

Ministry of Education and Science of Ukraine
Black Sea Universities Network

ODESA NATIONAL UNIVERSITY OF TECHNOLOGY

International Competition of
Student Scientific Works

BLACK SEA SCIENCE 2022 PROCEEDINGS



ODESA, ONUT 2022

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BLACK SEA SCIENCE 2022

Proceedings

Odesa, ONUT 2022

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INTRODUCTION

International Competition of Student Scientific Works “Black Sea Science” has been held annually since 2018 at the initiative of Odesa National University of Technology (formerly Odesa National Academy of Food Technologies) with the support of the Ministry of Education and Science of Ukraine. It has been supported by Black Sea Universities Network (the Association of 110 higher education institutions from 12 countries of the Black Sea Region) since 2019, and by Iseki-FOOD Association (European Integrating Food Science and Engineering Knowledge into the Food Chain Association) since 2020.

The goal of the competition is to expand international relations and attract students to research activities. It is held in the following fields:

- Food science and technologies
- Economics and administration
- Information technologies, automation and robotics
- Power engineering and energy efficiency
- Ecology and environmental protection

The jury includes both Ukrainian and foreign scientists. In the 4 years that the competition has been held, the jury included scientists from universities of 24 countries: Angola, Azerbaijan, Benin, Bulgaria, China, Czech Republic, France, Georgia, Germany, Greece, Israel, Italy, Kazakhstan, Latvia, Lithuania, Moldova, Pakistan, Poland, Romania, Serbia, Slovakia, Switzerland, Turkey, USA.

At the same time, every year the geography has expanded and the number of foreign jury members has increased: from 46 jury members representing 25 universities from 12 countries in 2018, to 73 jury members of the 46 universities from 19 countries in 2022.

More than a thousand student research papers have been submitted to the competition from both Ukrainian and foreign institutions from 25 countries: China, Poland, Mexico, USA, France, Greece, Germany, Canada, Costa Rica, Brazil, India, Pakistan, Israel, Macedonia, Lithuania, Latvia, Slovakia, Romania, Kyrgyzstan, Kazakhstan, Bulgaria, Moldova, Georgia, Turkey, Serbia.

The interest of foreign students in the competition grew every year. In 2018, the students representing 15 institutions from 7 countries have submitted 33 works. In 2021 the number of submitted works increased to 73, authored by the students of 40 institutions from 18 countries.

The competition is held in two stages. In the first stage, student research papers are reviewed by members of the jury who are experts in the relevant fields. In the second stage of the competition, the winners of the first stage have the opportunity to present their work to a wide audience in person or online.

All participants of the competition and their scientific supervisors are awarded appropriate certificates, and the scientific works of the winners are included in the electronic proceedings of the competition. Every year the competition receives a large number of positive responses from Ukrainian and foreign colleagues with the desire to participate in the coming years.

2. ECONOMICS AND **ADMINISTRATION**

FEATURES OF THE IMPLEMENTATION OF REENGINEERING OF ADMINISTRATIVE SERVICES IN THE DEPARTMENT OF ADMINISTRATIVE SERVICES OF THE ODESSA CITY COUNCIL

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***Abstract.** The relevance of the topic is due to the increasing importance of creating an innovative model of the development of high-tech management as a significant factor in ensuring the effectiveness of the implementation by citizens, given their potential, the development of personal and social quality life, in particular, precisely by obtaining high-quality administrative services in a decentralized environment.*

A significant tool of interaction between the state and society today is electronic services, which in the future will have the largest share and therefore require a more detailed review of the procedure of reengineering of the administrative services system into an electronic format.

The purpose of the work is the activity analysis of the Department of administrative services for the past 4 years and consider the process of reengineering as a major factor in improving the efficiency of the Department.

Task of the work:

- reveal the content of the concept of administrative service;
- to analyze the performance indicators of the Department of administrative services of the Odessa City Council;
- reveal the process of reengineering as a tool to improve the work of the Department of administrative services of the Odessa City Council.

The work considers the activity of the Department of administrative services of the Odessa City Council and the relations arising in the process of implementation of administrative services between the Department of administrative services of the Odessa City Council and the subjects of appeals.

The work contains 21 pages, 2 tables, 9 figures. The list of references includes 10 titles.

Keywords: *administrative services, center of administrative services, subjects of appeals, subjects of administrative services, Department of administrative services.*

I. INTRODUCTION

It is difficult to imagine in the modern world a developed country with an outdated system of administrative services, where citizens are forced to visit several government agencies in order to receive one service and spend at least a day to collect the necessary documentation. The development of a quality and efficient system of administrative services contributes to the reform of decentralization and the development of democracy by using citizens' own potential to create a developed society.

The usual methods of improving productivity - streamlining and automating processes - may not always lead to the serious improvements that are needed. Improving the efficiency of the Department requires not framing existing processes

with software. Only their complete destruction and the development of these procedures anew through reengineering will allow reaching a new level of efficiency.

