Digital divide model: applicability, benefits, prospects

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Abstract. One of the aspects of the society development is the continuous improvement of the model of relations between a person (citizen) and society (state). As historical experience shows, often this model was a factor in the successful development of the state. There are three main types of relationship models: those determined by the priority of the state over the person, determined by the importance of human values, based on solidarity and subsidiary relations. There is a common drawback in the application of all these models – they are the same for all citizens within the borders of one state. With this in mind, the subject of the study is the structure of the relationship model “person-state”. Historical analysis and synthesis are chosen as research methods. Based on the analysis, it was determined that the maximum possible differences in the application of existing models are realized through the division of citizens into groups according to age, gender or other formal characteristics. It is concluded that such a situation can lead to internal conflicts, but so far it could not be corrected due to the lack of appropriate segregation mechanisms. The paper formulates the task of creating a new model of relations based on the digital divide in terms of the parameters chosen by each individual. It is concluded that the implementation of the proposed model will have a practical effect, which is to increase the efficiency of the system of state and municipal government, while the technical prerequisites for the creation and implementation of such a system of relations already exist.

1 Introduction

According to historical analysis, already at the initial stage of the development of human society, with the beginning of the unification of people into groups, a system of relations between the individual and the community of people spontaneously arose, which determines their mutual obligations. Built and adjusted by trial and error, the model developed further, as the production forces developed and production relations changed, gradually improving and becoming more complex in the form of a state mechanism [1]. However, this mechanism is not something static, it is developing now, first of all, due to changes in the economy, which is moving from the industrial stage of the society development to the post-industrial, informational one. Therefore, it is quite logical to...
Assume that the improvement of the entire structure of the state, including the management system, should also continue. The need to study these changes, their development trends, determines the relevance of the paper’s topic.

2 Materials and Methods

A systematic approach was chosen as the methodological basis of the study. The use of a systematic approach, methods of decomposition and comparative analysis made it possible to consider in a complex the problems of interaction between a citizen and the state in their development, within the framework of various social theories. To assess the state of the subject area and form options for building such relationships in the conditions of total informatization of society, the methods of comparative analysis and generalization were used in the paper.

The source base of the study was made up of scientific articles and legislative documents that are in the public domain.

3 Results

In a historical retrospective, in the initial historical periods, in the course of the development and formation of states, simultaneously with the improvement of intra-communal, and subsequently intra-state relations, at all stages of the development of human society, there was an organization of ties that would now be defined as interstate. And relations between states during this period were not always peaceful. At the stage of formation of states, with an equal level of technological development, the strength of various countries was mainly determined by their size. Accordingly, in order to survive, the states grew. But, as the experience of historical development has shown, in addition to scale, other factors turned out to be significant, one of which is the very structure of the state, determined, among other things, by its social model, the model of relations between the state and its citizens.

The last factor turned out to be extremely important. History knows many examples when a successfully chosen model contributed to the rapid development and prosperity of the state. And, on the contrary, no less examples can be given when an outdated model of social relations or a model chosen in such a way that it is impossible or inappropriate to maintain it led to the collapse of entire state formations. This confirms the relevance of the problem of rational construction of a management system model that implements the "person-state" relationship. A problem that has not yet been fully resolved.

From a formal point of view, the considered model of relations as a connection between a person and the state, within the framework of the institutional approach, is expressed through the institution of citizenship. The essence of this concept is expressed in the presence of a stable political and legal connection between every citizen and the state. This connection means the legal affiliation of a person to a particular state, the acquisition by a person of the specific qualities of a citizen, the existence of a range of mutual rights and obligations of citizens and the state, as well as the protection of a citizen by the state within the country and abroad.

Historically, two main models of relations between the state and citizens have developed:

• ensuring the priority of the state over the citizen;
• realizing the priority of human values over state ones.

The first of these is represented by paternalistic and statist theories that substantiate systems of power in which the needs of the state have an undeniable priority over the needs...
of the individual. Within the framework of such a model, the state suppresses the individual, subjugates it, erases the distinctions between the personal and the social, the individual and the public, and the person is considered only as part of the state mechanism.

