

critical goods, or at least receive notifications when the supplier does not deliver the necessary goods on time.

Warehouse logistics can include inventory rotation and relocation, allowing you to maximize the physical space available to hold your existing inventory at any given moment.

To optimize the layout of your warehouse, the first step is to evaluate the current warehouse layout and determine if it is appropriate for your order fulfillment process. One of the common practices of warehouse optimization is the allocation of warehouse space, which helps simplify the stages of picking and packaging by storing stocks in accordance with what makes sense for the picker (for example, storing frequently ordered products next to each other or optimal use of space depending on the type of product).

Many logistics automation solutions offer features that allow you to automatically process orders, build and manage inventory in real time, automatically update inventory levels, offer the ability to set automatic reorder points, and more. This means your employees can avoid wasting time on routine manual tasks and focus their efforts on speeding up the fulfillment process.

### **Литература**

1. What is warehouse logistics [Electronic resource].—Mode of access: <https://www.zoho.com/inventory/what-is-warehouse-logistics/#:~:text=Warehouse%20logistics%20refers%20to%20the,fulfilment%20times%20or%20product%20information.>

2. Warehouse inventory management [Electronic resource].—Mode of access: <https://modula.us/blog/warehouse-inventory-management/>

3. The role of warehousing logistics [Electronic resource]. – Mode of access: <https://www.seaspace-int.com/the-role-of-warehousing-in-logistics/>

4. Warehouse logistics [Electronic resource]. – Mode of access: <https://up-keep.com/learning/warehouse-logistics/>

## **IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN HARMONIZED SYSTEM**

Уланов А.А.

Научный руководитель: канд.пед.н., доцент Веремейчик О.В.

Белорусский национальный технический университет

The Harmonized System is a system that categorizes traded commodities. By using AI, we can make the classification process faster and more accurate. The

article tells about how AI helps automate classification, improves accuracy with machine learning, and makes updates in real-time. It also discusses how AI can help address risks and make international trade smoother.

The Harmonized Commodity Description and Coding System, commonly referred to as the Harmonized System, is an internationally standardized system of names and numbers to classify commodity. It serves as the basis for customs tariffs and international trade statistics across the globe. Implementing artificial intelligence within the Harmonized Commodity Coding System can significantly enhance its efficiency, accuracy, and adaptability. So, there are lots of ways on how AI can be used in facilitating HS.

AI algorithms, particularly machine learning models, can be trained to automatically classify products into the appropriate HS codes based on their descriptions, characteristics, and other relevant attributes. Natural Language Processing techniques can be used to understand product descriptions and match them with the most relevant HS code. This automation reduces the burden on customs officials and minimizes errors in classification.

Another advantage is that AI systems can continuously learn and improve accuracy over time. By analyzing historical data on trade transactions and customs declarations, AI models can refine their classification algorithms to better handle complex or ambiguous cases. This learning process enhances the accuracy of HS code assignments and reduces misclassifications.

Furthermore, the HS is periodically being updated to accommodate changes in global trade patterns, technological advancements, and emerging product categories. AI systems can swiftly adapt to these changes by analyzing new trade data and regulatory updates. They can automatically update their classification rules and algorithms to reflect the latest revisions in the HS, ensuring compliance with current standards.

AI systems can be customized to meet the specific needs and requirements of individual countries or regions. Whether it's adapting to local trade practices, language variations, or industry-specific classifications, AI algorithms can be tailored to accommodate diverse scenarios. Furthermore, AI-based solutions offer flexibility, allowing them to handle increasing volumes of trade transactions and accommodate future growth in international trade.

Today the Harmonized System based on AI is implemented within the WCO's BACUDA project launched in September 2019 as a collaborative research platform focused on data analytics.

In early 2020, BACUDA's expert group partnered to create an AI tool for recommending HS Codes. The goal was to simplify the classification process for traders and customs officials by using historical data to suggest HS codes for goods based on their descriptions.

The collaboration began with Nigeria Customs Service providing import data for the project. Together, they focused on developing a model for recommending HS codes. They recognized that interpreting complex commodity descriptions is often challenging and can lead to unintentional misclassification.

