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Structurally Functional Opportunities of a «Smart» Life-Support System

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Abstract—The system of essential services is a network of interrelated principles, methods, and tools aimed at achieving and maintaining a certain standard of living in the social and personal space and at providing comfort in the space of life. Such system solves the task of providing conditions, resources, and benefits for the realization of crucial needs and interests of citizens. The design of a smart system of essential services is based on the meanings of human-centrism, integrated with the principles of the organization-centered system, a combination of technologies and principles of traditional and professional sustenance systems. Such a system has the qualities of flexibility and situationality; it is scientifically grounded and implies the participation of citizens in organization and improvement of their lives.

Keywords—essential services, smart technology, human technology

I. INTRODUCTION

The vision of normal life is an element of the national culture, and it determines features of the system of essential services as a combination of means that individuals can choose to comfortably organize their life. These choices, which are often consciously unrealized, arose from the peculiarities of the people's adaptation to the natural and climatic conditions of the living environment. In Russian society normalization (latent yet modal process of accepting something as a norm) has a paternalistic character. The population is accustomed to the situation that the standards and orientations of consciousness and social behavior are imposed from the top down'. Active participation of an individual in addressing the issues of local significance is not actualized in practice. The result is a mismatch between the vision of the population and the authorities on normalization. In part, this is historically grounded in the ethics of Manichaeism [1] in the personal, social and political life of the Russians. From the Manichaean

standpoint, the center of the worldview is occupied by the ruler figure (_tsar-father') who holds the position of truth and infallibility. Officials are perceived as the servants of falsehood: they interfere with the fair governance of the _monarch'. The state, represented by in the ruler, is expected to protect the people from the oppression of officials. This induces the principle of paternalism in the structure of state institutions and fills the everyday life of people with consumerism habits. A commoner is often alien to the idea that they can influence something in their own country, but at the same time they can be rather demanding to the social security institutions, sending letters of complaint to higher authorities in order to receive benefits and allowances.

The system of essential services is intended to regulate and neutralize these contradictions. However, its function and meaning are internally contradictory. On the one hand, the complexity of the system of essential services resulted from the amplification of human needs and social aspirations. On the other hand, the system itself limits these needs to the standards, tailored with regard to economy, rationality, and sufficiency. This system is designed to meet typical needs in standard social situations while it cannot take into account the unique human needs (ethnic, confessional, regional). The complicated socio-political situation in Russia in the 1990s, when nearly the entire population of the country had to face extreme conditions, resulted in the environment where standard case are few but the number of unique needs is growing. The categorical content of the concept of essential services' expanded significantly, supplemented by economic, social, political meanings [2], but the functioning of the system, in essence, remains at the level of basic needs of the population.



II. MATERIALS AND METHODS (MODEL)

The concept of necessities of life' came to the humanities in the late 1930s from ethnology (Löwe, Arutyunov [3]) in the sense of a technology of procuring and producing food. An unequivocal understanding of this term did not appear, but its meanings have expanded significantly. Provision of the necessities of life is seen as a two-level process of meeting the essential material and spiritual needs of an individual or a group. This is adaptation to the natural and socio-cultural habitat by developing components of culture that ensure the success of such adaptation and the entire process of ethnic reproduction' [4]. The culture of provision of the necessities of life has eventually been created as technologies to protect an individual from anxiety about physiological, social, and psychological threats [5], including ritual practices, symbolic systems that secure the needs of prestigious status, ethical and ideological attitudes of the socio-normative and humanitarian culture of the society.

In sociology, the concept of provision of the necessities of life was comprehended in terms of the theory of adaptation. Spencer believed that traditional societies organized provision of the necessities of life depending on personal characteristics and specifics of adaptation to the social environment. Personal inclinations set a vital differentiation, ensuring the superiority of one over the other [6].

Today, in the humanities it remains urgent to develop a modern concept of provision of the necessities of life, i.e. a system of essential services designed to meet the needs of an individual in a constantly changing social world, where the variety of life styles determines people's vision of a _normal' of life in all its diversity. Such understanding of the system of essential services is based on the balance of scientific capabilities and everyday practices of the population, developed in adaptation and relying on a balanced understanding of the requirements to normality and the development of standards'. We believe that the modern system of essential services needs conceptual interpretation from the point of view of the structure (an integrating core, peculiarities of the elements, and boundaries), the opportunities for combining the self-dependence culture with organizational capabilities, which determine the technologies of meeting the needs of the population in both routine and non-standard situations. To justify such a system of essential services, the systemic and structural-functional analysis was used. For approbation, the methods of interview and document analysis were used.