II. LITERATURE ANALYSIS

In the service state model, the provision of services by the state is the most important function of state structures. The concept of "services" expresses a certain category, indicating the interaction between the subject that offers and provides services to the object that needs them. Any service is understood as an activity aimed at meeting certain human needs, that is, a service is an action, the result of which is consumed in the process of its provision.

Together with the creation of centers of administrative services, the country began a long and thorny path from a large bureaucratic system, which cannot be understood by an ordinary citizen, to a transparent system of interaction with the state. By delegating the authority to provide services to the local level, the state provides local self-government with an appropriate resource: either through inter-budgetary relations by directing transfers (subventions, subsidies) from state local budgets, or through transferring to the localities a share of the relevant national taxes and fees [1].

The system of administrative services is represented by the interaction of the subject of the application and the subject of administrative services, the subject of which is the administrative service.

According to the definition given in the Law of Ukraine "About administrative services" of 6.09.2012, "administrative service" is the result of the exercise of power by the subject of administrative services at the request of an individual or legal person, aimed at the acquisition, change or termination of the rights and/or obligations of such a person in accordance with the law [2]. One of the characteristics of an administrative service is a certain typicality of the case, since the issuance of permits, passports, licenses, etc. has standardized procedures for the actions of subjects of application and the provision of administrative services [1].

The price of the provision of a particular administrative service should be uniform, regardless of whether this service is provided by state authorities, local self-government bodies or businesses. However, in Ukraine the level of readiness to apply such an approach is still low and this issue requires additional discussion at different levels [1].

It should be noted that at present the possibility of providing and receiving administrative services in electronic format has been introduced. The list of services that can be obtained in electronic form differs significantly from the general list of services, but this direction is developing rapidly. Therefore, it becomes necessary to define this segment of administrative services.

The result of the providing administrative services by the executive authorities through the introduction of digital technologies is now an electronic service [3].

It should be noted that electronic services exclude the corruption component from the system of citizen-state relations. The transformation of an administrative service into an electronic services is accompanied by a reorganization and restructuring of this process in order to ensure transparency and maximum efficiency.

Along with the introduction of electronic services in the sphere of permits, it became possible to implement the principle of "blind" distribution. This means that the

decision to approve a project can now automatically be randomly sent in contrast to the place of application of the region [4].

There are two types of electronic services:

- fully automated, the process of providing the service takes place completely in the electronic plane, when human participation is minimized (this category includes automatic services that exclude contacts with the employee);

- partially automated, when a part of the processes is automated, and the other part is in "manual mode" [5].

The "democratic" component (e-democracy) is dominated by "bottom-up" communications, i.e. citizens influence the functioning of public authorities in a certain way, receive information from civil servants, control the compliance of public policy priorities with their own priorities and on this basis take part in political decision-making. In contrast, the "administrative" component (e-government) is based on "top-down" relations, focusing on providing administrative services and the implementation of managerial activities [1].

Among the tasks carried out by the Department, it is customary to highlight three main ones: optimization of the process of providing services so that the number of calls to the Center and their duration for one service (or related ones) are reduced; combination of quality and simplicity in administrative services; increasing the percentage of public awareness on the procedure of receiving administrative services, a list of requirements and deadlines for results.

An important aspect of the further deregulation of administrative services is to conduct a thorough analysis of the optimality of the processes of their provision, elimination unnecessary links, study and apply the best foreign practices, their quality regulation for further automation, as well as, as an element of competition, involving businesses in the circle of providers of these services, but at a single price [1].

III. OBJECT, SUBJECT, AND METHODS OF RESEARCH

The object of the research is the activity of the Department of administrative services of the Odessa City Council.

The subject of the research is the relations that arises in the process of implementing administrative services between the Department of administrative services of the Odessa City Council and the subjects of appeals.

The methodological basis of the work is the method of logical analysis, a combination of quantitative and qualitative analysis in a systematic approach.

IV. RESULTS

4.1. Analysis of the activities of the department of administrative services of the Odessa City Council

It is possible to visualize the course of the Department's workflow by considering quantitative indicators of activity, namely the number of applications, services rendered, field receptions, etc.

The department is in the development stage, the positive dynamics is observed in almost all types of activities, as well as in the total number of provided administrative services, in Fig. 1.

