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**ALGORITHM FOR PRIMARY DATA RELIABILITY INCREASE IN THE
COMMODITY DESCRIPTION CLASSIFICATION SYSTEM**

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Abstract. *One of the important issues in customs practice is to improve the classification criteria on the basis of the Commodity Nomenclature of Foreign Economic Activity (CN FEA) of the Republic of Uzbekistan, based on the characteristics of the newly modified vehicles. To date, one of the most pressing issues in foreign economic activity (FEA) is the automation of physical and electronic data on goods movement (s) in the customs procedures of import and export, the classification of the vehicle parameters imported and exported to the territory of the Republic of Uzbekistan. In the course of our research, the system has been developed on the basis of 4-stage goods classification methods for customs purposes of passenger cars. In the field of customs, as well as in the electronic declaration of light vehicles, its two-way, that is, a set of technical characteristics and the necessary and primary data for customs purposes, forming a product description, which are inextricably linked and it serves as a primary source in customs procedures. Ensuring the reliability of the light vehicle characteristics, the search for data from quantitative and qualitative sources in the assessment, in the process of collecting them, the values obtained may differ from the real ones. The algorithm for primary data reliability increase in the brand description classification is an important criterion.*

The algorithm for primary data reliability increase is presented in the classification system of product descriptions. In order to ensure the reliability of the light vehicle characteristics, the search for data from quantitative and qualitative sources in the assessment, in the collection process, there is information that the values obtained may differ from the real ones. In addition to systematic, random errors, the study examined factors that affect the primary data reliability by falsifying data. Also, in the electronic declaration of light vehicles, a two-way classification system, comprising technical characteristics and necessary primary data for customs purposes, its model, the algorithm for primary data reliability increase in column 31 of the customs cargo declaration has been developed.

Key words: *nomenclature of goods, classification of goods, commodity code, reliability of primary informations, control algorithm, customs cargo declaration, customs violations.*

INTRODUCTION. One of the important issues in customs practice is to improve the classification criteria on the basis of the Commodity Nomenclature of Foreign Economic Activity (CN FEA) of the Republic of Uzbekistan, based on the characteristics of the newly modified vehicles. This will allow the correct calculation of customs duties to the state budget, economic security of the country, development of logistics centers, provision of the population with quality vehicles, abandonment of vehicles that cause damage to ecology and the environment and provision of vehicles that meet world, state and technical standards.

Classification of light vehicles in CN FEA is based on engine horsepower, cost of vehicles, as well as vehicles with engine capacity from 1500 cm³ to 1800 cm³ or from 1800 cm³ to 2300 cm³ in the single-digit CN FEA code [1, 2].

For example, the Nexia R3, Cobalt and Lacetti cars produced in the country have different technical characteristics and are classified in the single-digit CN FEA code, despite the fact that the prices in the domestic market also vary.

Table 1.

Technical characteristics of light vehicles manufactured in Uzbekistan

Characteristics / car types	SPARK	NEXIA R3	COBALT	LACETTI
Luggage capacity	170 L	400 L	563 L.	405 L
Transmission	MT5/AT4	MT5/AT6	MT5/AT6	MT5/AT6
Security	ABS	ABS	ABS	ABS
Fuel consumption	5,1/7,5	8/9.3 L.	8.5/9.0 L.	8.5/9.5 L.
Airbags	2	2	2	2
Engine capacity, cm ³	1250	1485	1485	1399 - 1598
Maximum speed is km/h	165	178/179	169/170	180/179
Speed 0-100 km/h per second	11,5	12,2/12,3	11,7/12,6	13/13,1
Fuel consumption, inside the city	7,5	8/9,3	8,4/10	8,5/10
Fuel consumption, outside the city	5,1	6,5/7	6,2/6,7	7/7,5
Length, mm	3640	4330	4479	4515
Width, mm	1597	1690	1735	1725
Height, mm	1522	1505	1514	1445
Current product code (CN FEA 2017 version)	8703221099	8703221099	8703221099	8703221099

The classification criteria are not defined in the case of incomplete coverage of the technical characteristics of light vehicles, taking into account the differences in workload and cost.

