БЕЗОПАСНОСТЬ В ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЯХ

SAFETY IN EMERGENCY SITUATIONS

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REGIONAL MANAGEMENT CENTER FRAMEWORK FOR G2C-FEEDBACK AND PUBLIC SAFETY SUPPORT

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Abstract. *Background*. For the purposes of management activities efficiency enhancement of the public authorities at regional level within the bounds of digital economy, the study examines organizational, systems engineering and technological issues of the development and functioning of regional management centers in the Russian Federation aimed at problem monitoring and public safety situational analysis on the basis of G2C(Government-to-Citizen)-feedback support and digital communications. *Materials and methods*. The state-of-the-art and development trends of regional management centers are considered. The structure and functional correlation between the regional management centers and situational centers, as well as the possible ways of its integration into the system of distributed situational centers are analyzed and discussed. Based on the principles of the systems approach the conceptual model of a typical regional management center is designed. The backbone composition and deployment experience of regional management center of the Murmansk region are explored and represented. *Results and conclusions*. The framework and implementation techniques of the virtual regional management center in the paradigm of multi-agent cyber-physical systems based on knowledge processing and network-centric control foundations are proposed. The key problems of regional management digital transformation by the use of situational and regional management centers have been identified. It is shown that for the effective application in practice of such control centers both a scientific substantiation of the implemented solutions and an appropriate normative and legal basis, regulating its functioning, are required.

Keywords: problem monitoring, situational control, regional management center, security, decision-making support, digital platform, information and analytical system

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ОБЛИК ЦЕНТРА УПРАВЛЕНИЯ РЕГИОНОМ ДЛЯ ВЗАИМОДЕЙСТВИЯ ВЛАСТЬ – НАСЕЛЕНИЕ И ОБЕСПЕЧЕНИЯ ОБЩЕСТВЕННОЙ БЕЗОПАСНОСТИ

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Аннотация. *Актуальность и цели*. Для повышения эффективности управленческой деятельности органов государственной власти регионального уровня в условиях цифровой экономики в работе исследуются организационные, системотехнические и технологические вопросы создания и функционирования центров

управления регионами на территории Российской Федерации, направленных на решение задач проблемного мониторинга и ситуационного анализа общественной безопасности на основе обеспечения обратной связи с населением и цифровых коммуникаций. *Материалы и методы*. Рассматриваются текущее состояние и тенденции развития центров управления регионами. Анализируются структура и функциональное соотношение центров управления регионами и ситуационных центров, а также обсуждаются пути их интеграции в систему распределенных ситуационных центров. На основе принципов системного подхода строится концептуальная модель типового центра управления регионом. Приведены состав и опыт развертывания центра управления регионом Мурманской области. *Результаты и выводы*. Предложены архитектура, подход и средства реализации виртуального центра управления регионом в парадигме мультиагентных киберфизических систем, основанных на знаниях и теории сетецентрического управления. Определены ключевые проблемы цифровой трансформации регионального управления с применением ситуационных центров и центров управления регионами. Показано, что для их эффективного использования на практике требуется как научное обоснование внедряемых решений, так и соответствующая нормативно-правовая база, регламентирующая их работу.

Ключевые слова: проблемный мониторинг, ситуационное управление, центр управления регионом, безопасность, поддержка принятия решений, цифровая платформа, информационно-аналитическая система

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Introduction

Any critical or emergency situation, such as a pandemic or economic depression, is a powerful impetus on the development of new technologies and situational management tools. It is not possible more than meets the eye to manage the country or independent regions in such extreme conditions without wide application of situational centers, information and analytical centers intended for monitoring and control, video conferencing aids, intelligent decision support and management systems. Regional and sectoral situational centers operating in behalf of national security ensuring of the country are multifunctional and solve a wide range of urgent problems: timely detection, scenario modeling and prediction of critical situations in the socio-economic and military-political spheres, monitoring of public safety and analysis of international situation, comprehensive information support of public authorities management activity, control over the fulfillment of decrees and commissions of the President of the Russian Federation and the Government of the Russian Federation, coordination and methodological maintenance of the large-scale projects and national programs implementation. The scale and complexity of these problems in terms of interconnection of the sustainable socio-economic development goals and national security ensuring principles, as well as rational distribution and optimization of the resources used condition on necessity to expand the intellectual component of the distributed situational center system by developing and integrating regional management centers (RMC) into its composition, strengthening the feedback between society and the state in pressing problem solving and enhancing the accounting adequacy of this connection in the current public administration processes at all levels of decision-making – municipal, regional, federal. In March 2020 the problem of RMC development and functioning organization in the constituent entities of the Russian Federation was assigned by the President of the country in the List of commissions to the Government of the Russian Federation in the issue of the meeting with the Council of the local self-government development, which took place in Krasnogorsk, Moscow area at the end of January 2020[1].

