Digital Technologies And Automated Information Processing Systems In The Penitentiary System

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Abstract: Automated information processing systems for special and general purposes have recently been widely introduced in the domestic penitentiary system. Each of these systems is designed to perform special functions and a specific set of tasks. The scientific article is devoted to the study of issues of automation of the activities of employees of the penitentiary system on the example of the process of processing and recording the results of studying the personality of a newly arrived convict in the quarantine department of a correctional institution for making a decision on his further assignment to a detachment. The authors propose to automate this algorithm through the creation of a special report based on the ACUS software package (automated special contingent accounting file). The functionality and algorithms of working with the ACUS software package for designing and constructing reports are presented. The algorithm for building a special report for the development environment is being analyzed.

1 INTRODUCTION

Carrying out reforms in the legal sphere, including the penitentiary (penal enforcement), requires the development of new methodological approaches to influencing public consciousness in order to form and develop the state's penitentiary policy, correct personality and achieve preventive punishment goals, with their possible implementation through modern digital technologies. One of the main goals of the penal enforcement legislation of the Russian Federation is to correct those sentenced to imprisonment and prevent the commission of new crimes. (Efimenko, Lelik, 2018). However, despite the implementation of the state's policy aimed at reducing the number of people held in a correctional institution, imprisonment remains the most common punishment in modern Russia.

There are three main stages: initial, main and final conditionally includes the process of serving a sentence for convicts. Each of these stages has its own specific tasks, represents the characteristic conditions of serving a sentence by convicts and assumes the specifics of corrective action (Yuzhanin, Gorban, 2018). The admission of convicts to a correctional institution is carried out by the administration of the institution, in accordance with article 79 of the Penal Enforcement Code of the Russian Federation and in accordance with the Internal Regulations. Further, a set of various measures is carried out aimed at adapting the special contingent to the regime rules and requirements (Yuzhanin, 2017).

The process of deploying a special contingent requires the most serious attitude. This applies primarily to employees of penitentiary institutions. The activities of these subjects should be based on

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knowledge of law, pedagogy, psychology and come into contact with the study of the behavior of convicts and their adaptation to conditions of isolation. According to the results of studying the personality of the criminal, it is easier to start educational work, plan the future re-socialization of the convicted person (Bochkarev, 2013).

At the same time, the issues of the possibility of automating the process of processing and recording the results of studying the personality of a newly arrived convict in the quarantine department of a correctional institution remain not fully explored, in order to make a decision on his further assignment to the detachment, which determines the relevance of this work.

2 MATERIALS AND METHODS

The study used general methods of scientific cognition: interdisciplinary analysis and synthesis of the results of scientific research published in scientific and methodological literature, as well as the results of advanced scientific experience; comparative historical methods; methods of empirical research: expertise; software modeling.

3 RESULTS

The author's team was assigned the following task: to explore the possibility of developing a software tool for recording the results of studying the personality of a newly arrived convict in the quarantine department of a correctional institution. For this purpose, a descriptive part of the mechanism (hereinafter referred to as the algorithm) of the actions of correctional facility staff to collect the necessary primary information for making a decision when distributing a convict from the quarantine department to a detachment was provided in the form of the following table (table 1):

Table 1: Data entry table for the newly arrived convict.

1. Special Accounting Department	2. Security Department	3. Operational Department (group)	4. Logistics Department	5. Medical service
6. Psychologist	7. The Center for Labor Adaptation of convicts	8. Accounting	9. Department for educational work with convicts	

For a more detailed understanding of the issue, we have significantly revised the table and converted it into text blocks with detailed explanations for each item of the algorithm for filling in data on convicts, and compiled an analog of the terms of reference.

As an example, let's give the contents of one of the blocks (block 9):

Entering data on a convict who arrived at the quarantine department of a correctional institution:

1. Determination of the conditions of serving a sentence;
2. Level of education, availability of supporting documents;
3. Where he previously served his sentence, how he was released, where he was employed, how he was characterized, whether he participated in educational activities;
4. Attitude to sports, creativity;
5. Circumstances of the committed crime, admission of guilt;
6. The location of the passport;
7. Availability of a profession for employment, propensity for certain types of work;
8. Does he maintain relations with relatives;
9. The existence of grounds for preventive registration;
10. Religion;
11. The possibility of transfer
12. The presence of claims and alimony, the possibility of their payment from personal funds;
13. State of health, availability of supporting documents (disability);
14. The right to a pension, the availability of supporting documents;
15. The presence of a permanent place of residence.