The second model of relations between the state and the citizen is based on the recognition that the basis of the state and its policies should be the rights and nature of man. The highest social value is the individual, on the basis of his needs the entire state system of power is built, free citizens are opposed to state domination. It is believed that the joint and individual life of a person should not be based on political coercion by the centers of power, the main emphasis in this model is on limiting political power, on asserting its dependence on the individual. In such a model, the state is declared to be the result of an agreement between free individuals, citizens, who limit its ability to interfere in their private lives.

Within the framework of modern sociological theory, a third model is also considered, based on the position that the state and the individual must act in accordance with the principles of solidarity and subsidiarity. The first principle assumes that the good (and problems) of each is inextricably linked with the prosperity (or weakening) of the whole, with the concern of each for each other and for the state as the embodiment of civic bonds. The second principle means that the state is obliged to provide assistance to those who are not able to independently organize a decent life. But, of course, such assistance should be selective and targeted, without degenerating into support for dependency. In other words, without rejecting the priority of the individual and his rights, the supporters of this approach insist on maintaining the serious social functions of the state. Moreover, its social appearance is placed by them in a greater dependence on the level of political culture of citizens.

The basis for choosing a model for building citizen-state relations, in fact, is the policy of resolving a centuries-old problem – how to find a balance between the interests of the state and citizens, between order and freedom, between power and society. In the course of millennia of evolution, human civilization has searched for this balance by trial and error, fixing it with legislation, a kind of social contract between the state and society, as a set of its constituent citizens. But one thing remained unchanged in any model – on the scale of the state, the relationship model was practically the same for everyone. But, as historical analysis shows, it is this situation that is often the source of problems that slows down the development of the state and society. And these problems need to be addressed.

4 Discussion

With the growth of states, the increase in the communicativeness of their population, inevitable with the development of technology, the strict system of relations between a citizen and the state, absolutely the same for all its citizens in an attempt to make them equal, began to falter. The reason for these failures lies in the very nature of man, his natural desire for freedom, in the “justice of inequality” noted by many philosophical schools [2,3].

But to realize the freedom of relations, to make the system of relations "citizen-state" regulated, was practically impossible for a long time: both due to the lack of technological capabilities, and because of the need for this that was not explicitly expressed. The maximum that could be technically organized was first the division of society into classes with different rights, and subsequently: rational inequality for certain groups of citizens, divided according to physiological, age or gender characteristics. In any case, the division was carried out precisely according to a limited number of fairly large groups. At the pre-information stage of the society development, such an approach even simplified management, increasing its efficiency.
But the unresolved need for fair inequality objectively existed even then, and the search for a solution to the problem was started by the citizens themselves, or rather, the most active of them. As a result, the groups of the population appeared, not outcasts in essence, but asocial in fact, who do not want to live according to general rules and laws. In a civilized society, for example, these are passionaries who are looking for non-criminal ways to bypass the laws to solve any of their problems [4,5]. The problem is more radically solved by people who do not see themselves within the framework of a particular state, for example, certain groups of migrants in modern Europe.

Of course, the state system of each individual country is trying to respond to the negative situation with the available means and opportunities. For example, ‘squeezing out’ those who do not want to live by the rules, i.e., the most passionate members of society, for example, for the development of new territories or other dangerous operations that promise certain preferences [6,7], and sometimes simply forcing them out. But this is far from an optimal approach to solving the problem, and its implementation itself can cause certain social tensions and losses.

Nowadays, in the conditions of total informatization, it has become possible to solve this problem with more humane and safer methods, by building a differentiated system of relations between the state and the citizen as part of the optimization of the system of state and municipal government. These conditions are provided both by technological prerequisites determined by the development of information and communication technologies, and by algorithmic capabilities: the emergence of Big Data algorithms, blockchain methodology, Internet of Things (IoT) technology, and others.

In the form of setting a task for development, a new model of relations, which can be defined as a "digital state", can be described by a flexible (customizable) system of private agreements between the state and each of its individual citizens. A variant of such a description is given in Table 1.