First of all, the RMC are focused on the municipal level and are designed to enhance the efficiency of public administration and regional management through the establishment of closer information interaction between regional authorities and the population by means of an unified digital platform used for citizens' appeal processing and analyzing incoming from different sources in real-time, including at the expense of active use of the high end technologies and popular means of infocommunications – social networks and mobile messaging applications (messengers). At the regional level the RMC corresponds one of the key system-forming elements of the situational center at the appropriate level of the regional management hierarchy. At the same time, the RMC and regional situational centers cannot be opposed to each other, since

[1] О создании и функционировании Центров управления регионами в субъектах Российской Федерации (Перечень поручений Президента РФ от 1 марта 2020 г. № Пр-354, п. 1 16), п. 3, п. 12 3)). URL: http://kremlin.ru/acts/assignments/orders/62919

they complement each other organizationally and functionally, have a similar functioning logic and also use common technical regulations and interaction standards. In other words, the RMC is a simplified project of the regional situational center. Today, the RMC is positioned as an effective tool of digital management within the bounds of goals and directions realization of the national program "Digital Economy of the Russian Federation"[1]. Basically, this tool allows operability and authority's situational awareness enhancement of the emerging problems solving at various level in the regions in the field of digitalization of public administration and regional management. In addition, it provides on-line monitoring, strategic planning and quality control of the managerial decisions execution based on the diverse information processing and analysis on the status of regional elements and subsystems incoming from the region population.

This study examines the state-of-the-art and development trends of RMC in the context of up-to-date challenges and threats. The organizational, technical and technological foundations of the RMC engineering from the standpoint of a systems approach are discussed. The correlation issues between the RMC and the situational centers at the conceptual level are explored. The information model and functional structure of a typical RMC are represented. The architecture and implementing techniques of the virtual RMC in the paradigm of agent-based cyber-physical systems based on knowledge analysis and processing are proposed.

Background and Organizational Foundations of RMC

The agenda of society and public administration digital transformation based on the use of the distributed situational center system and RMCs is in section of the first priority area of the Scientific and Technological Development Strategy of the Russian Federation: «pt. A) the transition to advanced digital, intelligent manufacturing technologies, robotic systems, novel materials and design methods, development of Big Data processing systems, machine learning and artificial intelligence»[2].

Situational centers and RMCs are intended for being a certain intelligent buffer between the variety of data sources and information users (population – government) integrated and processed in order to quality and validity enhancement of the managerial decisions made at different levels of public administration – federal, regional, municipal, sectoral, object, etc. to provide a timely preventive response of the national security system of the country in the face of new challenges and threats of various nature.

Providing G2C-feedback with population on various classes of socio-economic development problems of territories is not only one the significant objectives of the public authorities activities, but also a strategic area of the scientific and technical policy of the Ministry of Internal Affairs of Russia until 2030 [1] in terms of public safety and situational management digitalization support. For this purposes, a great deal of digital services and platforms intended for the citizen appeals processing have recently appeared in our country and abroad, But these are separated information and analytical systems for managers and officials of different levels for the most part. Integration of these systems into a single whole will allow expanding their functionality and organizing integrated monitoring and comprehensive analysis of emerging problems in the socio-economic and socio-political spheres. That will promote the operationability and quality enhancement of managerial decision-making. The RMCs developed in the constituent entities of the Russian Federation starting from 2020 and which are an integral part of the project implementation of smart cities and smart regions are intended to become such a real integrator.

First of all, let's define what the RMC is. The RMC is often referred to as a situational or information-analytical center, and is sometimes mistakenly confused with a call-center. It is quite important to separate these concepts. Regional situational centers were initially developed to collect and analyze diverse information on the current situation in the region, cause-and-effect analysis of the possible crisis situations in the region, as well as its consequences prediction. As a rule, the functionality of regional situational centers also includes the hot link of the regional administration to the federal level. In the judgment of many experts, the RMC is an operating tool for independent monitoring of the situation, management and communication for the municipal level. Ideologically, the RMC functioning is first of all based on the principle of operational response to citizen appeals on problem issues (Fig. 1) incoming from various sources (interdepartmental electronic document management system, e-mail, social networks, hot line with the popula-