MATERIAL AND METHODS. To date, one of the most pressing issues in foreign economic activity (FEA) is the automation of the movement of physical and electronic data of goods (s) in the customs procedures of import and export, the classification of parameters of vehicles imported and exported to the territory of the Republic of Uzbekistan.

In the course of our research, its system was developed on the basis of 4-stage classification methods of classification of goods for customs purposes of passenger cars.

(figure-1) [3, 4, 5].

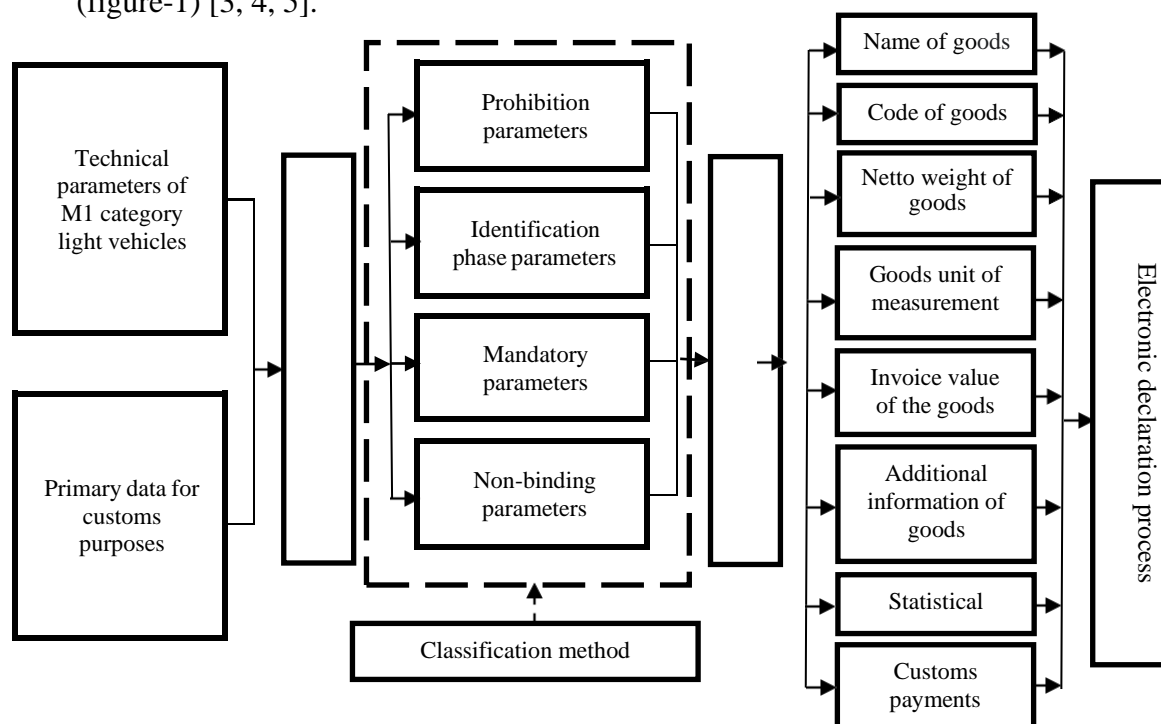


Figure 1. Commodity classification system of light vehicles for customs purposes

In the field of customs, too, in the electronic declaration of light vehicles, its two-way, that is, a set of technical characteristics and the necessary and primary data for customs purposes, forming a product description, which are inextricably linked.

Completeness, reliability, timeliness of data perception in classification systems depends on the size, quality and other characteristics of the data of brand characteristics (figure-2) [6].