III. RESULTS AND DISCUSSION

In practice, the provision of essential services is based on the traditional system (self-dependence) and organizational models. Such models are transmitted to younger generations, acquiring forms of social technologies of humanitarian and organizational type. The humanitarian technologies (human type) rest on values, ideas of what is due in ethics, religious traditions, etiquette practices, aesthetic norms that fill one's social experience. The organizational technologies (smart type) formalize the material aspects of the life sustenance

culture, forming the institutions of essential services. In organizational technologies, the category of provision of the essential services' is characterized by the features of the productive forces, the demographic structure in qualitative and quantitative parameters in the spheres (economy, society, spirituality, demographics) of social reproduction, taking into account the financing sources and the scope of investment. The scientific literature is dominated by an understanding of the system of essential services as a complex of public agencies, regulatory bodies, organizations, infrastructure, and resources. Each of them performs certain functions or tasks to ensure the necessities of life for the population [7]. Structurally, the system of essential services has two functional parts: social needs (medical care, social infrastructure, education, leisure, etc.) and economic needs (labor protection, fair wages, employment, formation of prices, etc.).

The humanitarian technologies are an individual's vision of the necessities of their life in the aspect of *normality*, while the organizational technologies are the vision of the necessities of life in the aspect of *standardization* by officials who represent management of the system of essential services. These standards may be uncorrelated with people's idea of *normality*. When these vision cross, there appears a system of essential services that objectively operates, but subjectively works blindfolded, failing to understand desires and needs of the object of its services.

The integrating core of the system of essential services implies two meanings of functionality: human-centrism and organization-centrism, corresponding to traditional and civilizational types of provision of the necessities of life. The organization-centered meaning of such system gives the individual (object) the role of a patient who accepts the conditions and the rules of the life-sustenance game. The organization-centered integrating core is aligned with certain standards, estimated by economists and embodied into a _consumer basket'. A human, having unique desires, ideas, and needs that fail to fit into such consumer basket', is excluded from the system functioning. The civilizational type refers to the professional level of culture functioning, while the traditional type forms the everyday (grassroots) level. The system of professional essential services focuses on the organization of professional structures and disengages the elements of the traditional system, leaving them without support. We are referring to public initiatives, everyday social practices and sustenance strategies, accumulated in the national culture.

Harmonious co-existence of the civilizational and traditional types of the system of essential services can be an ideal of normal life. But the organization-centered system is on the periphery of an individual's life: they may forget it exists. A consumer of the organization-centered system may not know where to turn to for help in a critical situation. In the traditional system, a human stays in its center: an individual can turn to the experience of older generations or the community in a difficult situation and also share their experience of dealing with such situations, create self-support



groups within the system. The human-centered (traditional) system is integrated into the everyday practices of people and rests on the foundations of life sustenance culture and the collective everyday life experience, concentrated in the idea of normality. The distinction between the human-centered and organization-centered systems can be found in the difference of experience of a professional (an official) and an individual (an object). Human experience contradicts the meanings of organization-centrism, which is based on the level as low as practicable for organizing life and expressed in standards of the _consumer basket'.

The traditional system cannot be organization-centered. However, the organization-centered system can be human-centered (human-oriented). The integration of traditional and civilizational types of the system of essential services appears possible from the methodological position of human-centrism. The modern system of essential services can be relevant in the form of a bilateral structure having, on the one hand, scientifically backed standards of the quality of life and, on the other hand, individual interpretation of a _normal life' and the requirements to it. Such bilateral system of essential services with a human-centered core and both traditional and organization-centered meanings can be a valid construct of the smart system of essential services.

With the help of built-in communications, the system seeks to distinguish itself from the world. At the boundary there is the external social setting that is interested in maintaining the system, but remains outside it. The _border guards' of the system of essential services are the fundamental institutions of society (family, industry, power, education, religion) and social groups influencing the electoral behavior of citizens (political and economic elites, media, political parties). The boundaries are symbolically drawn up, fixing its isolation from the territory of _border guards'.

Through the relations with the external social setting, the system acquires a meaning of contextuality and historicity. The development of the system is associated with the functioning of the system code—the cultural socio-code [8] which determines the features of the communication system. Sociocodes give the system its uniqueness and preserve the deep meanings of the system origins. If the system becomes dissonant with the social codes, it brings itself to ruin. If the system makes decisions that are consonant with the vibrations of its sociocode, it remains flexible and stable, despite external challenges and internal systemic crises. Developing, the system reaches a consummatory state (Talcott Parsons's term), i.e. satisfaction from achieving the goal. However, it poses a threat of conservation of the system functioning, which leads to dogmatization and disintegration of the system: conservatively formed organisms are stable only in a conservative environment' [9]. The rationality of the professional (organization-centered) system makes it _blind in an eye'. A professional official sees what can be done for an individual, but fail to see the individual. Such rationalization of actions in a transitional society leads to the failure of the system in the face of growing risks.