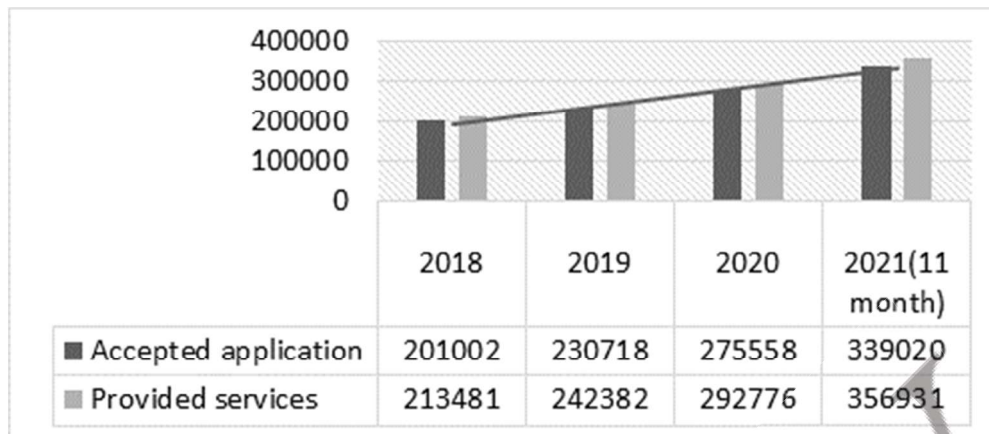


Fig. 1. Dynamic of provided administrative services for 2018-2021, units
Built on the basis: [4]

The Department does not always act as a service providing body, it is also an intermediary in this process.

It is possible to distinguish the leaders among the bodies providing services, besides the Department of administrative services, the large specific weight among all the ready results is occupied by the Main Department of the State Migration Service of Ukraine in the Odessa region. This factor is due to the provision of services for the issuance of biometric passports, including for travelling abroad in different circumstances and pasting the photo in the old passports. The Main Department of the State Geo-cadastre in the Odessa region is in the third place, in Table 1 below.

Table 1 shows that the rapid growth of indicators is due to the increase in the number of services provided by the Department of administrative services, as the subject of service provision. The DAS of the Odessa City Council is the undisputed leader in the number of issued services as a subject of service provision.

Table 1. **The number of issued ready-made results by subjects of provision for 2020, units**

The ready-made results have been issued	DAS of the Odessa city council	MD of the SMS of Ukraine in Odessa region	MD of the State Geo-Cadastre in Odessa region	Other administrative services (local, ORSA, territorial divisions of CEB)	Total
January	11324	2842	2588	3103	19 857
February	11 437	3009	2793	3 256	20 495
March	12774	2554	1743	3 275	20346
April	16491	2019	1148	1 132	20790
May	12682	1673	1276	2 971	18602
June	15991	2840	1485	4 080	24396
July	19065	3857	1795	4 250	28967
August	15744	3390	1804	6 927	24475
September	18396	4243	2068	5 496	30203
October	18755	4005	2024	4 120	28904
November	18 540	3 509	1 965	3 136	27 150
December	18 777	4 320	2 091	3 403	28 591

Built on the basis: [6]

Today it is possible to estimate the dynamics of administrative services during 11 months of work of the DAS of the Odessa City Council in 2021, which is presented in Fig. 2.