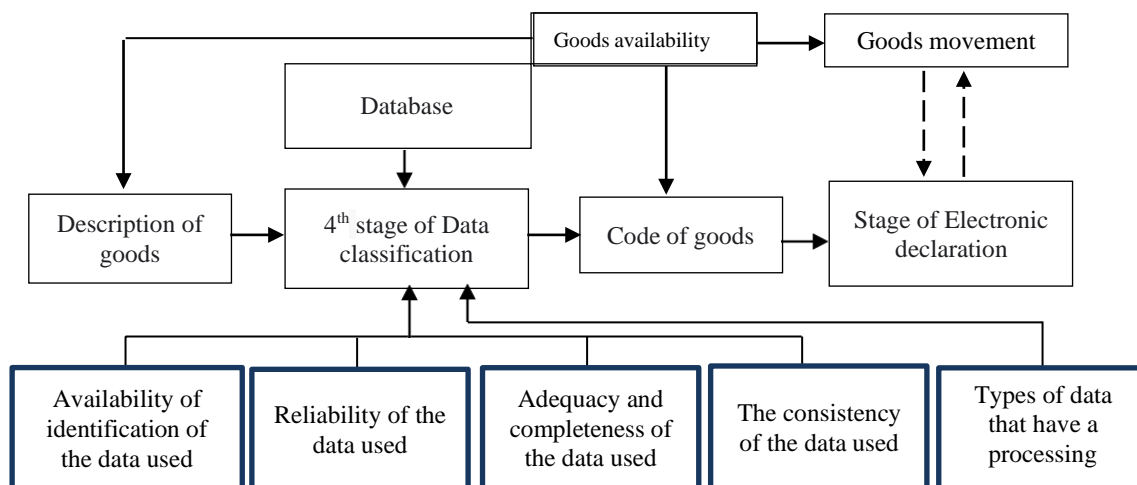


Figure 2. A model for ensuring the reliability of primary data in ensuring the continuity of the product description and brand code

Recently, methods, algorithms and procedures of intelligent information processing (IIP) for the study of various control systems are widely used. One of the most effective approaches in solving IIP problems is the methodology of complex organized data classification analysis [7, 8, 9].

There are special approaches to solving the problems of assessing the quality of primary data, information supply, management, for example, mathematical methods, the use of efficient algorithms is one of the most effective methods [10, 11, 12].

The increasing complexity of classification data has led to an increasing focus on ensuring the quality of management of existing or developed systems. In this case, the solutions are mainly implemented in two directions [13]:

- development and use of various types of computer systems: information systems (IS); fully automatic control systems (FACS); automated control systems (ACS), ensuring the participation of the human operator (HO) in management; information and management systems (IMS), information and measurement systems (IMS), etc.;
- improving the performance of HOs involved in the management of information systems and increasing the quality requirements of selection.

Ensuring the reliability of the characteristics of light vehicles, the search for data from quantitative and qualitative sources in the assessment, in the process of collecting them, the values obtained may differ from the real ones. Concepts such as accuracy are considered when working with quantitative data. In our study, accuracy is taken as a characteristic of the primary data properties, and the results of these characteristic measurements are evaluated by deviating it from the actual value y of the measured parameter y_n

$$\Delta y = |y - y_n|.$$

Depending on the nature of the manifestation, errors are divided into random and systematic (figure-3). Figure 3 shows a special case where the value of a systematic error is constant, and in production this value is not constant - it varies for various reasons, and it is

difficult enough to compensate for this type of error. In real life, random and systematic errors appear together [14-16].

