



**Erika Naujokė**

CEO, CustomsClear, Lithuania

[About the author](#)

## OVERVIEWS AND COMMENTS

# On the benefits of AI for the society and a use case in customs

**"Happy New Year!" I started a conversation with an AI assistant on the Customs website. "Happy New Year! If you have any questions about customs rules or procedures, I will be happy to help" it replied. On the last day of 2024, Lithuanian Customs in cooperation with CustomsClear, deployed the AI assistant solution for public use. It is now available to visitors of the Lithuanian Customs website at [www.lrmuitine.lt](http://www.lrmuitine.lt). So far, it covers one topic relevant to the festive period: e-commerce. The number of topics will increase in the future.**

The AI assistant works 24/7, provides consistent answers, never forgets or mixes up information, and its knowledge continuously grows and improves. Tools based on AI technology are gradually becoming indispensable human assistants. They are especially handy at a time when we drown in information, worry about the lack of human resources to process it, and complain about the need for greater productivity and efficiency.

### AI: THE BENEFITS

AI-based data processing methods are now widely used in the various fields of data processing and science: an increasing number of scientific discoveries rely on machine learning and neural network tools to find the patterns of scientific solutions. The most famous ones include the search for the Higgs boson, the search for the parameters of gravitational contributors in the gravitational waves detectors (LIGO) and the search for the protein folding sequences in an attempt to discover the functional structures in biological machinery of life.

2024 was notable for the first recognition of the benefits of artificial intelligence for humanity at the Nobel Prize ceremony. The Physics Prize was awarded to the developers of the foundations of artificial intelligence. The same principles can be found, for example, in chatbots (e.g. the one launched on the Lithuanian Customs website), image recognition and image generation tools. The Chemistry Prize was awarded to scientists who solved a protein structure prediction problem. This will, for example, lead to the development of more effective drugs with fewer side effects. Let's take a brief look at these achievements.

### Physics Nobel Prize for AI developers

Although computers cannot think, machines can now simulate functions such as memory and learning. The 2024 Physics Nobel laureates have helped make this possible. They developed methods that form the basis of powerful machine learning. John Hopfield developed associative memory, which can store and retrieve images and other types of data patterns. Geoffrey Hinton invented a method that can find features in data to perform tasks such as identifying specific elements in images.

According to the press release from the Nobel Prize Committee, the prize was awarded to scientists "for foundational discoveries and inventions that enable machine learning with artificial neural networks" [1]. "The laureates' work has already been of the greatest benefit. In physics we use artificial neural networks in a vast range of areas, such as developing new materials with specific properties," said Ellen Moons, Chair of the Nobel Committee for Physics [2].

According to Dr Stepas Toliautas, associate professor at the Institute of Chemical Physics, Faculty of Physics, Vilnius University [3], the award-winning researchers applied principles of physical science that popularised the use of artificial neural networks to analyse complex data such as images. As a result of these discoveries, neural networks are an essential part of artificial intelligence systems. "Today's large-scale neural networks are used in everything from chatbots like ChatGPT to specific tools for image analysis or recognition. In medicine, for example, neural networks are useful for finding significant patterns in magnetic resonance images," says Dr Toliautas.

### **Chemistry Prize for solving a protein structure prediction problem**

Proteins are the basic building blocks of life. They make up bones, skin, hair and other tissues. They are the antibodies that stimulate the immune response, the receptors and signalling molecules that allow cells to communicate, and the hormones that regulate our body's various processes. As the Nobel Prize website points out [4], life cannot exist without proteins. The prize was awarded because we can now predict protein structures and create our own proteins.

Proteins are usually made up of 20 different amino acids. In 2003, David Baker succeeded in using these building blocks to create a new unique protein. Since then, his research team has been developing one ingenious protein after another, including proteins that can be used as drugs, vaccines, nanomaterials and small sensors.

The second discovery concerns the prediction of protein structures. In proteins, amino acids are linked into long chains that fold to form a three-dimensional structure, which determines the function of the protein. Since the 1960s, scientists have been trying to predict protein structures from amino acid sequences. This has proven very difficult. But four years ago, a breakthrough occurred.

In 2020, Demis Hassabis and John Jumper introduced an artificial intelligence model called AlphaFold2. They have been able to predict the structure of almost all of the 200 million proteins that scientists have identified. Since their breakthrough, AlphaFold2 has been used by more than two million people in 190 countries. In addition to its many scientific applications, scientists are now able to better understand antibiotic resistance and create images of enzymes that can break down plastics.

