Evaluation of the Accuracy of Customs Information in Conditions of Processing of Large Data in the On-Line Mode

Saidov Abdusobirjon[1], Nodir Donoqulov[2]

Abstract-- **In this paper deals with the problem of modeling customs information and the criterion for assessing its reliability in the process of managing customs clearance of goods is considered.   As the main object of the study, the information of the cargo customs declaration, which is submitted to the customs authorities in electronic form, is considered. The main criteria for assessing the reliability of customs information, based on non-traditional methods used by other fields of science, are given.**

Keywords--   **reliability of information, cargo customs declaration, the process of customs clearance, electronic declaration of goods, criteria for assessing the reliability of information.**

I. INTRODUCTION

Unauthentic declaring of goods is one of the types of violation of customs legislation, and has a history as much as the customs service itself. Analysis of the database of violations of the customs legislation of the Republic of Uzbekistan for several years shows that every 4th such violation is a consequence of inauthentic declaring of goods. The task of identifying unreliable customs declarations is in the field of economic interests of any state, because this is directly related to the receipt of customs payments to the state treasury. Customs payments, as a rule, constitute a considerable part of the total revenue part of the state budget. For example, during the past five years, customs payments amounted to 16-19% of the total revenue of the state budget of the Republic of Uzbekistan [1].

The rapid process of globalization, the high rates of increase in international trade turnover in comparison with the last century made such methods as physical customs examination to identify unreliable customs declarations ineffective.

Proceeding from the foregoing, the study of new methods for revealing unreliable customs declarations that allow to solve the tasks set by processing the available data bank is topical [2-6].

II. PROPOSED METHOD

2.1. State of problem.

When it comes to assessing the reliability of customs information, it is implied to determine the level of reliability of the cargo customs declaration (CCD).

As is known, CCD is formalized as a multidimensional matrix $\mathcal{D}$, which is the source of state customs statistics [1].


$$(1)$$

Each element of this matrix is an information variable d_{nml}, which reflects the value of one of the CCD graphs. Here:

n - is the number of the specified CCD column, $1 \leq n \leq 54$;
m - is the serial number of the gas turbine engine,
l - the level of detail of the nth graph of the CCD.

The serial number of the gas turbine engine is updated annually, and the level of detail for each CCD column is determined depending on the complexity of the analysis tasks. Taking into account the fact that according to the legislation of many countries, registration and acceptance of the CCD occurs in real time, it can be seen that $\mathcal{D}$ is a typical OLAP cube - (On-Line Analytical Processing) with all currently available time processing technology for large data. For each fixed $m = m_0$, a "slice" of the OLAP cube $\mathcal{D} = \mathcal{D}_\circ (d_{nl})$ is obtained, representing a separate gas turbine engine.

Concerning the assessment of the reliability of the gas turbine engine, it can be said that in order for information about the goods to be reliable, each graph of the gas turbine engine must be reliable and meet certain reliability criteria. To assess the upper and lower bounds of the reliability of each element $\mathcal{D}_\circ (d_{nl})$, a reliability criterion is proposed in the form of a three-dimensional table $\mathcal{K}_\circ$ (2).
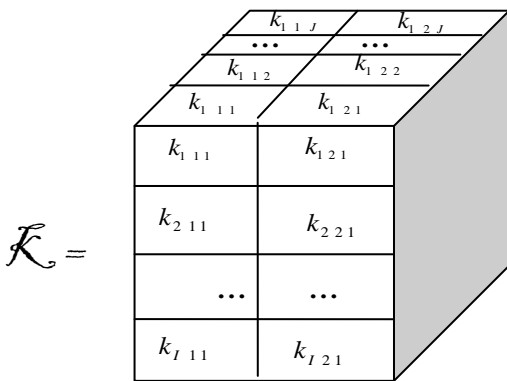
To assess the reliability of customs information, the concept of a reliability function is introduced, which takes values between 0 and 1:

$$\mathscr{A} = \mathscr{A}_m(x_{ij}), \ i = \overline{1,I}, \ j = \overline{1,J}, \ m = \overline{1,M} \qquad (3)$$

where $\mathscr{A}_m$ is the confidence level of m- CCD;

x_{ij} - an estimation of reliability of j-detailing of i-graph CCD. The value of x_{ij} is defined as follows:

$$x_{ij} = \begin{cases} 1, \ if \ k_{i1j} \leq d_{imj} \leq k_{i2j} \\ \rho(x_{ij}) - otherwise \end{cases} \qquad (4)$$

Here is the m-number of the controlled CCD, $0 < \rho(x_{ij}) < 1$.

