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UTOPIAN MOTIFS AND NATIONAL IDENTITY IN AMERICAN LITERARY TRADITION

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A B S T R A C T

This article analyzes what should be considered when developing a unified veterinary information system in Uzbekistan, as well as veterinary information systems developed in foreign countries and their functional capabilities.

K E Y W O R D S

Veterinary unified information system, digital transformation, digital integration, foreign experience, database, border veterinary post, information exchange.

Introduction

Firstly, when developing a Veterinary Information System in Uzbekistan, special attention should be paid to many aspects. Based on supply and demand, they can be divided into the following [1]:

1. System architecture and functional requirements include:

- adaptability - the ability to quickly implement new requirements or make changes to legislation;
- information system stability - the ability of the system to operate stably when the number of users increases.

2. Database and information security requirements:

- centralized and backup servers - a powerful central server that can integrate regional networks, taking into account all processes;
- encryption algorithms to ensure data security, access rights based on user roles;
- audit mechanism - logging each action (who, when, what changed, etc.) or keeping a journal.

3. Creating convenience for users includes:

- intuitive interface - a simple user interface that can be easily used by veterinarians, farmers, laboratory and LLC employees, information system participants;

- multilingualism - support for other languages (for example, Kazakh, Tajik, Kyrgyz, Russian, Turkmen, Afghan, English and others);
- mobile application version - it is necessary to consider the development of a mobile application for employees working in remote areas.

4. Implementation of integration with external systems:
- taking into account automatic data exchange with customs, certification, laboratories, statistical systems;
- API interfaces in accordance with international standards. Implementation of an agreement with the state in the established procedure through digital integration.

5. Development of a flexible information system taking into account veterinary processes:
- identification and tracking of animals (movement, disease, vaccination, etc.);
- planning and reporting on vaccination and diagnostic plans;
- epidemiological monitoring - rapid warning and analysis of infectious diseases.

6. The following can be cited as legal and regulatory bases:
- compliance of the system with legislation (veterinary law, sanitary standards).
- requirements for information technology (national standards, compliance with requirements, etc.).

7. Implementation of user training and technical support:
- training, video tutorials and 24/7 technical support for all users to whom the system is introduced;
- continuous improvement of the information system based on user feedback.

8. Implementation of monitoring and reporting:
- real-time indicators (diagrams, indicators and histograms);
- statistical, epidemiological, financial and operational reports;
- GIS integration (displaying the spread of diseases on the map). Of course, this requires a lot of resources.

Main Part

Now let’s dwell on the experience of foreign countries in developing a veterinary information system. Russian experience. In Russia, a federal state information system in the veterinary field (VetIS) has been developed. The main objectives of VetAT are the following [2]:
- tracking controlled goods;
- registration and issuance of veterinary surveillance documents;
- registration of permits for the import, export and transit of controlled goods into the territory of Russia;
- registration of data and results of veterinary and sanitary examinations, laboratory tests and sampling for them;
- ensuring other areas of activity of the State Veterinary Service.

The following processes are automated in VetIS:

- collection, transmission and analysis of information on the movement and transit of controlled goods across the Russian border;
- collection, transmission and analysis of information on laboratory testing of controlled goods;
- collection, transmission and analysis of information on licensing of the production of veterinary medicinal products;
- collection, transmission and analysis of information on veterinary medicinal products, registration of adverse reactions, serious adverse reactions, unexpected adverse reactions when using veterinary medicinal products;
- collection, transmission and analysis of information on registered medicinal products, feed additives and GMO feed;
- creation and sending of notifications on the detection of dangerous controlled goods that do not meet the established requirements;
- collection, transmission and analysis of information on controlled objects and business entities;
- collection, transmission and analysis of information on the implementation of control and supervision activities;
- collection, transmission and analysis of information on the epizootic situation in Russia and foreign countries;
- collection, transmission and analysis of information on the animal population;
- formation of registers of regulatory documents for the sector;
- formation of sector reports;
- ensuring information exchange with third-party information systems.

VetIS - in turn, consists of smaller information systems. In particular,

1. Mercury - is intended for the registration of electronic veterinary documents and control of the movement of products, works with food industry entities, laboratories, control bodies;
2. Argus - is intended for the registration of import/export operations of animals and animal products and the management of permits, is integrated with enterprises engaged in foreign economic activity and customs systems;
3. An API has been developed for VetIS, intended for automatic data exchange with external information systems - ERP, CRM, logistics systems and other industry systems, and is provided for internal enterprise systems, laboratory management systems, government agencies and representatives of other industries;
4. Zernoinform IS - is intended for control over the movement and quality of grain products, is intended for the control of the movement of grain products as animal feed through VetIS;
5. EGAIS - a system for controlling alcoholic products, in some cases animal products (for example, honey, alcoholic medicines, etc.) are also controlled through EGAIS;
6. Federal Customs Service (FCS) systems - are designed to exchange information when goods are subject to veterinary permits during import and export operations. It allows for automatic data transfer through the Argus module;
7. TRACES (European Union), which provides connectivity with international systems - is designed to exchange electronic veterinary certificates. It allows for automatic export and receipt of diagnostic test results and disease results.