### **Note on the benefits vs risks**

Alfred Nobel, the inventor of dynamite and entrepreneur, in his will, stipulated that his entire remaining estate should be used to endow "prizes to those who, during the preceding year, have conferred the greatest benefit to humankind". However, Nobel's own life and work show the two sides of invention - inventions can create not only benefits. Artificial intelligence poses many risks, even to human existence. This is not to say that we should stop inventing, but we need to be aware of the risks and manage them in a responsible and timely manner – this topic goes beyond the scope of this article.

### **AI – THE BENEFITS FOR CUSTOMS (A USE CASE)**

The name of the 'chatbot' on the Lithuanian Customs website is Matas. We do not refer to it as 'chatbot', because it is much more advanced. Therefore, we use the term 'conversational AI assistant', or simply 'AI assistant'. What is special about it?

First, it has only certain limited information on imports and exports in e-commerce, specifically about the formalities in

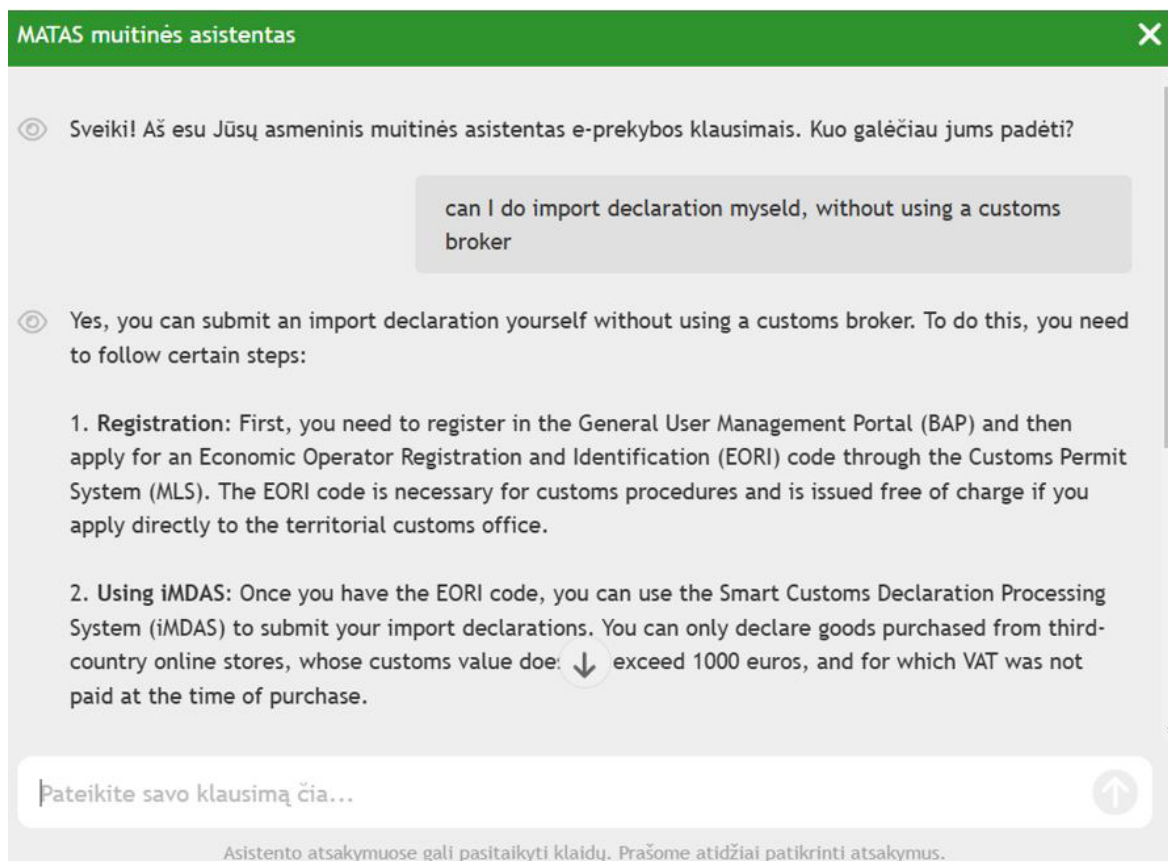
Lithuania, and only in the Lithuanian language. However, the tool itself is **multilingual**. As you can see in the pictures below, you can ask questions in English, German, or any other EU language, and you will receive a response in that language. Language has always been a huge barrier to information and knowledge exchange. It is no longer the case.

Next, it provides **reliable information**, carefully picked and curated by customs experts. Its answers are based only on the provided sources and where relevant it includes links to these sources. For example, Matas provides links to the Lithuanian Customs website and/ or specific laws and regulations.

Traditional ‘chatbots’ get quickly confused when they have to deal with human mistakes. Matas does not have this problem. It **can handle typos** very well (Pictures 1 and 2) - there is no need to spend time formulating correct questions. It is also **conversational** - it understands the context and you can keep asking questions without the need to explain what you mean.