It should be noted that the criteria for assessing the reliability for each CCD column are not always established. For some of the CCD graphs, the reliability criteria can not be established or is not mandatory. Therefore, between the number of CCD graphs and the number of criteria, the following relationships take place: I≤N, J≤L. Here the equality sign is fulfilled if the criteria for assessing reliability are established for detailing each column of the gas turbine engine.

The relationship between the value of the function $\mathscr{A}$ and its arguments is established as follows:

$$\mathscr{A}_m = \prod_{i=1}^{I} \prod_{j=1}^{J} x_{ij}, \ where \ m = \overline{1,M} \qquad (5)$$

2.2. Criterion for assessing the reliability of information.
The task of assessing the reliability of information is of interest to numerous scientists, among whom there are those who have devoted their lives to solving a similar problem. This refers to scientists who have been and are engaged in the task of assessing the authenticity of the *hadith* in Islam

The concept of hadeeth is defined as follows: "*hadith* - is a *message* about any word or deed of the Prophet, sallallaahu 'alaihi wa sallam, unspoken by his approval or his quality" [7]. Sometimes the hadeeth is called "habar", which is translated in the broadest sense as a "message". However, there are fundamental differences between these two words: every hadeeth is a " habar", but not every "habar" is a hadeeth.

For many centuries, the scholars of the hadith established principles and rules for assessing the authenticity of the hadeeth, perfected, systematized and presented them in special works that later received in their totality the title "the science of the terminology of the hadith" [8]. This is the science of the fundamentals and rules that make it possible to determine the acceptability or inadmissibility of the hadeeth, i.e. it makes it possible to distinguish authentic hadith from hadiths that have some or other shortcomings.

The criteria for assessing the authenticity of the hadith are divided into 2 groups of conditions:
- - criteria for assessing the reliability of the source of hadeeth (sanad);
- criteria for assessing the authenticity of the hadith text (matn).

Inclusion of a certain hadeeth in the composition of "authentic" could occur only if it corresponds to high estimates according to the above conditions.

Together with this, there arises a natural question: if more than 700 thousand hadith are known, and only about one hundredth of them correspond to the conditions of authenticity, how is the status of the other hadiths determined?

This problem was dealt with by many scholars - hadith scholars [7,8] and defined four main categories of the estimation of hadith by their reliability (Fig.1.):

1-level: authentic (sahih) are those hadith that fully correspond to all the above conditions, i.e. such hadith with a continuous isnad, each transmitter of which from the first to the last differed impartiality and accuracy, so that in its isnade there are no deviations or lacks. Hadiths of this category are considered the highest level of authenticity and are accepted unconditionally;

2-level: good (hasan) are hadiths with a continuous isnad, all of whose transcenders from the first to the last differed in good faith. This hadeeth is only slightly less accurate than similar ones, and the transmitters transmitted it without any deviations or shortcomings. Inaccuracies can be either in the source (isnad) or in the text (matn). In scientific works there are two kinds of good hadith: gasan-sahih and Hasan. Hadiths of this category are considered high level of reliability and are accepted;

3-level: weak (da'if) are hadiths that do not satisfy at least one necessary condition. Among them there are simply weak, very weak, unsatisfactory.