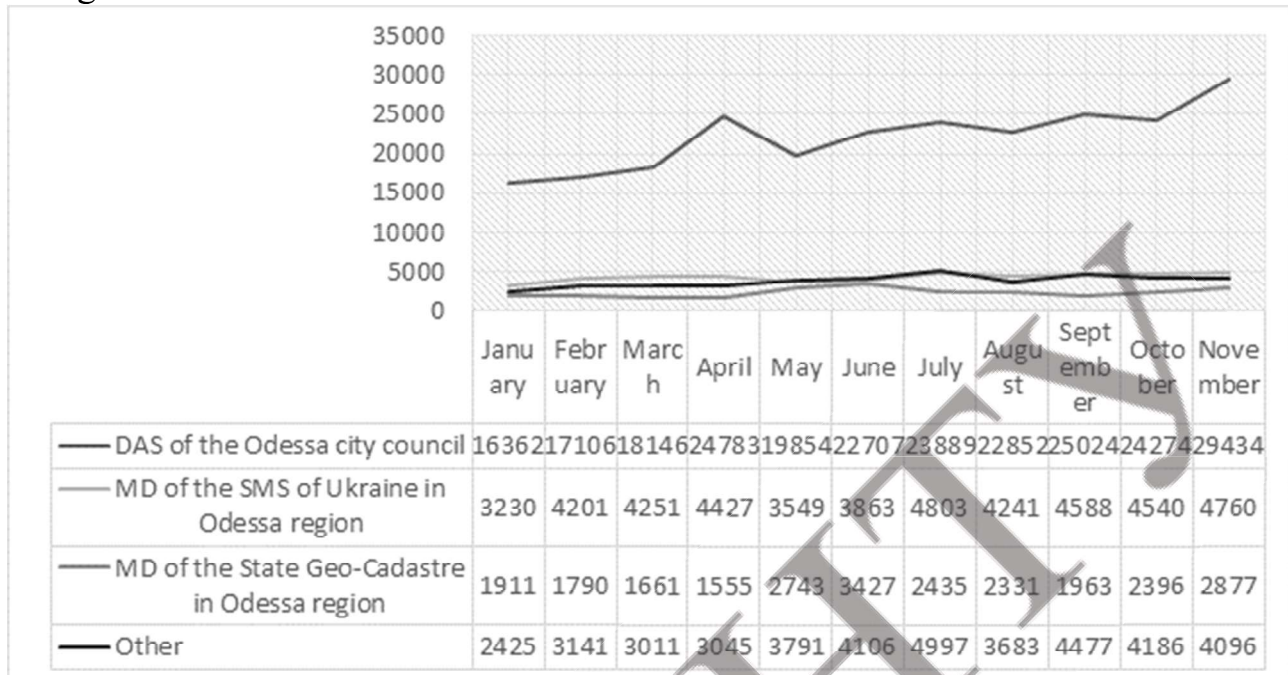


Fig. 2. The number of issued ready-made results of services by the subjects of their provision in 2021, units
Built on the basis of: [6]

The result of DAS's work in 2020 was the provision of 302 types of administrative services, and starting from May 11, 2021, their number increased by as many as 50 administrative services. This rapid growth is due to the beginning of cooperation between the Department and the Southern Interregional Department of the Ministry of Justice (Odessa) of the registration of civic groups through the CPAS [7].

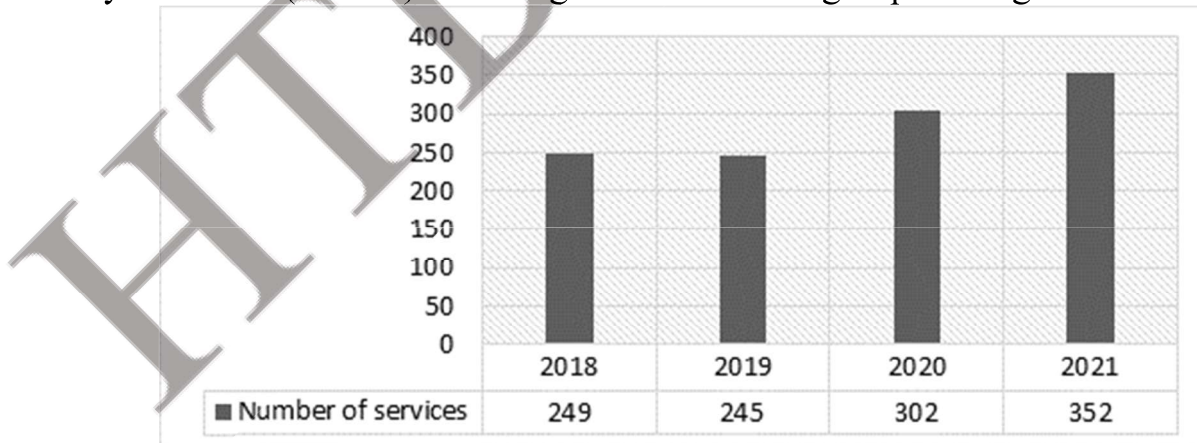


Fig. 3. Dynamics of the number of names of administrative services provided by CPAS for 2018-2021, units
Built on the basis of: [4]

Each administrative service provided by the Department has its own unique digital format cipher (XXX-X), or (XXX-XX), in which the first three numbers indicate the organization acting as the body providing the service, the last two - the

number in the order of service provided by this body. The table of executors of administrative services with ciphers is presented in Exhibit A.

The full list of administrative services is very difficult to comprehend for the average citizen who needs cohesion on certain grounds. In general, the services of the Department can be divided into five categories, ie to classify activities by common characteristics, then it becomes possible to estimate the share of these services in the overall activities of the Department, as shown in Figure 4. It is possible to a conclude about the popularity of the state administrative services.

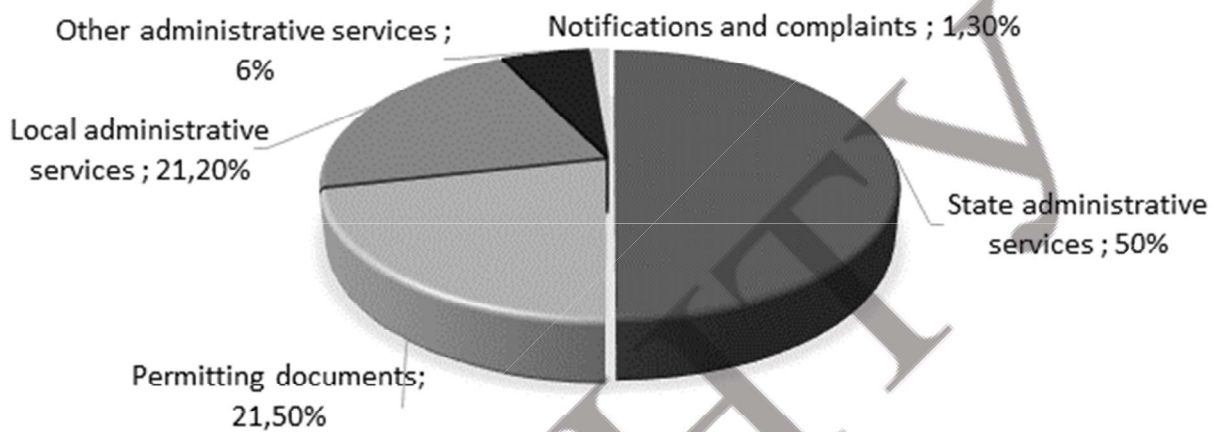


Fig. 4. The share of administrative services provided through the CPAS in 2020,%
Built on the basis of: [4]