The final important point to mention is that you can ask **very specific questions**. For example, “What is MLS?” (Picture 3). As Matas specialises in a single area and operates in a dedicated setting (Lithuanian Customs website), it knows exactly how to respond. It is the “Muitinės leidimų sistema”, or in English - the Customs Permit System. It **doesn’t know other areas**, therefore, if you ask it, for example, about the best New Year song, it will politely answer “I’m not sure about the best New Year’s song, but if you have any questions about customs regulations or need assistance with customs-related matters, feel free to ask!”.

Picture 1



Picture 2

MATAS muitinės asistentas
✕

wie bwkomme ich erori

🕒 Um eine EORI-Nummer zu erhalten, müssen Sie einen Antrag über das Zollgenehmigungssystem (MLS) stellen. Hier sind die Schritte, die Sie befolgen sollten:

1. **Registrierung im BAP:** Zuerst müssen Sie sich im Allgemeinen Benutzerverwaltungsportal (BAP) registrieren. Dies können Sie unter der Adresse <https://bap.lrmuitine.lt> tun. Dort müssen Sie sich als Empfänger von elektronischen Zolldienstleistungen registrieren.
2. **Zugang zum MLS-Portal:** Nach der Registrierung im BAP können Sie das Kundenportal des Zollgenehmigungssystems (MLS VP) unter <https://mls.lrmuitine.lt> aufrufen.
3. **Anmeldung:** Melden Sie sich im MLS-Portal an. Wenn Sie bereits im BAP angemeldet sind, müssen Sie Ihre Identität nicht erneut bestätigen.
4. **Antragstellung:** Im MLS-Portal können Sie den Antrag auf Erteilung einer EORI-Nummer stellen. Sie müssen Ihre Identität entweder mit einem von der Zollbehörde ausgestellten Zertifikat oder über das elektronische Regierungsportal bestätigen.

↑

Asistento atsakymuose gali pasitaikyti klaidų. Prašome atidžiai patikrinti atsakymus.

Picture 3

MATAS muitinės asistentas
✕

bestätigen, können Sie einen Zollvertreter beauftragen, der den Antrag in Ihrem Namen stellt.

Für weitere Informationen oder bei Fragen können Sie sich an die zuständige Zollstelle wenden.

Šaltiniai:

- [Informacija apie EORI](#)

what is mls

🕒 The Customs Permit System, known as MLS (Muitinės leidimų sistema), is an information system designed to handle requests for customs permits submitted electronically. It facilitates the examination of these requests and the decision-making process regarding the issuance of customs permits. The system is composed of two main parts: the Customs Permit System itself and the Client Portal of the Customs Permit System (MLS VP). The MLS VP is a software created for electronic information exchange between external users and customs authorities. It provides a set of services to external users, which depend on the user rights granted to them. The main goal of the MLS VP is to automate and simplify the process of obtaining customs permits for external users who are registered recipients of electronic customs services.

↑

Asistento atsakymuose gali pasitaikyti klaidų. Prašome atidžiai patikrinti atsakymus.

## CONCLUDING NOTE ON EDUCATION

Technology is amazing. Everyone can have their own reliable, specialized assistant at hand. No need to struggle to try to remember “where have I read it” or “what was the number of the regulation” etc. However, there is a reason why we call it an “assistant”. It is there to assist you, to help you to work more efficiently, but not to think or make decisions for you. The value of human knowledge and expertise is not diminishing. On the contrary, in addition to having the knowledge to evaluate the assistant’s answers, we must know how to work with AI, to fully utilize its possibilities and sustainably manage the risks. Education has a new task – to shift to teaching how we work in the new AI environment.

[1] <https://www.nobelprize.org/prizes/physics/2024/summary/>

[2] <https://www.nobelprize.org/prizes/physics/2024/press-release/>

[3] <https://naujienos.vu.lt/vu-ekspertai-padede-suprasti-2024-m-nobelio-fizikos-premija-dirbtinio-intelektu-pagrindukurejams/>

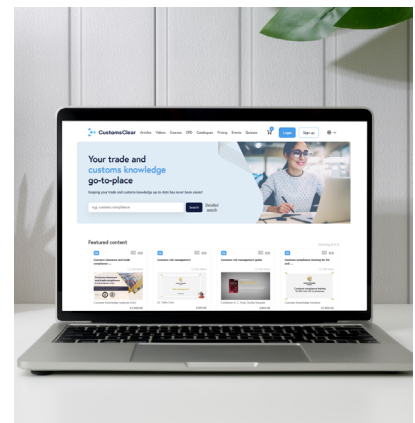
[4] <https://www.nobelprize.org/prizes/chemistry/2024/press-release/>

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