If we consider the experience of Kazakhstan, a number of systems have been developed here as well [3]. In particular, the “Identification of farm animals”, the “ISJ MOBILE” mobile application, the “Tört tulik” mobile application, the “Veterinary security” module, the “Republican veterinary laboratory”, the “Republican anti-epizootic detachment”, and the “Center for information processing and sanitary control” module have been developed and implemented.

The “Identification of farm animals” - NAIS (National Animal Identification System) system is designed to register and maintain identification numbers of farm animals. The system allows for unified automated control of the movement of animals within the territory of the republic, their export and import, and monitoring and ensuring the reliability of anti-epizootic, veterinary and preventive measures.

The “ISJ MOBILE” mobile application is intended for veterinarians and allows them to keep records of farm animals using mobile devices.

“Tört Tulik” mobile application - intended for owners of farm animals to monitor the list of animals, buy and sell online, and deregister.

The Veterinary Security (VetBez) module of the Unified Automated Management System of the Agro-Industrial Complex “Electronic Agriculture” information system is intended to provide state services for issuing veterinary and sanitary certificates to objects of state veterinary and sanitary control.

“Republican Veterinary Laboratory” - the system is intended for registering and receiving the results of laboratory research of farm animal materials, as well as controlling the quality and timing of the conducted research.

“Republican Anti-Episozoic Squad” - the system is intended for registering epidemiological outbreaks, implementing recovery processes in foci of unfavorable epidemiological situations among animals.

IS Processing Center - Designed for the production of identification means for agricultural animals and for submitting applications for obtaining emission numbers.

IS Veterinary and Sanitary Examination - the system for pre-slaughter inspection of meat, slaughter, veterinary and sanitary examination, and sending it for sale to domestic trade facilities automatically issues a veterinary certificate of form 2, an examination report (test protocol), and a QR code with product information.

China experience. China has developed a comprehensive veterinary information system to monitor, prevent, and control animal diseases, ensuring both animal and public health. This system integrates various platforms and institutions to facilitate effective disease surveillance and management.

1. China’s Veterinary Information Systems . National Animal Disease Surveillance and Epidemiological Investigation Plan (2021–2025). This plan outlines the framework for active and passive surveillance of 17 significant diseases, including African Swine Fever (ASF), Highly Pathogenic Avian Influenza (HPAI), brucellosis, schistosomiasis, and echinococcosis. Data collected encompasses source animals, farm details, and testing information, which are submitted through the animal sanitary information platform [4].

2. China Animal Disease Control Center (CADC). The CADC serves as the national authority for animal disease control, overseeing disease surveillance, emergency response, and technical guidance. It collaborates with provincial and local veterinary institutions to implement control measures and disseminate information [5].

3. National Animal Health Information System. This system provides continuous monitoring of specific diseases deemed critical to the country. It assists in developing strategies for disease prevention and control by collecting and analyzing relevant data [sciquest.org.nz].
4. Integration with Geographic Information Systems (GIS). China has designed large-scale farm information supervision systems based on GIS technology. These systems enable spatial analysis of disease outbreaks and facilitate targeted interventions [dl.acm.org].
The veterinary information system operates at national, provincial, municipal, and county levels, ensuring comprehensive coverage and localized response capabilities.
China's veterinary information systems align with global standards and collaborate with international organizations such as the World Organisation for Animal Health (WOAH). Data from China's surveillance systems contribute to global animal health information, facilitating coordinated responses to transboundary diseases.
The veterinary management system in the mainland of China is shown in Figure 1. The Bureau of Animal Husbandry and Veterinary Services, the Ministry of Agriculture and Rural Affairs (MARA), organises and implements the national animal disease prevention and control. Four technical supporting institutions directly affiliate to the MARA, including China Animal Disease Control Center (CADC), China Animal Health and Epidemiology Center (CAHEC), China Institute of Veterinary Drug Control (IVDC) and National Animal Husbandry Station.