It would seem that an organization-centered system is more capable of handling various situations, but practice shows otherwise: people outside the system of essential services are more flexible; they choose self-dependence strategies and respond to changes by a wider variety of survival practices than the professional system, conserved by instructions, rules, and standards. The organization-centered system begins to compete with individualized legal, medical and psychotherapeutic forms of services and compensation, which, depending on the circumstances, are much more specific and help the victims better cope with the adversities and burdens [10]. A situational system of essential services is an integrative system with renewing structures, acting on the principle of solidarity and cooperation with the citizens. Such renewal helps the sustainable elements retain the primary functions and rejuvenate due to the outside elements and cooperation with the objects of services and the border guards'. The logic of social development forces people to unite in coalitions and alliances on _different partial arenas of cultural and social sub-politics' [10] to overcome critical situations. The partial arenas of cultural and social subpolitics' include citizens' initiative groups, the public opinion, Internet forums, the media, legal proceedings, the private sphere, new social movements, which are the interweaving of institutional and extra-institutional forms of the contemporary political culture. Such coalitions cannot exist for a long time. However, they fulfill a subsidiary task, bring attention to a certain problem, reveal the public opinion, and latently influence the development of strategically important political decisions. The reliance on boundary coalitions with their nonstandard needs and abilities to solve vital tasks strengthens the situationality of the system by the feedback that is characteristic of open systems. The center of gravity shifts from a properly functioning system to helping people and learning new forms and styles of life. A new form of civil and political culture is emerging, which requires from the organization-centered system to become reflexive. The principles of centralization and bureaucratization and the associated rigidness of social structures have to compete with the principles of flexibility, which are increasingly gaining priority in emerging situations of risk and instability by suggesting new forms of work.

Qualimetric administrative reports systemize and generalize people's inquiries for essential services (Table 1). The priority of paternalistic values prevents the citizens from solving problems in difficult life situations independently. This can be seen in the content analysis of the citizens' appeals and complaints, addressed to the Human Rights Commissioner in the Kemerovo Region, Russia in 2017. The Commissioner's office received 999 individual and collective submissions from the citizens; 1124 submissions were considered by the public assistants of the Commissioner in the municipalities the Kemerovo Region.

More than half of the submissions (53%) were related to the essential services. They can be divided by the subject as follows:



- 162 submissions referred to various aspects of housing legal relations (relocation from dilapidated housing, provision of residential premises to benefit-entitled citizens, requests for housing allowances, complaints against management companies, housing disputes with neighbors, etc.);
- 81 submissions referred to the social security issues (disagreement with the size of the accrued pension, disagreement with the length of pensionable service, issues related to receiving benefits and confirmation of disability in the field of compulsory social insurance against occupational injury, problems of providing disabled people with rehabilitation means, social support for large families, maternity capital, welfare assistance, etc.);
- 43 submissions referred to health care, medical treatment and pharmaceutical support;
- 63 submissions referred to labor relations (unlawful dismissal or lay-off, disagreement on the amount of wages, non-payment or untimely payment of wages, hidden wages, labor protection, employment problems);
- 9 submissions referred to violation of rights to education;
- 24 submissions referred to family relations;
- 22 submissions referred to bank loans (lack of possibility to repay a loan or mortgage, unlawful coercion to a life and health insurance program by the bank);
- 26 submissions were request for provision of land plots to benefit-entitled citizens, plots for the construction of residential houses, land disputes;
- 9 complaints complaints about violation of the environmental rights of citizens;
- 21 submissions were complaints against actions (inaction) of officials of the state authorities;
- 71 submissions were complaints against actions (inaction) of officials of local self-government bodies [11].

When developing a smart (integrative) system of essential services designed to facilitate communication between citizens and officials, one more contradiction between the world of meanings and the world of figures was found. Instructions regulating the functioning of the system exclude the human factor in the behavior of people (neighbors, relatives), the connections between which are based on emotions. Systematicity means correspondence to the needs and requests of consumers of the services who comprehend it in the categories of normal life, far from scientific abstractions and understanding of the need for standards of the organizationcentered system. General public rejects unclear mechanisms (practices of developing standards for housing and communal services, standards of the consumer basket', co-financing, performance indicators, etc.) because of the contradiction between the practical needs, fixed by ordinary consciousness in the living space, and the scientific ways of organizing social space with its calculated and reasonable standards. The organization-centered system of essential services remains _unfriendly' for the population, detached from the needs of people, colonizing the situational everyday life with _systemic relations'. With electronic equipment designed to make the system convenient and affordable for the population, the system gets modernized with smart technologies such but fails

to more understandable to common people. A system with such technologies can be called *smart* because it knows how to solve problems. But *smart* ends up meaning *less understandable*. It is the embodied triumph of instrumental rationality (Max Weber's term), and people find such electronic resources worthy of respect but not gratitude.