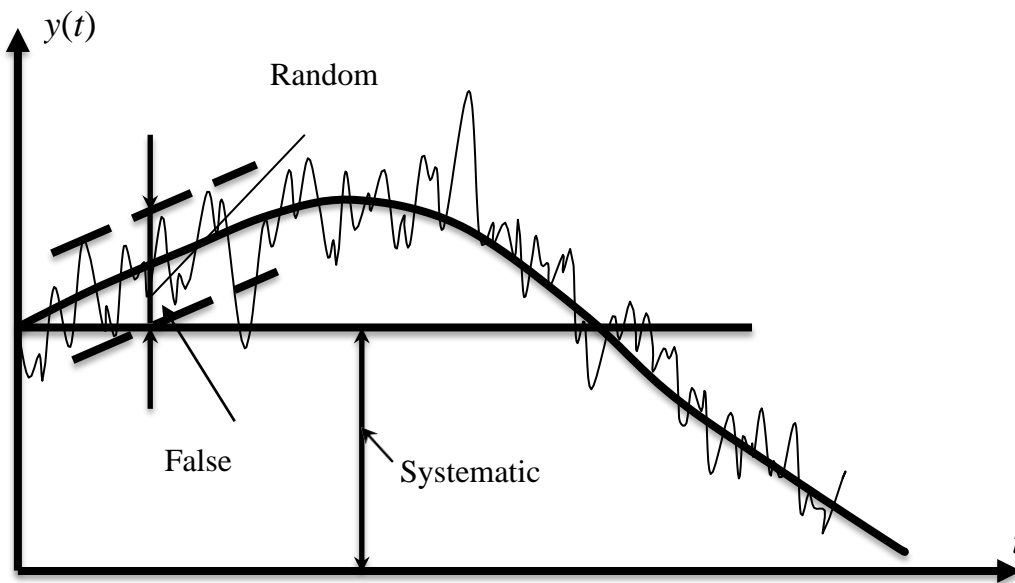


Figure 3. Graph of observation results

In research, a systematic error is an error that remains constant in a particular case and changes according to a deterministic law that is legally variable when the same magnitude is measured continuously, but is complicated in practice. In turn, errors that change randomly when the same parameter is measured continuously are called random. Errors of this kind cannot be ruled out experimentally. They occur when causes of a random nature affect the measurement result. However, in our study, false data modification can affect the reliability of primary data. The types of systematic errors of quantitative, qualitative and false information are shown in figure 4 below.

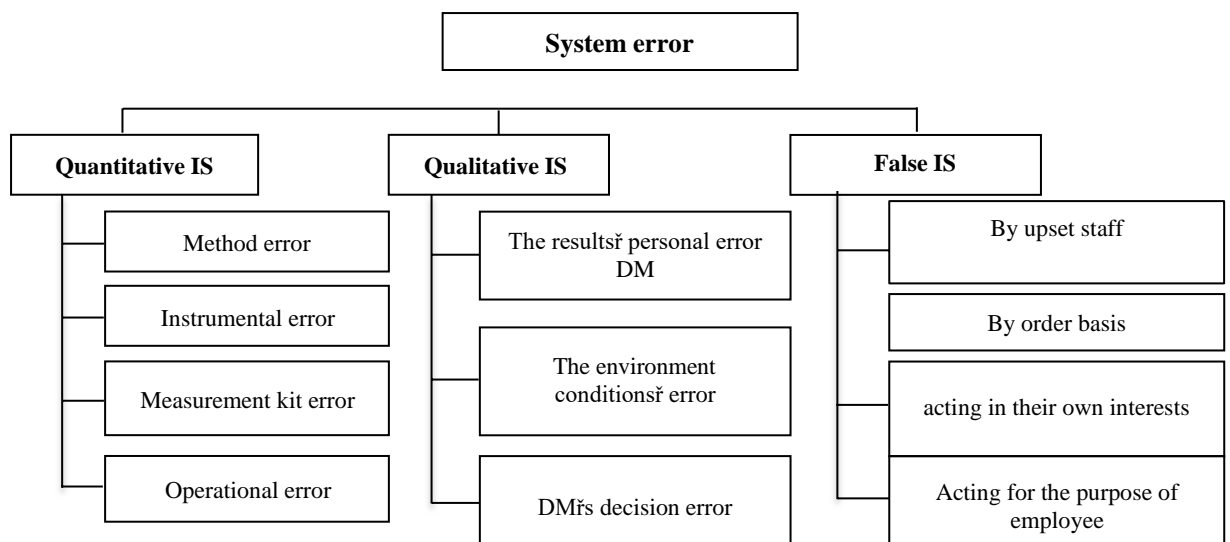


Figure 4. Errors in measuring technological sources of information:
IS – information source. DM – decision maker

Modern systems take into account the magnitude of the errors through multiple measurements during operation and produce an average value accordingly.