The model uses advanced natural language processing technology called Doc2Vec, which is based on artificial neural networks. This technology helps the model understand the meaning of words in commodity descriptions and their connection to HS codes. It can accurately recommend HS codes for new or unfamiliar descriptions. Additionally, the model is optimized for trader-declared description data, incorporating various techniques to preprocess the data for better performance.

Now anyone can try this system by following this link: <http://49.50.165.5:19090/>. This tool provides a demonstration on the functions which the system offers. Users can input commercial descriptions into the search bar and receive corresponding HS codes along with their probabilities. The tool also provides access to recommendations, descriptions of goods in the nomenclature, and import/export statistics for importers, customs agents, and exporting countries. Additionally, it visualizes the model's functions in both two-dimensional and three-dimensional planes, illustrating the relationship between HS nomenclature chapters and recommendation results. A separate tab offers a summary of recommendations, providing users with a clear overview of the tool's value.

Integrating artificial intelligence (AI) into the Harmonized System (HS) offers numerous benefits for global trade. AI streamlines classification, improves accuracy, and ensures real-time updates. This modernization enhances efficiency, reduces errors, and adapts quickly to changes in trade. With AI, international trade becomes more transparent, compliant, and efficient. This integration promises smoother trade processes and sets the stage for a more efficient global trade system in the future.

## Литература

1. The Power of Artificial Intelligence: Impact on Customs Operations // ICustoms [Internet resource]. – Mode of access: <https://www.icustoms.ai/blogs/artificial-intelligence-impact-on-customs-operations/> (Date of access: 31.03.2024).

2. How Artificial Intelligence (AI) can help Customs in automating HS Classification // WCO News [Internet resource]. – Mode of access: <https://www.wcoomd.org/en/media/newsroom/2022/april/how-ai-can-help-customs-in-automating-hs-classification.aspx> (Date of access: 28.03.2024).

3. AI HS Code Recommendation Platform [Internet resource]. – Mode of access: <http://49.50.165.5:19090/> (Date of access: 28.03.2024).

4. WCO BACUDA experts develop a neural network model to assist classification of goods in HS // WCO News [Internet resource]. – Mode of access: <https://www.wcoomd.org/en/media/newsroom/2022/march/wco-bacuda-experts-develop-a-neural-network-model-to-assist-classification-of-goods-in-hs.aspx> (Date of access: 31.03.2024).

## **THE PRINCIPLE OF RESIDENCY IN THE EAEU: PROBLEMS OF ABOLITION**

Шкляр О.К., Марковец А.В.

Научный руководитель: канд. пед. наук, доцент Веремейчик О.В.  
Белорусский национальный технический университет

Today in the context of globalization the stability of the economy is largely ensured by the coordinated and effective work of customs authorities. The activities of the customs service, in particular, customs regulation, are aimed not only at ensuring national security of the state, but also at simplifying the movement of goods across the border.

Unfortunately, certain barriers impede trade cooperation and smooth movement of goods within the EAEU. The creation of unified measures to regulate foreign trade in goods and a single trade regime is becoming increasingly rare.

Under the principle of residency the goods can be released by the customs authority only of the country in which the resident is registered.

The principle of residency makes the process of transporting imported goods, complicated and therefore transportation costs increase due to the payment of customs duties when the goods are placed under the transit procedure on the territory of a foreign state.

The abolition of this principle will allow the clearance of goods in any country of the EAEU. The declarant will also be allowed to file a declaration in any country, as well as pay customs duties, which will significantly reduce financial and time costs [1].

The abolition of this principle entails significant changes in the legal framework of the EAEU member States, as well as the need to implement measures combining several areas of legislation of the EAEU member States, namely: tax, banking and currency in general, as well as customs.

One of the most challenging aspects of the abolition of the residency principle is the collection of indirect taxes, which, unlike import customs duties, are not distributed among the budgets of the member States, but are credited directly to the budget of the State on the territory of which they were paid, without subsequent distribution.