In scientific works more than 20 varieties of weak hadiths Hadiths of this category are considered a low level of certainty and some of them can be accepted with certain reservations;
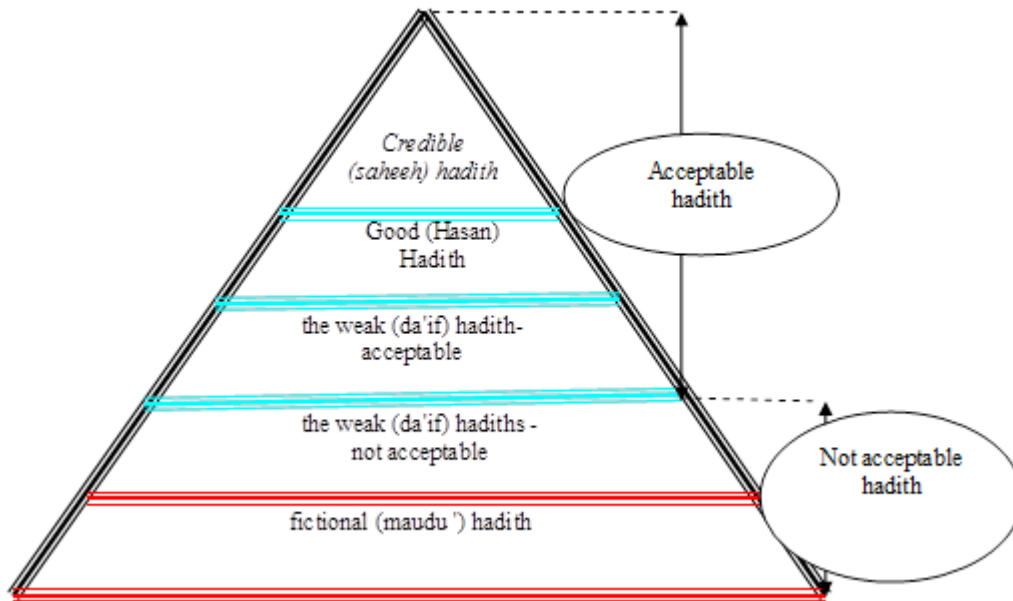
Fig.1. Pyramid of the estimate of the hadith according to their authenticity

4-level: fictional (maudu ') - this term is used to describe the fictitious lies. In scientific works more than 14 varieties of invented hadith. They are not only not accepted, but also according to the unanimous opinion of scientists, any person who knows what a hadeeth of this kind is not allowed to transfer it in any way.

The assessment of the authenticity of the hadith is a very delicate and responsible occupation, that not all who are engaged in hadith studies can take up this matter. Only the best experts of the hadith could cope with problems of this kind, and they were vigilant and careful in assessing the authenticity of the hadith.

At the same time, they developed and applied in practice such methods, which allow for an exhaustive assessment of the authenticity of the hadith.

Apparently, the above theory is entirely devoted to the assessment of hadiths and they can not be applied directly and literally to solving the problem of assessing the reliability of customs information. Nevertheless, one can borrow from them a systematic approach to determining the reliability of information and develop on their basis the following criteria for solving the task posed [1]:

- conditions for assessing the reliability of the source of customs information;

- conditions for assessing the reliability of the content of customs information.
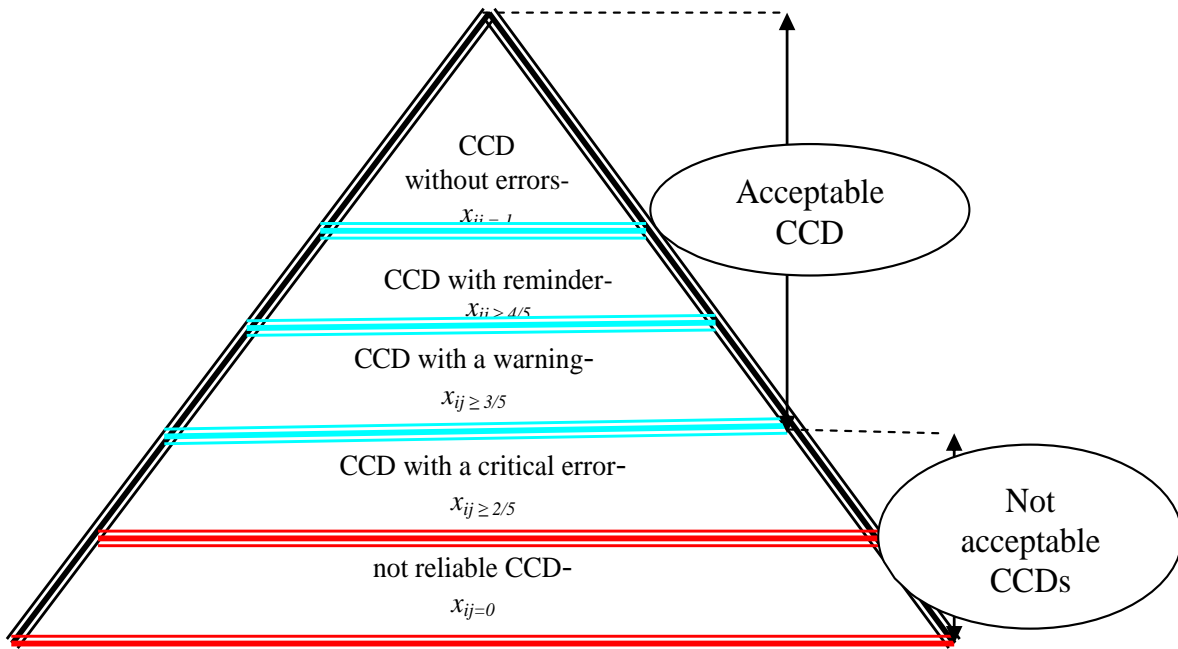
**Fig.2. Pyramid of assessing customs information on their reliability**