Table 1. Matrix of regulation of relations between a citizen and the state

<table>
<thead>
<tr>
<th>Level</th>
<th>State obligations (citizen's rights)</th>
<th>Citizen's obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>Minimum obligations for the protection of life, safety and health</td>
<td>Basic taxes, and first of all - hidden.</td>
</tr>
<tr>
<td>Responsibility to uphold the law and defend the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>Basic obligations to protect life and health, social insurance</td>
<td>Basic responsibilities. Additional taxes, basic social payments</td>
</tr>
<tr>
<td>Extended</td>
<td>Basic options, plus additional property protection obligations</td>
<td>Basic responsibilities. Extended social and insurance benefits</td>
</tr>
</tbody>
</table>

In terms of calculating the parameters of economic efficiency, the proposed model can be described in the most general form by a system of linear algebraic equations of the form:
\[
\begin{align*}
\sum \frac{a_{ij}}{x} &= \sum \frac{a_{ij}}{x} \\
\sum \frac{a_{ij}}{x} - \sum \frac{a_{ij}}{x} + b &= \sum \frac{a_{ij}}{x} - \sum \frac{a_{ij}}{x} + b \\
\sum \frac{a_{ij}}{x} - \sum \frac{a_{ij}}{x} + b &= \sum \frac{a_{ij}}{x} - \sum \frac{a_{ij}}{x} + b
\end{align*}
\]

where \(a_{ij}\) – coefficients (volumes of receipts (index 1) and payments (index 2)) for the \(i\)-th level of interaction (minimum – index 1, basic – index 2, and extended – index 3);

\(x_i\) – the number of citizens who have chosen the \(i\)-th level of interaction;

\(b_i\) – the amount of the necessary additional payment from the budget or income received.

The proposed model can serve as a basis for optimizing the construction of a new structure of state and municipal government, which ensures the rational building of relations. To find the optimum, any known mathematical methods can be used. The specific structure of the model and the mathematical method used to optimize it are not important, the proposed approach to solving the problem itself is important.

The material basis for the implementation of the proposed model is information technology based on the identification of each specific person and taking into account all his significant actions. Thus, the previously unsolvable situation is now simplified by the fact that modern information technologies (Big Data, interactive distributed services, and other) make it possible to implement the principles of an individual approach to building relations between a citizen and the state.

In the theory of the digital economy currently being developed, it is planned to significantly improve the logistics and manage ability of production processes by increasing the overall efficiency of production by informatizing the processes of economic management and the provision of services. Moreover, a number of foreign countries are already considering the practical implementation of information strategies of state management that are broader than the digital economy [8,9].

In the modern world, there are other successful, albeit not so large-scale, examples of building individual elements of such a management model – the formation of pension funds in developed countries, providing for basic and extended pension options. Another example is the organization of health insurance. But all of them apply either to certain areas of relations, or to certain categories of citizens, and do not represent a new model of “citizen-state” relations. For the full implementation of the proposed model, it is necessary to extend such a system to other areas: social, property, legal relations. And there are material prerequisites for this, as the analysis shows, sooner or later all these disparate digital platforms will be combined into a single system, which can serve as the technical basis for the implementation of the proposed model. So far, this process is proceeding according to the principle of automating the system of state and municipal government in the “as is” state. But the application of the new model of relations “citizen-state” will ensure the emergence of a new system quality, implemented through the process that in economic management is called the Business Process Reengineering (BPR).

Moreover, already at the modern level of information technology, organizing the system settings for each person is a little more difficult than personalizing the personal account of any program. A vivid example is the Social Credit program currently being implemented in the PRC, when a distributed information system controls the actions of literally every citizen, maintaining its kind of “rating” and determining the size of public goods and clarifying the duties of citizens. The Chinese experiment can be accepted, without assessing the ethical essence of the process, as a successful experience in the use of information technologies for the practical implementation of the digital divide proposed in the new relationship model.
individual control technologies for citizens – the automatic blocking of travel documents for certain categories of citizens during the 2020 pandemic. And, in general, at present there are quite a few examples of successful implementation of individual accounting technologies: the use of QR codes to visit public places in Moscow in 2021, the introduction of restrictions for citizens who are not vaccinated against COVID-19 to travel by air and rail in this same year in France and others. All this allows us to conclude that digital segregation technologies exist and have been tested.