A key feature of the service state is the creation of the most favorable conditions for citizens. The Center of administrative services provides free trips to residents of Odesa who are not able to get personally to the CPAS, as shown in Figure 5.

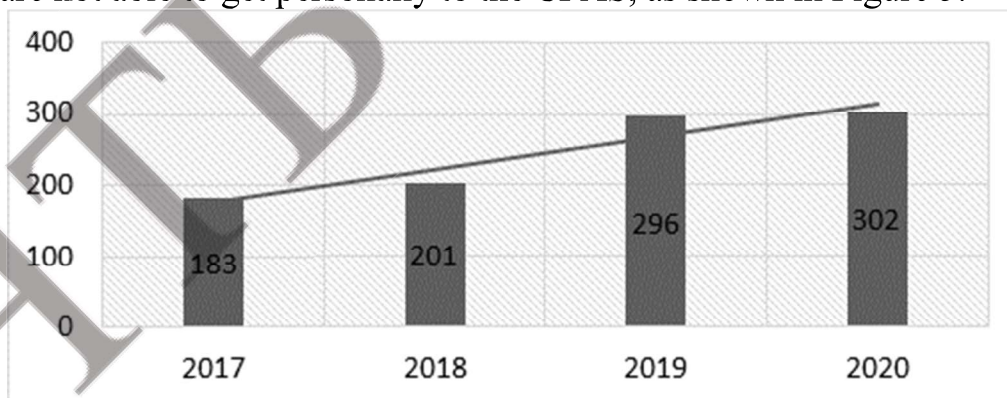


Fig.5. Dynamics of the number of outreach receptions for 2017-2020, units
Built on the basis of: [4]

The Government of Ukraine, heading for EU accession, should improve its activities in the field of administrative services by using best practices and new ICTs.

The digitalization of the Department started in 2020, when the administration decided to launch a web portal in a test mode at cnap.odessa.ua. The site is responsible for informing citizens, namely: the list of services, the procedure, cost and timing of their implementation.

The leading activity of the Department is the activation of work in the sphere of providing electronic services. It is planned to increase a quantity of free time for civil servants to resolve complex, non-standard or controversial issues, to reduce their work on the usual typical procedures for interacting with the subjects of appeals.

The Department has introduced 11 services provided in electronic form, free of charge, among which the DAS of the Odessa City Council acts as an intermediary. There is also a system of certification documents by QR-code, instead of the previously used stamp and signature. This practice is used in the provision of a small number of services, when the subject of the appeal receives a finished service in the form of a document certified by QR-code and completely identical to the documents issued by the Department, to his e-mail without re-applying to the administrator.

Digitalization will allow citizens with disabilities to obtain the necessary documents at home on their own, without the departure of the CPAS administrator to their place of residence. Since the on-site reception includes a visit of the administrator to the citizen's home, collection of documents, execution of the service and another visit to deliver the finished administrative service, the procedure is very time-consuming, approximately 1 on-site reception per day is realized.

At the same time, it is usually possible to register in an electronic queue for the most popular services, such as registration or de-registration of residence, no earlier than a month in advance. The long waiting time creates obstacles in the social activities of citizens. At that time the deadline for these administrative services is 1 day. When this situation arises, two types of measures are possible:

- operative: give him someone to help, transfer some of the work to other administrators.
- strategic: review and optimize CPAS processes [8].

4.2. The concept of reengineering of administrative services

The usual methods of improving productivity - streamlining and automating processes - may not always lead to major improvements. In particular, major investment in the information technology can be frustrating because technology is used only to mechanize the old work processes, leaving existing procedures untouched.

The workflows, management mechanisms and organizational structures of most administrative services were developed in an era when today's computers and technology did not exist. They are built with efficiency and control in mind, where the core concept of the present is innovation and speed, service and quality.

Reengineering is characterized as an all-or-nothing phenomenon and does not include a definite result, a detailed plan and careful steps. For a large number of administrative services, re-engineering is the only way to end an outdated process

It is necessary to subject the existing outdated procedures for the provision of administrative services to "reengineering": a radical restructuring of existing processes with the help of modern ICT. Reengineering involves identifying outdated procedures and discarding some of them in favor of new ways of doing work. In the developed new procedures, there will also create new rules that correspond to the spirit of the times.