Let's look at ways to compensate for errors.

1. Compensation for random error is done by minimizing the impact of random error on the measurement result and by measuring, checking the value several times under approximately the same conditions. If we assume that the systematic errors are close to zero, then the average arithmetic mean of these values is obtained as the most reliable value that can relate to the measured value based on a series of measurements.

2. If the method of interviewing experts is used to make the necessary decision, the task of selecting specific specialists is taken into account and resolved, the level of trust in them is determined.

3. Sources of false information are observed in the process of customs procedures, and its consequences are detrimental to the economic interests of the republic, leading to customs violations.

At the first regional workshop on December 20, 2019 to discuss the use of data analysis to assess risks, customs organizations around the world are analyzing data to identify risks. It is important to improve the methods of increasing accuracy through the use of data analysis, quantifying economic risks and ensuring the balance of customs control [17].

Moreover, in increasing the reliability of primary data in economic information systems, all known classifiers of information sources, when examined in detail, turn out to be extremely inconvenient, time-consuming, and sometimes unreasonable. The issues of applying them in practice will be puzzling and problematic. Such classifiers are often characterized by a lack of information, incomplete coverage of objects and features, or intentional alteration of insufficient and complete data. For example, the President of the Republic of Uzbekistan in 2018 the Resolution No. PP-3693 of May 3, "On measures to further stimulate the development of the leather, footwear and fur industries and increase export potential" and the Decree of the President of the Republic of Uzbekistan No. R-5350 of August 8, 2018 The list of goods to which the privilege applies is given from the value added tax. According to this list, the goods "sodium sulfite" will be exempted from customs duties.

But, unfortunately, today, as a result of attempts by some business entities to comply with the requirements of this order, there are cases of evasion of customs duties.

In particular, the staff of the Anti-Smuggling and Customs Audit Department of the Customs Administration of the Republic of Karakalpakstan, in cooperation with the Nukus FEA customs post, checked the customs cargo declarations at the post. It was found that the documents were submitted to the customs authorities for clearance on a preferential basis. In this case, additional customs duties in the amount of about 51 million soums were calculated from the value added tax [18].

In another similar case, it was established that the "sodium sulfite" product, which was brought to the name of one of the business entities and was listed as a "preferential product" in the documents, was in fact "sodium sulfide" and additional customs duties in the amount of 27 million soums were calculated.

It is known that the product "sodium sulfide" is used in the manufacture of sulfur dyes, the separation of the wool layer from leather products and the chemical treatment of water.

Sodium sulfite is used in photography, in the production of fabrics and fibers, in the processing of non-ferrous metals and in the treatment of wastewater.

RESULTS. A general structural algorithm scheme for classifying information sources, including quantitative, qualitative, and reliable data, is shown in Figure 5. Quality and reliable data sources ensure that the right decision is made, as it allows the quantitative representation of everything that is impossible or difficult to express in quality, reliable data.

Modern customs management systems also take into account a person's psychophysical condition, which can lead to a variety of situations and sometimes customs violations.

In the process of searching and collecting data from quantitative, qualitative and reliable sources, situations may arise where the values obtained differ from the actual ones. Concepts such as accuracy are taken into account when working with quantitative data.

In practice, modern systems take these errors into account with repeated measurements and have an average value accordingly.