Table I. Submissions and complaints by the citizens of the Kemerovo Region, Russia in 2016-2017 [12].

Subject of submission	Age of the citizen	Numb er
Quality of the social infrastructure (construction and repair of roads, repair of hospitals, post offices, beautification of the territory adjacent to housing)	Pensioners; Citizens of 25 to 55 years of age	11
Health care services (unavailability of paid services, incompetent medical services)	Pensioners	5
Material support to benefit- entitled citizens (registration of a large family status, registration of disabled people, assistance in providing housing or land plot, assistance to schoolchildren, support of miners' families, transportation benefits)	Citizens of 20 to 55 years of age; minors	25
State of the environment (termination of open pit mining, ban on utilization of plastic in rural areas)	Citizens of 35 to 55 years of age	2
Total		43

If the system understands and takes into account the peculiarities of the traditional system of essential services with its meanings of *normality*, as opposed to *standardization*, it develops and masters *human* technologies, adapting to the features and realities of people's lives. Such smart system includes practices of the traditional system, so it is understandable to the population. Smart technologies mean human-oriented systems; they understand *why* the problem should be solved.

Classical principles of the organization-centered system of essential services with *smart* technologies are regulation, purposefulness, innovation, scientificity, subsidiarity. But despite all the fairness and correctness of these principles, it seems that the system is using their dark side and unsuccessful aspects in application. Thus, innovation implies a semantic and a symbolic system that can be understandable to a common person. But the introduction of new information technologies requires their peremptory and timely assimilation without regard to rigidity and conservatism of the experience



of citizens, especially in the older generation. As a result, the system of essential services loses the necessary quality of situationality, based on the understanding that any area of a city (and people living there, too) is unique and requires a regard to its identity and specific features. The principle of subsidiarity is virtually unfulfilled: the citizens do not want to waste time on proceedings with officials of the lower power structures who cannot (or are unwilling to) solve the actual problems. Hence it appears easier to immediately file a complaint to the governor's office (president's office, the European Court of Human Rights) rather than apply at the municipal level to defend their rights. It is often difficult to name the work of municipal employees a co-participation (assistance) in solving the problems of citizens. This can be demonstrated by the features of the design of public offices, which emphasize the dependence of an individual person on an official. The windows for receiving documents and money are designed so that one has to bend down and takes the pose of petitioner, as if they apologize for asking an official for help.

The meaning and the result of the smart system operation is the improvement of the quality of life that is seen in terms of social comfort. It is considered comfortable for meeting the basic needs to spend minimal time on travelling. It would seem that *smart* technologies are designed to solve this problem. However, technology and electronic systems are unable to understand the meanings of social time that one spends on updating electronic bureaucratic procedures. It is the mathematical time, or the time of the organization, that is saved with the help of such technologies while the social time of an individual is ignored. Cramped, dehumanized, forfeited, lost—these are the ways one can describe the time spent by an individual in waiting in electronic queues or reading essential information on the administrative web-sites. A system based on smart technologies destroys the time of human life, perceiving it in the context of the time of the system (working hours). In contrast, human technologies provide informational support and algorithms to a person who searches for information to solve an essential task. Thus, next to intelligent devices and ATMs, there should be people who perform the functions of administrators, helping to negotiate' with an electronic device or machine.

If the system of essential services retains a human value in its core, it fulfills the requirements to *human* technologies, which appears relevant today. Apparently, only a system, based on the following principles, can be considered *smart*:

- convenience for the user (both for a common person and a representative of administrative authorities), the clarity and transparency of the purpose of innovations. Hence, people will understandingly accept possible problems in the system operations and support electronic initiatives of the government;
- targeted orientation, i.e. knowledge of the age, ethnic characteristics, religious believes, etc. of the people by the officials, hence the system becomes more varied in serving the population;

- *justice*, security (ecological, psychological, social), protection from the exhausting sense of insecurity (Zygmunt Bauman's expression);
- *non-normativity*, i.e. understanding of differences between the *standard* and people's vision of *normal* life;
- *flexibility, situationality*, i.e. support of the citizens' initiatives and civil projects by the officials;
- environmental friendliness as the priority to urban beautification projects and development of recreation areas for the citizens over market squares and parking lots.