Reengineering is characterized as an "all or nothing" phenomenon and does not

include a definite result, a detailed plan and careful steps. For a large number of administrative services, reengineering is the only way to end an outdated process that is exerting downward [9]. The reengineering process has certain features that characterize it meaningfully, which are shown below in Fig. 6.

Reengineering is based on the concept of jumpiness, which can be called the concept of discontinuous thinking - identifying outdated procedures and fundamental assumptions on which the work is based, and a decisive break with them [9].

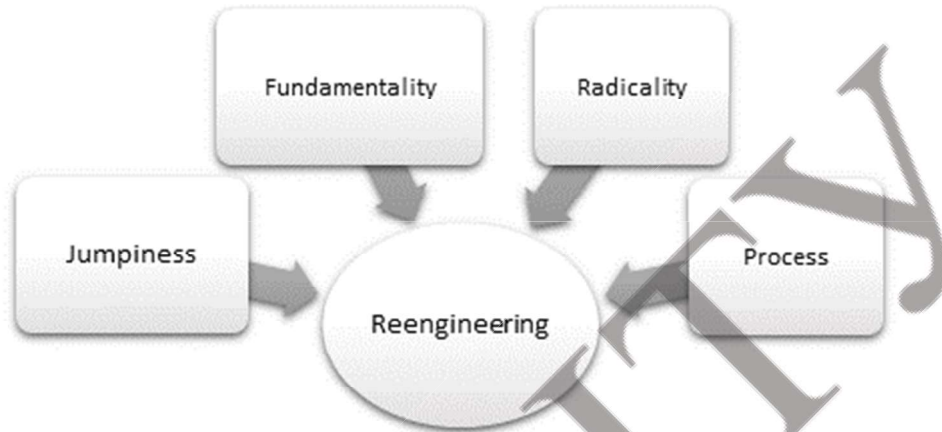


Fig.6. Reengineering signs
Built on the basis of: [10]

In general, the goal of reengineering is to significantly improve the efficiency of the public service delivery, which should become free from triviality and boundaries between departments, to be broad and cross-functional [9].

Like most performance improvement processes, reengineering includes certain implementation principles that distinguish it from other processes, such as performance improvement and quality management systems. These principles are defined in the figure below.

Several work procedures are combined into one
Eliminate unnecessary integration between departments
Establishing the logical order of process operations
Minimization of control parts of the process
The process has several implementation options

Fig. 7. Principles of reengineering of business processes
Built on the basis of: [10]

The structure of the usual adminservice process is fragmented, lacking the integration necessary to maintain quality and service organization. As a result, people

begin to replace the process task for the narrowly defined goals of their departments. When the work is passed from person to person and from one department to another, errors and delays are inevitable. The limits of responsibility are blurred and the most important issues are lost.

It is necessary to distinguish such processes as reengineering and improvement, the first is more radical and occurs through a complete reorganization of processes. Table 2 comparison of these tools to improve performance is listed below.

Table 2. Comparative characteristics of process improvement and reengineering

Comparison criteria	Improvements	Reengineering
The level of change	scaleable	radical
The frequency of changes	permanent	disposable
The duration of changes	short-term	long-term
The direction of changes	bottom-up	top-down

Built on the basis of: [10]

In the process of reengineering, the Group must ask the same questions in order to fully reengineer: "Why?" and "What if?" Why do we need an administrator's signature on the application form? Is it a control mechanism or a decision point? What if he or she doesn't review them at all? The process of raising and resolving heretical questions can truly separate the necessary parts of the process from the superficial details.

Reengineering brings many configurations to life, not just in the administrative services process. Responsibilities of administrators, organizational structures, management systems - everything related to the process - must be reengineered in an interconnected way [9].

In general, the reengineering process involves:

- analysis of the current business process;
- development of business process reengineering by means of a flowchart;
- definition of information exchange with the state registries, if necessary (within the flowchart);
- nomination of an updated application form (list of steps and fields).

4.3. Reengineering of the administrative service for the provision of housing subsidy

As an example, it was chosen an administrative service of providing the housing subsidy, which contains two documents to be filled out: Application and Declaration (sample documents are given in Exhibit B).

First of all, given that these two documents deal with the same issue, it is advisable to combine them into one Application, as the available information is somewhat duplicated.

Further, reviewing the Application, it is necessary to automate the process of filling in the name of the local department of social protection based on the place of residence to which the application for a subsidy is attached, since the corresponding state body is associated with each place of residence. This information is even

contained in the 2GIS service in the information about the house, so there is no need to ask the subject of the appeal about this. Such data as full name, registered place of residence, phone number, passport data, RNTRC, vehicle data are also filled in automatically from the information available in the Action application database. In case that a person lives in a place other than the registered one and wants to apply for a subsidy - the actual place of residence is filled in manually.