The key task was to explore the possibility of automating this mechanism, to find a programmatic way to implement it.

Under the term "automation", scientists and specialists of various levels currently consider one of the directions of scientific and technological progress, which uses self-regulating technical means and mathematical methods in order to free a person from participation in the processes of obtaining, converting, transferring and using energy, materials, products or information, or significantly reduce the degree of this participation or the complexity of the operations performed (Tsebrenko, 2018; Sergeev, 2023).

Automation systems for both general and special purposes are being put into operation at an increasingly rapid pace in the penitentiary system of the Russian Federation. Various problematic issues of automation of the activities of units of the penal enforcement system are reflected in the works of A.V. Dushkin, E.G. Tsarkova, Yu.N. Dyatlov, A.V. Kalach, D.G. Zybin, V.I. Sumin, O.K. Beskrovnykh, E. B. Lunchenkova, N. V. Goryacheva, A.B. Maslov, L.V. Serik, V.G. Zarubsky et al.

Initially, from our point of view, the following options could be solutions to the task (Fig.1):

- full-fledged development of a new software product using one of the modern programming languages (object-oriented programming environment);
- development of a new software product based on existing online software services (online web services, online designers, etc.);
- development of a new software product using software tools of existing special platforms for the penal enforcement system (AKUS software package, electronic document management system of the penal enforcement system, etc.).

Figure 1: Options for solving a practical problem.

After conducting a detailed study of all areas, we came to the following conclusions, which we offer to your attention:

1. Almost immediately, the option of developing a software tool using high-level programming languages was eliminated. To create and maintain a complex program, it is necessary to have sufficient "knowledge base", which would require contacting third-party organizations or individuals. Such treatment was excluded due to the need to work with information of limited access (personal file, data of a convict admitted to a correctional institution).

2. Various online services, software designers, which can be found in abundance on the worldwide global Internet, including the mobile versions that have been so popular lately, did not suit us as a development tool for similar reasons. First of all, the bulk of these programs have weak free versions that have significant limitations in operation. You can remove them only when switching to the paid versions. In addition, the issue of ensuring the information security of the data of the special contingent when using online services remained open.

3. It was decided to focus on the existing software platforms created earlier for the units of the penitentiary system. From the available programs, our choice was made on the State information System "Software package for automated file registration of special contingent" for correctional colonies (ACUS software package).

The complex is included in the register of programs for electronic computers. The program is designed to automate the work related to the registration of convicts in a correctional institution. The complex accumulates and processes information of various types: from ordinary text information to photographs and fingerprint cards. The ability to generate and execute special requests and reports in a complex allows you to quickly obtain the necessary information, summarize data, statistical summaries, references and other materials (Babkin, Panfilova, 2022; Babkin, Karabanov, 2023).

The following characteristics made it possible to choose ACUS as the main software tool for the implementation of the task:

- the software tool has high technical parameters that allow for the use of subscriber data in real time by most services within the institution;
- the complex is designed in accordance with the internal instructions for maintaining special records;
- has most of the capabilities of information search engines;
- full security of convicts' data when working with the file cabinet (data entry, editing);
- regularly updated and developed in accordance with changes in the legislative framework and the wishes of the users themselves;
- all ACUS users within the institution work with a single database, have access to up-to-date information on convicts within the limits set by their personal profile. The filling capacity of ACUS card files can be several tens of thousands of subscribers.

In addition, among the positive aspects, we will highlight the further prospects for the development of ACUS, which, among other things, influenced our choice:

- bringing the software tools of the ACUS family in line with the changing instructions of the special accounting departments;
- functional development of ACUS family programs;

- development of new subprogram modules;
- improving the protection of personal data in ACUS environments and improving cryptographic protection during data transfer;
- the transition to technologies of distributed databases as part of geographically distributed data transmission networks, management and access should be carried out through a web application;
- improvement of technical support of programs;
- application of remote maintenance methods for software systems;
- application of remote expert assessment methods for filling databases;
- the use of cloud technologies for data storage.

It was decided to implement the algorithm by creating a special report based on the ACUS software package, which in the future we could import and implement into the activities of any correctional colony. We have prepared an approximate scheme for the implementation of not only the algorithm itself, but also options for further implementation of the report into the activities of the correctional institution through the creation of video instructions and practical guidance on integrating the finished report into the ACUS software package (Fig.2).