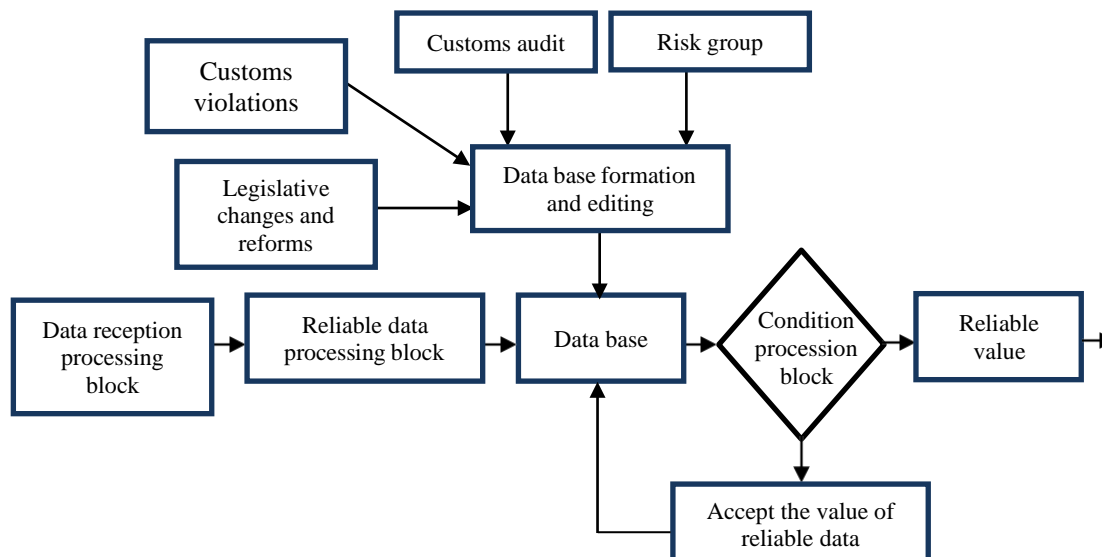


Figure 5. Algorithm for increasing the reliability of primary data in graph 31 of CCD

CONCLUSION. Thus, to ensure the reliability of the characteristics of light vehicles, the search for data from quantitative and qualitative sources in the assessment, in the process of collecting them, information was obtained that the values obtained may differ from the real ones. In addition to systematic, random errors, the study examined factors that affect the reliability of primary data by falsifying data. Also, in the electronic declaration of light vehicles developed a system of classification of its two-way, ie technical characteristics and necessary and primary data for customs purposes, its model, algorithm to increase the reliability of primary data in column 31 of the customs cargo declaration.

This developed algorithm envisages complete, reliable value of data, obtaining the correct brand code, database formation, as well as changes in the risk group, customs audit, customs violations, changes and reforms in our national legislation.

References:

- [1]. Commodity Nomenclature of Foreign Economic Activity of Republic of Uzbekistan. 2017 version R T.: 2017, 655- page. 2017.
- [2]. Andreeva E.I. Development of methodologies and improvement of the mechanism of management of identification of goods in customs offices: Monograph / E.I.Andreeva. M.: RIO Russian customs academy, 2016. 202 p.
- [3]. Karimqulov K.M., Hamroev U.R. Issues of classification of light vehicles on the basis of the nomenclature of goods // Proceedings of the VII International Scientific-Practical Conference "Problems and Prospects of Commodity Chemistry and Folk Medicine at the Andijan State University named after Zahiriddin Muhammad Babur of the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan". 2020 year 18-19 September. 177-181 pages.
- [4]. Karimqulov K.M., Hamroev U.R. Development of classification of light transport means by commodity nomenclature. International scientific and practical journal.