Regarding the choice of the type of service, namely the direction of assignment of the housing subsidy (to pay for housing and communal services, liquefied gas, etc.), it should be made from a "drop-down" list.

Today most utility payments are made through official websites of service providers, where users have their own personal accounts with information about meters and payments. It is reasonable to carry out some integration with these sites and their registries to obtain information about the subject of appeal, which will be more reliable, relevant and will not complicate for the subjects of appeals the process of obtaining an administrative service.

The item "give consent..." should be moved to the end of the application and put a box next to it for a "tick", this is a standard scheme of filling out applications and similar documents.

Reviewing the Declaration it was found that obtaining data on the place of residence should also be made automatic, without the participation of the subject of appeal, as this information is contained in state registries.

Data about relatives are typical data, which are available in the Action, so it would be appropriate to indicate which relatives live "daughter, wife..." and share a QR-code via a link in Telegram to confirm their provision of data. Filling in manually in the absence of the application is also left as a possible feature, since not every citizen has this application yet.

Data on staying abroad are recorded in the database of the state border service, so it is advisable to check this information in the register.

It is not yet possible to bypass the indication of income that is not in the database of the tax service, therefore it is necessary to mark the full name of the employee, make a "drop-down" list of these four types of income, in the case of marking the presence will appear a field about the amount and organization.

It is still difficult to reliably find out expensive purchases without the participation of the subject of appeal, so you should ask a citizen about this. If a citizen chooses "yes" to the question of purchasing goods for more than 50 thousand UAH a field for entering the full name, a "drop-down" list of types of goods, a field for the cost and a date selection appear. Consent to all conditions, data processing, etc. is carried out at the end of the application by putting a "tick", this should include agreement with the terms of service provision from the part of the Application.

Schematically, the administrative service after the reengineering process is shown in Figure 8.

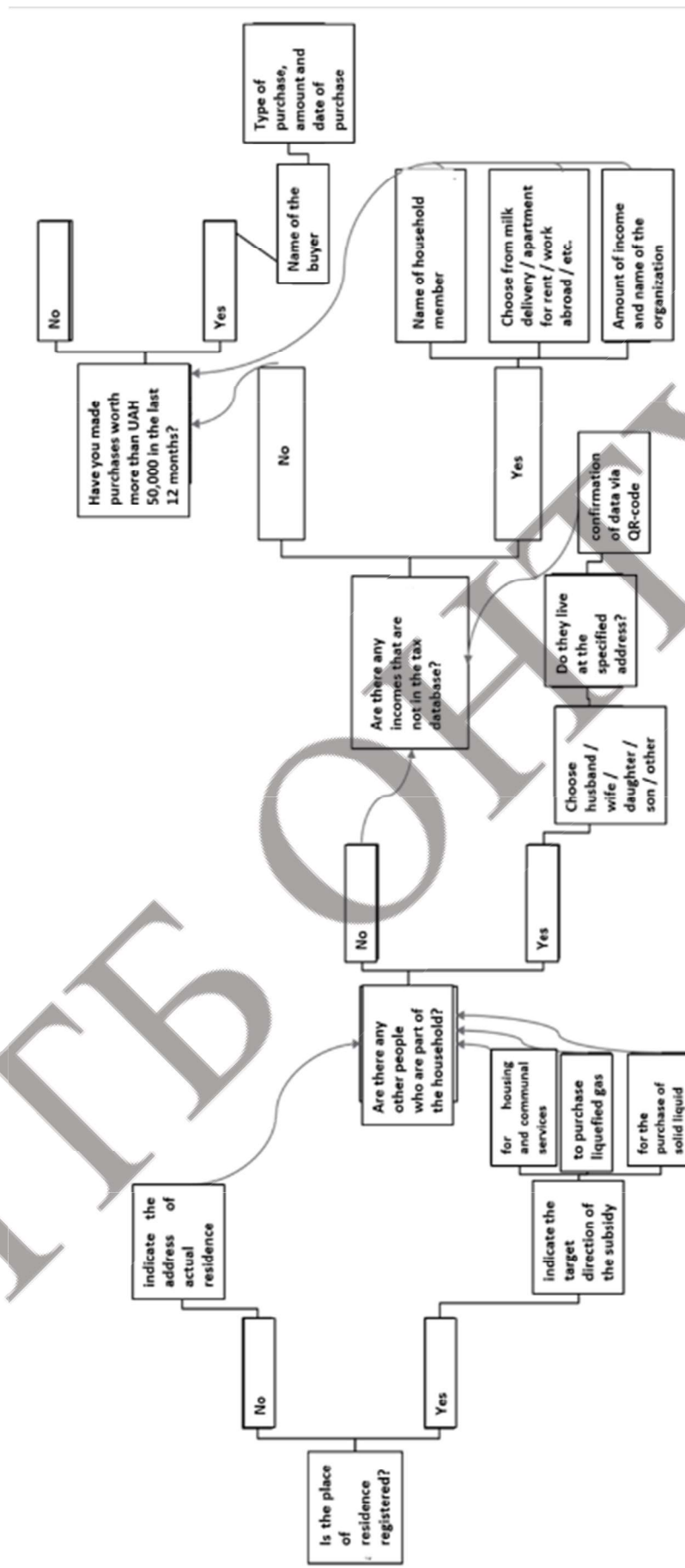


Fig. 8. The process of reengineering the administrative service for the appointment of housing subsidies