It should be taken into account that, regardless of the availability of opportunities, another problem arises – to implement this approach, not only technologies are needed: citizens will be forced to make independent decisions and assess the risks that arise in this case [10,11]. This will require a certain level of responsibility and legal culture. On the other hand, this will require certain changes from the state. Changes that ensure building clear and stable relationships with their citizens. But it is precisely such approaches that will ensure the transition from a mentality historically based on communication with the state of a ‘serving’ type to a society that ensures equal relations between a free citizen and his country.

In addition to the potential risks associated with the modernization of the system of state institutions, there is yet another global group of problems. It is determined by the development of informatization and its penetration into all spheres of activity. As a result, such Internet giants as Meta and Google are literally becoming virtual states with all the signs of real states: a registered population, a government, its own laws, and even a semblance of a system of coercion and punishment that ensures virtual ‘destruction’ or sending to a ‘digital concentration camp’ both individuals and entire groups of citizens. At the same time, unlike real states, these virtual entities are weakly subject to international laws and requirements, and even observance of the principles of humanity can be interpreted in their own way. Considering that a significant proportion of connections in the electronic model “person-state” can be built through global Internet companies, there is a danger of their interference in these relations. This problem is significant, and its influence will only grow in the future. Therefore, when building a new model of relations, a significant proportion of the work should be aimed at ensuring its safety from the influence of third-party players.

If these rules are observed, the practical implementation of the proposed model can be ensured by the successive implementation of a number of stages:

- to realize the existence of the problem of interaction between a citizen and society and to formulate it in detail;
- to create (finish) the technological basis of the ‘digital state’;
- legislatively build a system of relations potentially emerging in the updated conditions;
- establish a relationship management system and control its functioning;
- ensure monitoring of the status of implemented measures and improve the system as needed.

The implementation of these stages will require time and costs, primarily organizational ones. But the results of their implementation, in the future, will provide a significant increase in the efficiency of interaction between each citizen and the state, the quality of the system of state and municipal government as a whole. Moreover, the interaction should become two-way: on the one hand, a citizen recognizes himself to some extent indebted to the state (to his motherland, or to where he temporarily resides), on the other hand, the state optimizes its obligations to him. Such an approach, previously impossible due to the lack of technologies for processing and storing extremely large amounts of data, can be implemented and will solve a huge number of problems of the modern dynamic and integrated world. Including, for example, the…
5 Conclusions

Conclusions

Within the framework of the paper, only the statement of the problem for the formation of a new model of relations between a citizen and the state, based on the use of the capabilities of modern information technologies, has been formed. The practical construction of a comprehensive model of the 'digital state' is larger and more complex than important, but specific decisions, such as digital government, safe city, or even a program for creating a digital (electronic, network) economy [12,13]. Its implementation will require extensive research: in terms of building interaction schemes, assessing their economic efficiency, determining rational terms for changing the interaction scheme. Moreover, an assessment of the scope and ethics of the proposed model application will be required: the preservation or change of indicators over time, their distribution to other people, for example, relatives, and so on.

But the transition to such a system is objectively overdue. As a result of its implementation, due to the synergistic effect, optimal relations between a free citizen and his state will be realized. The relations of the 'ideal state', which were dreamed of by Plato, the late utopian socialists, and the idea of which was developed by Russian philosophers: "freedom is, first of all, the right to inequality" [3], “…justice does not require equality at all. It requires object-based inequality” [4].

Due to the reengineering of the system of state and municipal government, the use of modern information technologies can translate the concept of 'justice of inequality' from a philosophical abstraction into a real principle of organizing the state, thereby ensuring the progressive and effective development of the latter.

References


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