- «Global science and innovations 2019: Central Asia». Nur-sultan, 2019. - P. 6-9. (02.00.00; №2).
- [5]. Karimqulov K.M., Hamroev U.R. Classifications of light vehicles based on product nomenclature // *Universum: Technical science, electronic scientific journal. Part 1.* - Moscow, Pub. «MSSNO» 2020, №9(78) -C. 8-14. (02.00.00; №2).
- [6]. J.Sevinov, U.Khamroyev. Models of the classification system for the characteristics of light vehicles based on the goods nomenclature. *International Journal of Advanced Research in Science, Engineering and Technology. Vol. 8, Issue 1, Jan 2021. ISSN: 2350-0328.*
- [7]. Ayzerman M.A., Braverman E.M., Rozonoer L.I. *Potential function method in machine learning theory.* R M.: «Science», 1970. R 495 p.
- [8]. Igamberdiev H.Z., Boeva O.H. and Sevinov J.U. Sustainable Algorithms for Selecting Feedback in Dynamic Object Management Systems. *Journal of Advanced Research in Dynamical and Control Systems. Volume 12, 07-Special Issue (2020). Pages: 2162- 2166. DOI: 10.5373/JARDCS/V12SP7/20202337.*
- [9]. Mallaev A.R., Xusanov S.N., Sevinov J.U. Algorithms of Nonparametric Synthesis of Discrete One-Dimensional Controllers. *International Journal of Advanced Science and Technology, Vol 29, № 5s (2020). RPP. 1045-1050.*
- [10]. Savel'ev A.N., Uchaev D.Iu. Sovmestnoe ispol'zovanie kolichestvennykh i kachestvennykh istochnikov informatsii v ASU TP [Joint use of quantitative and qualitative sources of information in ASU TP]. *Sovremennyye nauchnyye issledovaniia i innovatsii. 2015. № 9.* Available at: URL: <http://web.snauka.ru/issues/2015/09/57901> (data obrashcheniya: 14.01.2021).
- [11]. Sevinov J.U., Zaripov O.O., Zaripova Sh.O. : The Algorithm of Adaptive Estimation In The Synthesis of The Dynamic Objects Control Systems. *Inter. J. of Adv. Science and Techn., 29 (5s), 1096-1100 (2020).*
<http://sersc.org/journals/index.php/IJAST/article/view/7887>.
- [12]. Braverman E.M., Muchnik I.B. *Structural methods of processing empirical data.* - M.: Nauka, 1983. - 430 p.
- [13]. Igamberdiyev H.Z., Sevinov J.U., Zaripov O.O. *Regulyarniye metodi i algoritmi sinteza adaptivnix sistem upravleniya s nastravayemimi modelyami.* - T.: TashGTU, 2014.
- [14]. Zaripov, O.O., Shukurova, O.P., Sevinov, J.U.: Algorithms for identification of linear dynamic control objects based on the pseudo-concept concept. *Inter. J. of Psy. Rehab. 24(3), 261-267 (2020). DOI: 10.37200/IJPR/V24I3/PR200778.*
- [15]. N.R. Yusupbekov, H.Z. Igamberdiev, J.U. Sevinov . Formalization of Identification Procedures of Control Objects as a Process in the Closed Dynamic System and Synthesis of Adaptive Regulators // *Journal of Advanced Research in Dynamical and Control Systems. Volume 12, 06-Special Issue. Pages: 77-88. DOI:10.5373/JARDCS/V12SP6/SP20201009*
- [16]. A. N. Savelev, D. Yu. Uchaev. Increasing the reliability of primary sources of information in socio-technical systems. ISSN 2072-9502. *Vestnik AGTU. Ser.: Management, computer technology and informatics. 2016. № 4.*
- [17]. Official website of The World Customs Organization [electronic resource] /accessmode: <http://www.wcoomd.org/en/media/newsroom/2019/december/first-regional-workshop-to-discuss-the-use-of-data-analytics-for-risk-assessment.aspx>.(visited date: 04.05.2020).
- [18]. <http://customs.uz/uz/news/view/4792> R Official web-site of State Customs Committee.