A comparative table between the criteria of authenticity of the hadith and customs information is given in Table 1.

Table 1.

Criteria of the authenticity of the hadith	Criteria of the authenticity CCD
Criteria for the source of information	
1 *continuity and completeness of the sanad*	*reliability and security of the software and hardware complex of information interaction*
2 *conscientiousness of transmitters*	*identifiability of information source*
3 *transmitter memory*	*low level of information source risk*
Criteria for text information	
4 *the absence of contradictions with the canons of the* Qur'an	*absence of contradictions with the generally recognized normative rules and reference data*
5 *no shortcomings in the message*	*the absence of flaws and contradictions in the CCD columns*
6 *absence of contradictions between transmitted messages*	*no contradiction between the content of the CCD and information obtained from other sources*

Depending on the level of reliability of the information CCD is proposed to categorize them into five levels: CCD without errors, CCD with reminder, CCD with a warning, CCD with a critical error and not reliable CCD (Fig.2.). The first two categories of CCDs are accepted automatically, for the following two categories of CCD, the customs inspector must make a definite decision, and in the latter category the CCD can not be registered even if such a decision is made by the customs inspector.

2.3 Some results of the implementation of the system for assessing the reliability of customs information.
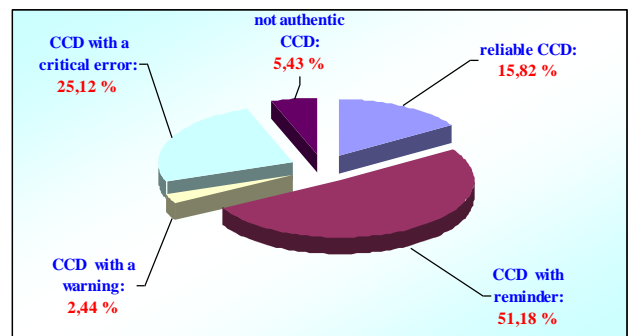
Fig.3. Results of the analysis of data OLAP-cubes CCD in interactive mode

The above criteria for assessing the reliability of customs information are developed and its elements are applied in the automated information systems of the State Customs Committee of the Republic of Uzbekistan since 2008, which are continuously being improved.

The models of 488 kinds of customs information unreliability are developed, including 145 non-critical and 343 critical kinds of CCD errors.

Over the past years, they have shown their viability and effectiveness (Fig. 3). Over the past years, they have shown their viability and effectiveness. In particular, during the last 6 years 11,354 administrative and 44 criminal punishments for foreign trade participants have been warned, and arrears to the state budget for the amount of 28.3 billion sums (approximately 15.35 million US dollars) have been prevented.

III. CONCLUSION

In conclusion, I want to note that sometimes in the scientific community there is an unjustified self-alienation from the study of methods and methodology of religious sciences in relation to the tasks of secular sciences.

But scientists of religious sciences never limit themselves from using such methods and methodology of secular sciences.

Therefore, in order to solve the pressing problems of modern sciences, it is expedient to conduct research into methods not only of natural or secular, but also of religious sciences.

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