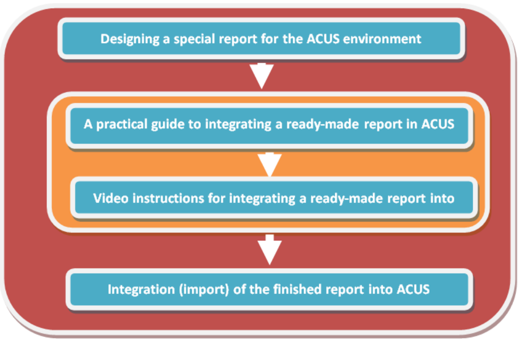

Figure 2: An approximate scheme of the algorithm implementation.

After studying and analyzing the submitted materials and forms of documents, the author's team designed and further constructed a special report in the ACUS environment. Here are the main stages of our work on the report in fragments.

All new reports for the ACUS environment are designed in the program Administration Mode, which contains a larger set of modules that allow you to make a variety of additional settings and select user actions.

The process of constructing a report includes two stages of work.

At the first stage, a new report is created in the Administration Mode in an existing or new section of the program (Fig. 3).

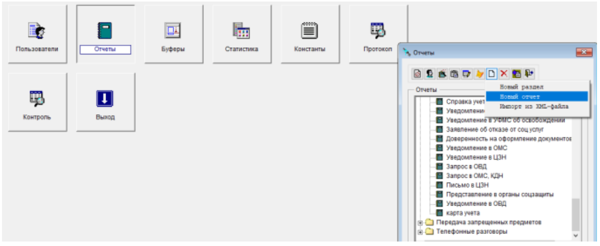

Figure 3: Creating a new report.

Next, work is organized with the Report Designer (Fig. 4), in which fields and forms are formed for subsequent filling in with data about the subscriber of the card file (convicted).

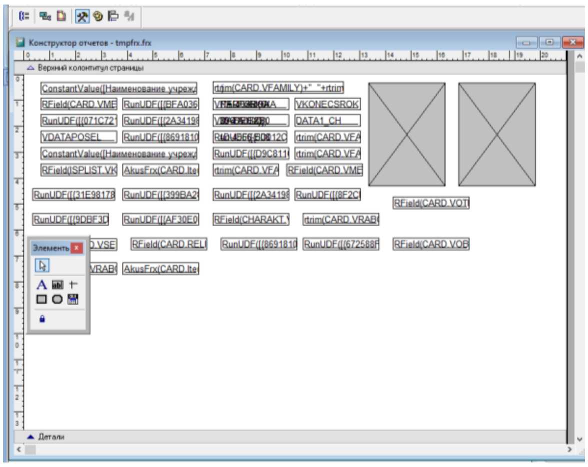

Figure 4: Report Designer.

Each field is created through the ACUS Expression Builder (Fig. 5) or by using a specific programming language.

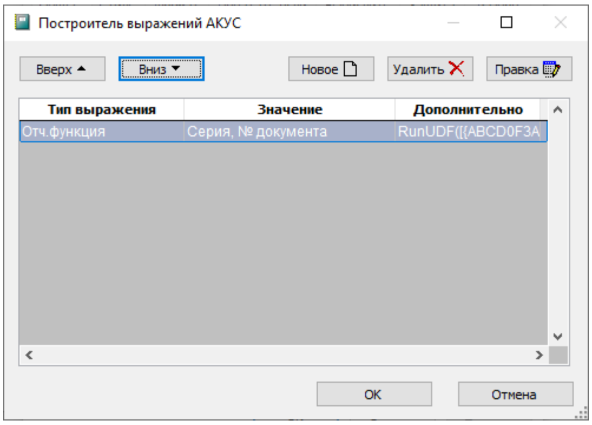

Figure 5: The ACUS Expression Builder.

At this stage of work on the future report, the most time-consuming procedures are the following:

- multiple creation of fields necessary for further automatic filling from the card file through the AKUS Expression Builder, by repeating many complex operations of the same type;
- the need to repeatedly view and edit the created labels, fields and other elements to organize the further output of the finished report (template for the report) on the monitor screen (printer).

After editing and correcting the report created in the Designer, the transition to the second stage of work is carried out – the creation of an MS Word Template (Fig.6) for further output of the finished report on a specific subscriber of the file cabinet (convicted) for printing.

