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APPLICATION OF NEW TECHNOLOGIES IN CUSTOMS CONTROL: ARTIFICIAL INTELLIGENCE, BIOMETRICS, BLOCKCHAIN

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Customs control is a critical component of international trade, which playing a crucial role in ensuring the safety and security of goods as they cross national borders. In recent years, the appearance of new technologies such as artificial intelligence (AI), biometrics, and blockchain has presented new opportunities for strengthening the efficiency of customs control.

AI refers to the ability of machines to perform tasks that would usually require human intelligence. This can include tasks such as recognizing patterns, understanding language, and making decisions based on data bases. AI systems can be designed to learn and improve through the time, adapting to new information and becoming more effective at the tasks they are designed to tackle. In simple words, AI is the ability of machines to think, learn, and make decisions like a human intelligence.

Artificial intelligence has appeared as a powerful tool for enhancing the efficiency and accuracy of customs control. AI systems now are capable of processing and analyzing enormous amounts of data, allowing customs officials to identify anomalies. AI algorithms can also learn and adapt over time, becoming more effective as they are given access to additional data.

One of the key applications of AI in customs control is the use of acute analytics. By analyzing historical data on trade flows and smuggling patterns, AI algorithms can generate predictions about which shipments are most likely to be at risk. This allows customs officials to focus their resources on the most problematic shipments, improving overall efficiency and reducing the risk of smuggling.

Another application of AI in customs control is the use of machine learning algorithms to detect fake shipping documentation, properly determine the product

code according to HS. These algorithms can flag mismatches between the information contained in shipping manifests and other documentation, allowing officials to investigate it and potentially identify cases of fraud or smuggling.

However, the use of AI in customs control is not without challenges. One major concern is the potential bias of AI algorithms, particularly if they are trained on biased data sets. This could result in certain groups of people or regions being unfairly accused. There is also a need for human oversight of AI systems.

Overall, the use of AI in customs control holds significant potential for improving efficiency and reducing the risk of smuggling. However, it is important that these technologies are developed in a responsible and transparent manner, with appropriate security measures to ensure that they are used fairly and effectively.

Biometrics, in its turn, is a technology, that refers to the unique physical characteristics of people, such as fingerprints, face features, or voice patterns, to identify individuals. Biometric technologies use these characteristics to create a unique digital profile for each individual, which can then be used to confirm their identity in a range of settings, such as border control or accessing secure areas. Biometrics is often seen as a more secure and accurate method of identification than traditional methods such as passwords or ID cards, as it is difficult to fake someone's biometric characteristics.

Biometric technologies have become increasingly popular in customs control in recent years, with face recognition and fingerprint scanning being two of the most commonly applied techniques. Biometric technologies can be used to confirm the identity of individuals involved in international trade, reducing the risk of identity fraud and enhancing border security.

Face recognition technology uses algorithms to compare images of an individual's face to a database of known faces, allowing customs officials to quickly and accurately confirm their identity. Fingerprint scanning works in a similar way, comparing the individual's fingerprints to a database of known prints to confirm their identity.

One of the key advantages of biometric technologies in customs control is their speed and accuracy. Compared with usual identification methods, biometric technologies can quickly and accurately confirm the identity of individuals, reducing waiting time and increasing efficiency.

However, the use of biometric technologies in customs control is fraught with challenges. One concern is the potential for errors in the identification process, particularly if the technology is not properly calibrated or if the individual being identified has altered its appearance since its biometric data was collected.

Another concern is the potential for privacy violations. Biometric data is highly sensitive, and there are concerns around how this data is collected, stored, and shared. There is also a need for mastering procedures of the use of biometric

technologies in customs control to ensure that they are used fairly and transparently.

Despite these challenges, the use of biometric technologies in customs control is likely to continue to grow in coming years. By improving efficiency and enhancing border security, these technologies have the potential to play an important role in ensuring the safety and security of international trade.

Finally, blockchain is a digital technology that enables secure and transparent record of transactions. It works by creating a decentralized network of computers that are all connected and share the same information. Whenever a new transaction is made, it is verified by multiple computers in the network, and once it is confirmed, it is added to a block of previous transactions. These blocks are then chained together in a chronological sequence, forming a secure and unalterable record of all the transactions that have taken place. Blockchain technology is often associated with cryptocurrencies such as Bitcoin, but it has a wide range of potential applications in areas such as supply chain management, identity verification, and customs.

Blockchain technology has the potential to revolutionize customs control by enhancing transparency and traceability in the supply chain. By creating a secure and decentralized record of transactions, blockchain can provide customs officials with a complete picture of the origin and movement of goods, reducing the risk of fraud and improving overall efficiency.

One potential application of blockchain in customs control is in the area of supply chain management. By creating a secure and transparent record of all transactions, blockchain can help to ensure that goods are produced and transported in a sustainable and ethical manner. This can be particularly important for goods that are subjected to strict regulations, such as endangered species or hazardous materials.

Another potential application of blockchain in customs control is in the area of import/export documentation. By creating a secure record of shipping manifests and other documentation, blockchain can help to reduce the risk of fraud and ensure that all necessary documentation is at place and respects delivery dates.

However, there are also challenges associated with the use of blockchain in customs control. One key challenge is the need for standardizing data formats and protocols to ensure that all participants in the supply chain are able to participate in the blockchain. This can be difficult in cases where different countries or regions have different regulations or data-keep requirements.

Another challenge is the potential for increased complexity in supply chain management. Blockchain can create a large amount of data, and managing this data effectively can be a significant challenge. There is also a need for proper monitoring and maintenance of the blockchain to ensure that it remains secure and frequent.

Despite these challenges, the use of blockchain in customs control holds significant promise for improving efficiency and enhancing transparency in the supply chain. By providing customs officials with a complete and accurate picture of the movement of goods, blockchain can help to ensure that international trade is safe, secure, and sustainable.

The application of advanced technologies such as artificial intelligence, biometrics, and blockchain in customs control has the potential to revolutionize the way that international trade is managed and regulated. These technologies can enhance efficiency, improve security, and increase transparency in the supply chain, leading to better outcomes for businesses, consumers and governments. But there are also challenges associated with the adoption of these technologies, including the need for standardization, monitoring and maintenance. Despite these challenges, there are tangible benefits of these technologies and they are likely to be widely adopted in customs control in the nearest future.

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