[1] Программа "Цифровая экономика Российской Федерации" (утв. Распоряжением Правительства РФ № 1632-р от 28 июля 2017 г.). URL: http://static.government.ru/media/files/9gFM4FHj4PsB79I5v7yLVuPgu4bvR7M0.pdf

[2] Стратегия научно-технологического развития Российской Федерации (утв. Указом Президента РФ № 642 от 01 декабря 2016 г.). URL: http://static.kremlin.ru/media/acts/files/0001201612010007.pdf

tion, specialized information Internet portals, etc.), that is primarily the authority of municipalities. The RMC provides all this data acquisition, gathering, storage, generalization and integration, and on the basis of this big data structuring and analysis prepares and ejects the appropriate recommendations and proposals to the municipal and regional authorities on making or adjusting certain managerial decisions in a specific situation focusing on social needs. In other words, the RMC is a center of generalization, and it is a correct systems integrative approach. But this approach is not legally fixed anywhere or is partially reflected in the existing normative acts and regulatory documents on the operating of the RMC and situational centers. The leading role of the RMC in generalization and integration of all information on the regional situation should be supported and corroborated at the legislative level.

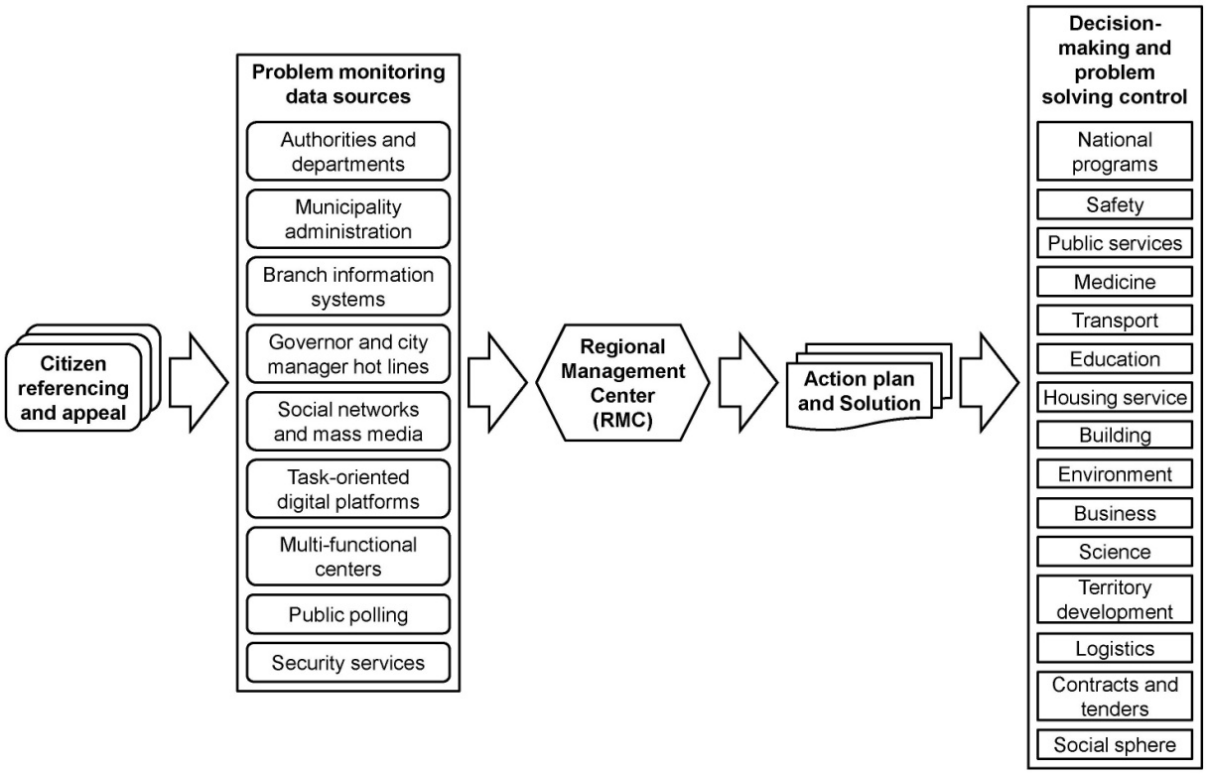

Fig. 1. The generic conception of the RMC

For the effective regional management the RMC functionality should include monitoring systems of citizen moods in social networks and the mass media [2]. The on-line monitoring of information resources of social networks is a critical element of G2C-feedback along with poll and sociological research. Without population feedback it is almost impossible to manage the regional development based only on historical data.