Administrative service cannot look like a scheme; need to develop its final form for the subject of appeal. For example, using the smartphone interface, can depict the interface after the reengineering process, in Figure 9.

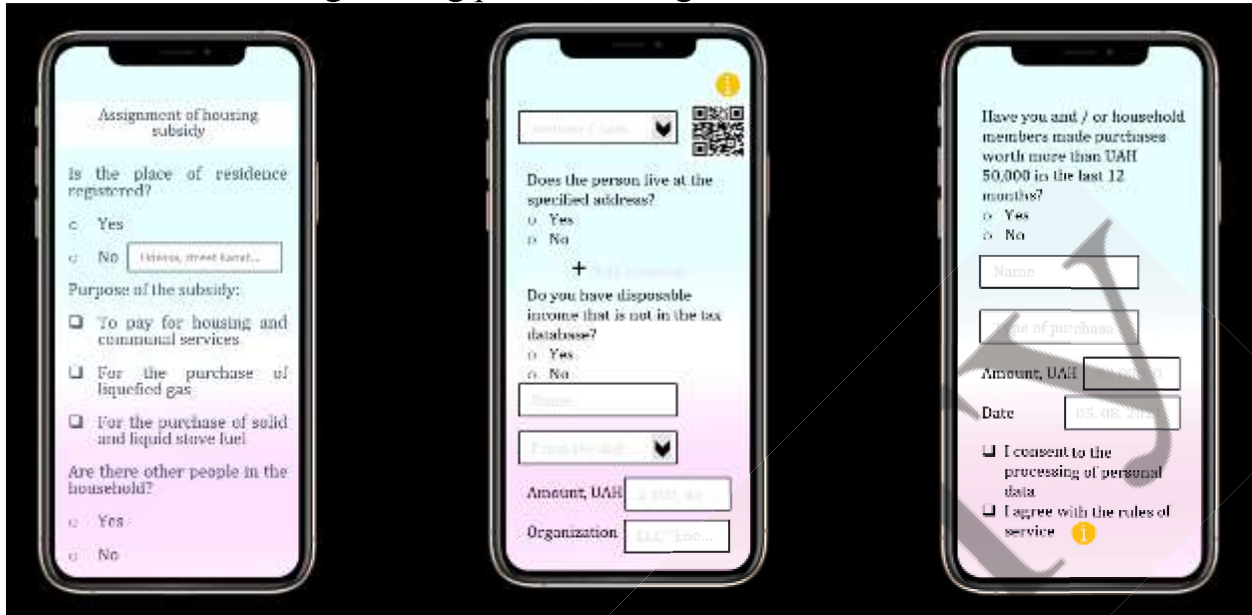


Fig. 9. Approximate type of administrative service for housing subsidies

It is important to organize the process of providing the service as clear and simple as possible. It is desirable at this stage to provide a test design service focus group conducted development and improve if necessary.

V. CONCLUSIONS

For many years, government services were mostly associated negatively: long lines, lack of understanding of what to do, endless offices, sometimes unfriendly employees, and bribes. Unfortunately, this trail of distrust continues to this day. Today the state is working on creating a new face of the service state.

Today, one of the priority areas of activity of the authorities in the framework of the development of the information society is customer focus and accessibility in physical and electronic form. A high-quality system of administrative services that meets all the challenges of our time is being created through the integration of electronic services into the activities of the Department.

1. Revealing the concept of administrative services, it is defined that the system of providing administrative services is represented by the interaction between the subject of appeal and the subject of providing administrative services, the subject of which is an administrative service. Delegating to the local level the authority to provide services, the state provides local government with an appropriate resource: either through inter-budgetary relations by sending transfers (subventions, subsidies) from state local budgets, or through transferring to the localities a share of the relevant national taxes and fees, helping to implement the decentralization reform.

2. Analysis of the Department's activity made it possible to see that today there is an active development, despite the quarantine and other possible restrictions. Every year the number of the services provided and the specific weight among them provided

by the Department of administrative services of the Odessa City Council as the body of the service providing is increasing.

3. Revealed the process of reengineering of administrative services as one of the ways to improve the work of the Department, it can be seen that it is a highly effective method of improving the quality of services in the Department of Administrative Services of the Odessa City Council. These measures will speed up the process of their provision, reduce queues and make it easier for citizens to register.

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