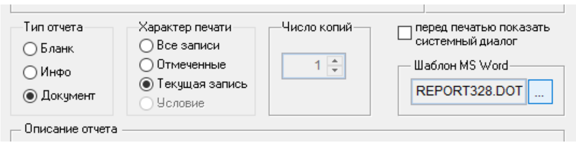

Figure 6: The button for creating an MS Word template for a report.

In general, creating an MS Word Template is a simpler operation compared to preparing a report in the Report Designer.

At the same time, the following nuances must be taken into account: in the process of forming the MS Word Template, the Word element "form" is used - a document with blank areas into which data is entered (text field, list, drop-down list, etc.). In the future, each form created in the MS Word Template should be identified with the same element created in the Report Designer. When identifying, it is necessary not to confuse the numbering of the report elements, which is created by the Report Designer (Fig.7).

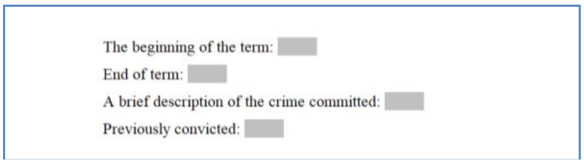

Figure7: MS Word template using forms.

Another possible stage of work, if necessary, is the export-import of the prepared report. Exporting a finished report means saving it as a file and "outputting" it from the ACUS system. Importing a report is adding (embedding) a ready-made (existing) report into the ACUS system (in one of the sections on reports).

4 DISCUSSION

Scientific and technological progress determines the modernization of legal mechanisms, the introduction of modern information technologies and automation and artificial intelligence tools, and orientation to the best practices of foreign countries (Sadykova, 2022; Anisimova, Burdo, Volkova, 2023; Spasennikov, Golodov, 2016). Automation tools and information technologies are actively penetrating into all spheres of public relations, including the activities of correctional institutions and penitentiary system bodies (Lungile, Lungelo, Tlou, 2020).

Recently, the ACUS Software package has become a key software product designed to automate accounting in institutions and bodies executing criminal penalties in the form of imprisonment. Personal and generalized ACUS information is necessary for the services, but can be used by other law enforcement agencies when making government decisions. At the moment, ACUS has the status of a state information system (Babkin, 2020).

As we mentioned earlier, the program is designed to automate the work related to the registration of convicts in correctional institutions and pre-trial detention centers in relation to persons left for household maintenance. Information of various types is accumulated and processed in ACUS: from ordinary text information to photographs and fingerprint cards. The ability to generate and execute special requests and reports in a complex allows you to quickly obtain the necessary information, summarize data, statistical summaries, references and other materials.

An employee of a correctional institution in the course of his official activities has to access the resources of an automated file cabinet on a daily basis. In particular, by the nature of their activities, they often need to use the built-in ACUS module "Reports", since obtaining documents based on data is realized through the use of a reporting system. Reports are data display objects that are used to view and print various information in a pre–prepared form. Most of the reports are based on the instructions for maintaining special records. The developer has already incorporated standard reports for specialists of different levels into the ACUS software environment. But there are situations when there is no ready-made report in the presented "line" and it needs to be created and subsequently integrated into the ACUS environment. Therefore, the implementation of a software solution to automate the process of processing and recording the results of studying the personality of a newly arrived convict in the quarantine department of a correctional institution, in order to make a decision on his further distribution to the squad, through the creation of a special report based on the ACUS software package described by us in this article is of great importance for the penal enforcement system. At the same time, additional conditions are necessary for the further successful development of the complex: the creation of a security system, the development of a significant package of documentation, etc. (Beskrovnykh, Savinova, 2017).

5 CONCLUSION

Of particular importance for the successful implementation of the procedure for the admission of convicts and their further adaptation is not only the competent organization of interaction between the administration of the correctional institution and the investigative and judicial authorities, but also the possibility of promptly recording in electronic form the results of studying the personality of the convict for making a decision on his further assignment to the squad.

Special reports for the ACUS environment greatly facilitate the preparation of materials in various areas of activity. The capabilities of the ACUS allow you to automate the official activities of specialists working with convicts. The data necessary for the departments and services of the institution (correctional colony) become available at any time. The detailed implementation of the algorithm considered by the authors in the form of building a special report to record the results of studying the personality of a newly arrived convict in the quarantine department of a correctional institution based on the ACUS software package will help fully automate the activities of services and departments of institutions and bodies of the penitentiary system, and will also contribute to the observance of the legality of serving a sentence.

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