Currently, there are not so many full-fledged situational centers in the regions. They are either under implementation or are just developing. Thereby, problem-solving of development and deployment of the RMC seems to be economically less costly, prompter and easier in terms of organizational and technological standpoint. If the RMC functionality is supplemented with toolset for monitoring of the operational situation, scenario analysis and forecasting of the socio-economic regional development and situational control techniques that support managerial decision-making in regional crisis situations, then we will acquire a full-fledged situational center. Thus, the RMC is although an independent stand-alone system, but only a framework of the full-fledged situational center.

The organizational and personnel structure of RMC requires the involvement of dozens or even hundreds of executives of different categories to support the efficient functioning of RMC, including public servants who combine jobs in the RMC and are actually estranged from their direct official duties on-site in municipal and regional authorities. Such an evident gap can negatively affect the management quality targets. In addition, the RMC functioning in crises and emergencies, such as a pandemic, can be hampered or even paralyzed by anti-virus protection requirements. Therefore, this approach to the maintenance staff formation and the RMC operating organization is not entirely reasonable in terms of the state-of-the-art

trend of management total digitalization and automation based on intelligent information technologies and decision support systems.

The RMC should function in accordance with sufficiently well-tested standards of situational centers [3]. Standardization in the RMC operation is the use of uniform requirements for the system organization and technological solutions, technical regulations and a common regulatory framework, standard software platforms and interaction models, which provides reduction in time and financial costs under development, adoption and operation of the RMC. At the same time, the problem of import substitution is being solved also. In general, the standards should be the same both for situational centers and RMC.

According to ISO R 56875-2016, a situational center is defined as a stationary or mobile program-technical complex equipped with the necessary systems of data acquisition and processing on the state of monitoring objects, situational analysis, operational response to threat sources of the emergency and crisis situations[1]. Situational center is intended for effective interaction support of the anti-crisis management services and means, generation of consistent decisions and control actions in order to loss minimization of threat implementation in the area of responsibility of the relevant management authorities, execution control and monitoring of the measures taken and decisions made. In other words, the situational center is an intelligent information and analytical system that handles a variety of managerial decision scenarios for different classes of situations, a proven set of computer models for various nature risks and threat assessment, an up-to-date legal and regulatory framework and supports the application of subject-oriented knowledge bases and represents a distributed information infrastructure at the same time.

Functionally and technologically, the typical structure of the RMC does not fundamentally differ from the standard architecture of the situational center and is shown in Fig. 2.

