management and exchange.	Increasing the efficiency of customs procedures and cooperation	Wasnik et. (2022)
Artificial intelligence (AI)	Automating counterfeit search, analysis and detection using AI technologies.	Improving the detection of counterfeit goods	Cao & Zheng (2024)

These measures would increase the detection of counterfeit goods at customs, as well as speed up the process of controlling goods, creating new opportunities for cooperation between manufacturers of goods and customs officers.

Recommendations to improve Lithuanian customs' control of the transport of counterfeit goods

In order to improve the process of controlling goods at customs with the aim of ensuring better control of counterfeits and reducing tax losses, two strategies have been proposed – the strategy for improving the control process, and strategy for improving technological solutions for detecting counterfeit goods.

The strategy for improving the control process provides for the improvement of the system for detecting counterfeit goods by improving the counterfeit detection process and developing closer cooperation between customs and intellectual property managers and law enforcement institutions. In order to improve the counterfeit detection process, it is proposed to develop a database of original brands and products in the Lithuanian customs. It is also proposed to create a database of manufactured counterfeits, which would help to quickly identify transported counterfeits. The counterfeit database is proposed to be formed by including data not only on counterfeits detained at customs, but also by analyzing popular counterfeits produced by Asian manufacturers and accumulating data on the customs database.

The usefulness of this strategy is confirmed by Bogdanov & Sorokina (2020), Choudhury et al. (2025), which emphasize that an effective fight against counterfeit goods is possible by improving the detection process and active cooperation. This requires organizational and technical solutions for detecting counterfeit goods.

It is recommended that the Lithuanian Customs cooperate more actively with manufacturers of original goods by limiting the possibilities of counterfeiting their products and strengthening their identity. The study by Yadav & Verma (2025), Choudhury et al. (2025) reveals that modern technological solutions can be applied to enhance the recognition of original goods: magnetic strips, smart cards, electronic seal (eSeal).

Magnetic, smart cards, eSeal can be effectively used to ensure additional identification of the originality of goods.

Strategy for improving technological solutions for detecting counterfeit goods provides for the application of innovations to ensure the detection and control of counterfeit goods. Scientists Mihus (2024), Choudhury et al. (2025) and others emphasize that in the fight against counterfeit goods, a decisive role is played by new technologies that can help detect counterfeit goods and ensure greater identity of original goods.

Based on the analysis, the following technological solutions for improving the detection of counterfeit goods at customs are distinguished:

Internet of Things (IoT) solutions are an ecosystem of technological solutions designed to collect information and automate control processes (Sallam, Mohamed & Mohamed, 2023). The IoT ecosystem consists of the following main technological solutions: GPS and RFID tags, scanning gates, cameras, IoT platform (database), server and user software (Obylina & Chervyakov, 2022). Thanks to IoT solutions, customs officers can track the movement of cargo and automate the cargo inspection process.

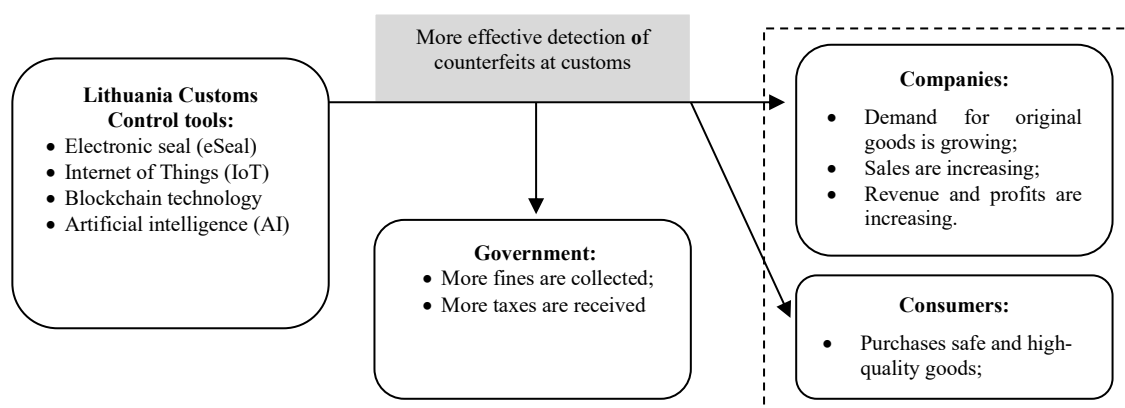
Blockchain technology is a special database consisting of interconnected blocks. In such a database, individual data storage devices do not have a connection to a common server. In order to ensure security, data is encrypted. Access to a certain block is only available to a user who has a special key for that block, without which entries or corrections cannot be made in that block (Sitnov Skryabin, 2018). This would help customs officers and manufacturers of original goods to more easily identify counterfeit goods and identify potential risks.

The use of artificial intelligence (AI) to detect counterfeit goods. Kolokytha, Flisch & Lüthi (2017) conducted an experiment in which a special computer program was created that could analyze photos taken during customs cargo X-ray inspection procedures and identify counterfeit goods, as well as detect contraband and prohibited goods.

The use of Internet of Things (IoT) solutions, Blockchain technology and AI in Lithuanian customs can improve the process of controlling counterfeit goods and increase the efficiency of the controls performed and create opportunities for performing more verification procedures. When implementing these solutions, it is very important to ensure effective data exchange. Therefore, a database should be developed that includes information on original goods and counterfeit goods. It is very important to involve and encourage manufacturers to actively cooperate with customs in combating counterfeit goods.

The proposed strategies and their implementation measures will allow Lithuanian Customs to combat counterfeit goods more effectively and ensure more efficient tax collection (Figure 1).

The proposed solutions should ensure more effective control of counterfeit goods at customs. This would be beneficial for manufacturers, consumers and the state. Manufacturers would see increased demand for their original goods, increasing sales, income and profits. Consumers would have better opportunities to purchase safe and high-quality goods. The state would collect more fines for importing counterfeit goods. The proposed solutions would have a positive political, economic and social impact.



Source: made by author

Figure 1. Model for improving the process of customs control of goods

Conclusions

1. An analysis of the 2020-2024 period has identified an increase in the trade in counterfeit goods in many EU countries. In 2023, 152 million counterfeit shipments worth 14 million euros were seized at EU customs. The number of counterfeit goods confiscated in Lithuania decreased between 2022 and 2024. However, this may mean that counterfeit manufacturers and traders are increasingly using modern technologies to protect their supply chains and evade customs control. EU industry suffers losses of 119 billion euros every year due to counterfeit goods.

2. The protection of intellectual property rights is ensured by a complex legal regulation mechanism, which forms a four-level system: International agreements and conventions; Normative - legal acts at the European Union level; National regulatory level; Customs counterfeit control system. Control of counterfeit goods at the Lithuanian Customs is implemented by ensuring the verification of the accuracy and completeness of the information in the submitted declaration or notification; verification of the presence, authenticity, accuracy and validity of documents; and physical inspection of goods. The current system for checking counterfeit goods is not effective enough.

3. After conducting the analysis, two strategies for improving the customs control process were proposed. The control process improvement strategy - provides for improving the system for detecting counterfeit goods by improving the counterfeit detection process and developing closer cooperation between customs and intellectual property managers and law enforcement agencies. The strategy for improving the detection of technological counterfeit goods is based on the application of innovative technologies to ensure the detection and control of counterfeit goods. It is proposed to

implement and improve the following technologies: Internet of Things solutions (GPS, RFID tags); Blockchain technology, use artificial intelligence to detect counterfeit goods.

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