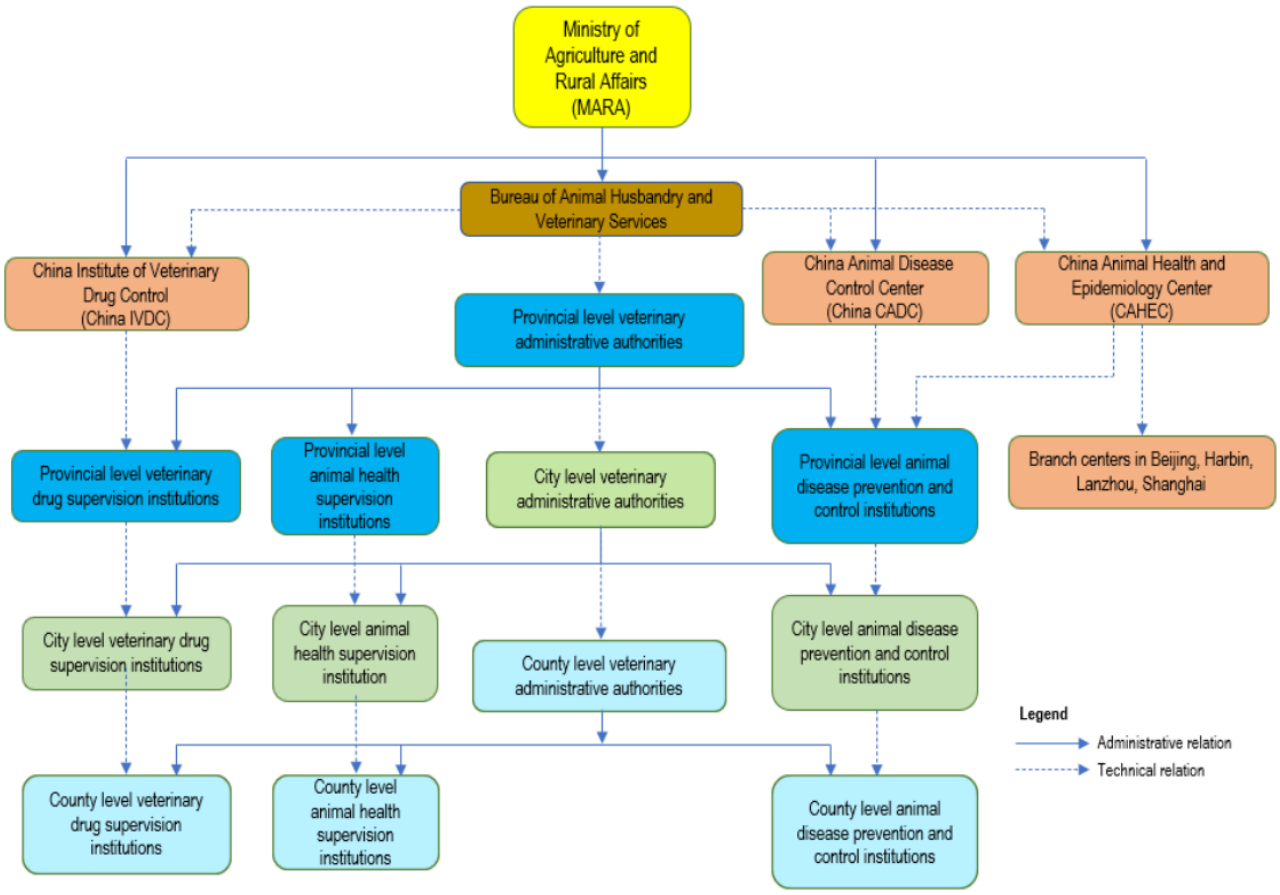

Figure 1. National veterinary system of China.

These institutions jointly undertake the collection and management of national animal health data according to their responsibilities.

Kyrgyzstan has been actively developing its veterinary information systems to enhance animal health monitoring, disease prevention, and compliance with international standards. These efforts are crucial for safeguarding public health, supporting the livestock sector, and facilitating trade.

The Veterinary Chamber of the Kyrgyz Republic is a statutory veterinary body that regulates private veterinary practice. Veterinarians who meet the minimum professional requirements based on testing results are allowed to work. Private veterinarians registered with the chamber enter into a contract with district departments of state veterinary medicine for routine vaccination, diagnostics, treatment, and are responsible for epizootic welfare in the assigned territory [6].

The animal identification and tracking system is an information and analytical system for recording data on identified animals, their movement, owners, farms, and their veterinary and sanitary condition [7].

Animal Identification and Tracking System The Veterinary Service under the Ministry of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic provides the following services [7]:

- Mal Check - check information about an identified animal by identification number;
- Doc Check - check the authenticity of issued veterinary documents;
- District Veterinarian - find your district veterinarian;
- Animal Registration - submit an application for animal registration;
- Animal Deregistration - submit an application for animal deregistration;
- Animal Arrival - submit an application for animal arrival;
- Animal Departure - submit an application for animal departure;
- Identification Information - information on animal identification by region.

Since December 9, 2024, the automated information system “Sanarip VET” has been introduced in Kyrgyzstan, which is aimed at improving control over veterinary products. The system covers border veterinary control points, as well as district and city departments. The main objective of the system is to ensure the identification and control of products under veterinary control, as well as the fight against counterfeit products and improve food security.

Conclusion

Of course, as can be seen from the above, it is important to take into account the experience of foreign countries in the development of a veterinary information system in Uzbekistan. The “EVET” SIS (Single Information System) that we are currently developing is being developed taking into account the above requirements. Currently, the “EVET” SIS is being used by the Kyrgyz side. Based on the analyzed experience, it is important to ensure the identification, integrity and security of data in the “EVET” SIS in the future, as well as the development of API systems.

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