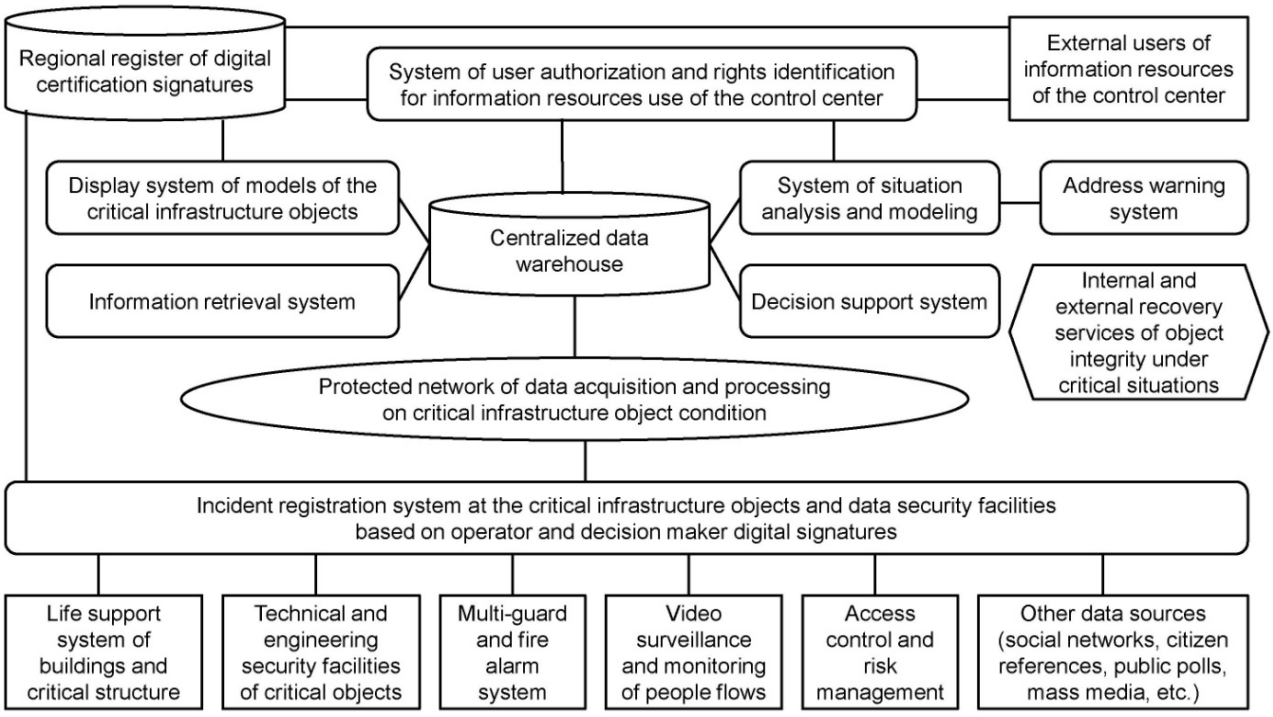

Fig. 2. The standard structure of the RMC and situational center

Within the bounds of infrastructure of regions and municipalities a number of specialized organizations focused on safety state monitoring of the secured groups of objects problem-solving are assigned and distinguished. In the structure of these organizations appropriate information-analytical and situational centers to the certain regional life areas (energy, transport, public safety, environment, elimination of accident and emergency situations, etc.) are designed. Some individual situational centers are specialized in the state assessment

[1] ГОСТ Р 56875-2016. Информационные технологии. Системы безопасности комплексные и интегрированные. Типовые требования к архитектуре и технологиям интеллектуальных систем мониторинга для обеспечения безопасности предприятий и территорий.

problem-solving of the personnel and population safety, public safety, environmental safety, radiation and chemical protection, energy, transport, industrial production and technologies, utilities and others.

It is necessary to make the efforts in advance to development and continuously enhancement of such a situational management infrastructure at the regional level on the basis of which the RMC will effectively function and operate. So far, this has not been fully achieved. Pioneering solutions of the RMC development in terms of advanced research and experience in deploying a system of situational centers, methodology and technologies are proposed, e.g. by St. Petersburg Information and Analytical Center and Federal Research Center "Informatics and Control of the Russian Academy of Sciences" whose developments are successfully used in practice to problem-solving of public administration digitalization on the basis of situational centers in St. Petersburg and Moscow.

The most rational management structure of RMC and situational centers interaction subject to above-stated, as well as the requirements fulfillment of the President of the Russian Federation Decree No. 648 ("On the formation of a distributed situational center system operating on the basis of unified interaction procedure", July 25, 2013), is following [4]:

1) the RMC to support the management activities of local authorities are developing at the municipal level;

2) the RMC issue summary data to the regional situational center (governor, chief executive or mayor), that processes strategic and operational information on the region state and situation, as well as incoming data on the population social needs and moods;

3) the regional situational centers arrange and build communications with the situational centers of the plenipotentiaries of President of the Russian Federation in federal districts, situational centers of the federal executive authorities, as well as situational centers of the Government and the President of the Russian Federation on the basis of Unified system of interdepartmental electronic interaction application.

At present, such management and interaction structure developed earlier at the federal level harmoniously combines the goals and objectives of the situational centers and RMC functioning within the general system of public administration.

The concept of RMC is widely and in detail variously discussed by the research community and in the literature devoted to the theory and practice of development and implementation of the situational management tools and techniques [5–8]. And the experience of the RMC design and adoption in the regions of Russia is actively popularized at scientific and technical conferences and in mass media by using the specific examples of RMC [9–11], quite a number of which can be recommended as a reference model for the further replication and integration into the distributed situational center system of the country. The generic conceptual model and functioning logic of the RMC are represented in Fig. 3.