The irrelevance of the functioning of a traditional system with an organization-centered (professional) core means separation of the electronic (*smart*) system from the needs of the people and incompatibility of the ways to meet their needs with the system-imposed ways to meet the needs of the system. City elites are satisfied with the introduction of innovative practices while people who see such methods and practices as barriers to receiving essential services turn to traditional, *human*-oriented practices. This leads to the isolation of people in small local worlds (Alexander Akhiezer's expression), the disunity and the loss of solidarity between the population and the elites. Closed groups tend to be intolerant and violent. Hostility towards officially accepted institutions has now become fashionable, and such fashion is only gaining popularity [13].

The relevance of both types of technology (smart and human) determines the balance of the organization-centered and human-centered elements of the system of essential services. The points of contact of these subsystems do not remain in the opposition of the convenience for an individual and the convenience for an official, but can be found in the concord of the system of self-dependence and the scientific provision of security. This allows the system of essential services to become open to the external environment, to exchange information and to update the forms of work in linking the technologies of self-dependence and provided security. This determines an individual's understanding of responsibility for their life and the right for provision of the necessities of life. Human technologies fit in the relevant functioning of flexible, rhizomorphic systems with a nonlinear development vector, which recognize the influence of systemic _transpersonal' forces.

Instability of the system has the meanings of flexibility or possibility of new forms and mechanisms. This corresponds to the requirements of the future, which promises less freedom, greater control, oversight and harassment in the complex structures of the rigid systems. No matter how free and volatile their subsystems may seem, the way in which they are intertwined [will be] rigid, fatal and sealed off from any freedom of choice [14, 15]. Smart technologies compel people to formalize their life and make it understandable only to the logic of electronic platforms, condemning humans to an eternal battle of logging in to personal profiles of the systems.

Self-dependence presupposes self-determination and freedom in the understanding of one's life by a human that the contemporary critical theory of Max Horkheimer, Jürgen



Habermas and Erich Fromm seeks to defend. The freedom of individuality entails citizens' responsibility for life choices, determines the need to master instrumental civil mechanisms and to realize themselves as _the only builders up to the task of this particular bridge building' [14]. However, the barrier to manifesting such freedom is Max Weber's rational choices' made by the servants of bureaucratic structures within the organization-centered system. At that, rationality is not interpreted as care for the citizens. First of all, they support the sustenance programs that contribute to the growth of prestige of officials who conveniently use *smart* technology, ensuring consistency, sustainability, legitimacy of the system of essential services. Human technologies better embody the synergistic understanding of the system of essential services, which focuses on disorder, instability, nonlinear relationships between elements.

Independent actions of an individual can be situational, unexpected, but not fruitless. Individuals are able to influence macro-social processes in special states of instability of complex systems. The technologies of managing complex systems can rely not only on power and coercion. There are a need in configuration of the efforts of an individual and a requirement of consistency, algorithmization of *smart* technological operations. The architectonics of a truly intelligent system of essential services consists in the integration of organization-centered and human-centered systems and in interweaving of *smart* and *human* technologies.

IV. CONCLUSION

The system of essential services determines the social order and performs the functions of the regulator of social interactions. Its functional purpose is to ensure the comfort of (convenience of living, life infrastructure, communication with government officials, use of technologies for investing in the future such as education, life and property insurance, pension funds). The system rests on people's idea of what is normal. New conditions and requirements determine the renewal of the principles of system functioning, transforming it into a smart system. The modernization processes develop smart technologies, which strengthen the organization-centered structure. Despite all the relevance of such technologies, human technologies with humanistic content remain in demand, retaining in the social memory of the population the traditional, human centered forms of essential services. However, blending of these technologies corresponds to the ideal system of essential services, which combines components of smart and human mechanisms, based on vital human resources and support of the administrative potential of an organization-centered system. Such a system of essential services has enough flexibility, and it adjusts its elements to respond to the challenges of life.

The barriers, hindering the described development of the system, are the paternalistic ideology and the consumerist attitude. This forms a negative emotional background of the population and indulgently arrogant behavior of officials in relation to the essential service facilities. The humanistic

dimension of the management process points to the need to turn to an individual as an end of cultural development in itself. The smart system preserves in the core the humanistic rather than managerial values that are distributed around the periphery of the system constructs and carry an instrumental load. The degree of system humanity is a measure of the humanity of the regional authorities to the population. Management of the system becomes effective when it is human-oriented, mediated by an individual's activity in solving important issues to improve the quality of life.

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