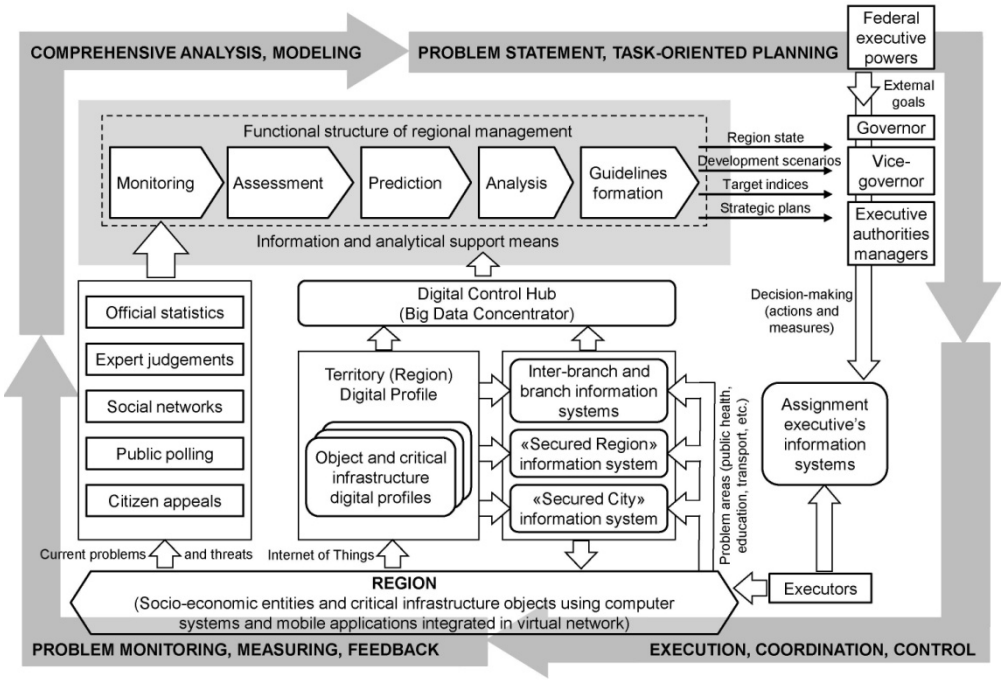

Fig. 3. The conceptual model and functioning logic of the RMC

However, the scientific potential of RMC is developing very slowly today. This is partly due to the initial deviation from a systems approach under development and adoption of situational centers in the public administration system. Insufficient scientific substantiation of the methodology itself for engineering and integrating the backbone components of situational centers has led to such consequences. At once, there are three key problems of the digital transformation of regional management and public administration using situational centers and RMC that can be assigned [5]:

1) the lack of a systems approach under generation of conceptual and regulatory documents, i.e. the situational centers and RMC deployment without accounting the backbone components and methods of its integration;

2) the insufficient scientific substantiation of decisions made in situational centers and RMC, i.e. the research organizations are practically not involved in situational management processes at the regional, federal and international levels;

3) the exigence and deficiency of highly skilled engineering specialists for the digitalization of public administration and situational centers and RMC maintenance, first of all, specialists in the field of mathematical and computer modeling, experienced programmers, interdisciplinary experts and system analysts with deep knowledge in various subject areas and capable of problem statement for mathematicians, modelers, technology and software developers.

For the efficient use in practice of the distributed situational center system and RMC, all of these problems must be end-to-end solved in an integrated manner. Artificial intelligence will not be able to refer and cope with these problems on its own.

Approach to Technological Implementation of RMC

In terms of the flexibility of management distributed information environment deployment, saving and optimization of the shared resources use, one of the effective approaches to RMC development is RMC technological implementation based on the multi-agent virtual cyber-physical system technologies using knowledge processing techniques and functioning on the network-centric principle. As an example of the virtual situational management centers implementation can be the multi-agent technology for management and decision-making process virtualization (in terms of the digital economy – digitalization) proposed in study [12]. Such a technological solution expects the step-by-step formation and configuration of the RMC integrated digital platform based on the physical world objects mapping into virtual space via the environment model generation of the three artificially simulated realities: a multi-agent executive environment, a knowledge semantic space and a problem-oriented information space. The executive environment is a system of agents and Web-services. The knowledge semantic space is generated on the basis of ontological models of the object domains which the agents are intended for. The information space is a professional social network that connects all the stakeholders and responsible participants of the regional development management processes, as well as the sets of problem-oriented information resources and digital services.

Traditionally, there are two basic procedures of such virtualization implementation – hardware-controlled virtualization (intelligent robotic and cyber-physical system engineering) [13] and software virtualization (development of the autonomous pro-active programs – agents) [14]. When designing the RMC, it is reasonable to use these methods in combination to achieve the maximum effect of the management digitalization. This approach to management digitalization provides the high variability of modeling the physical world control objects, the capability of implicit impact on the physical world critical objects and control over their state on the basis of object information management, as well as the synthesis of new knowledge for situational management due to the self-organization of system elements, machine learning, knowledge gathering and postprocessing.

In terms of the above, the RMC is a virtual pro-active intelligent system that should be built on the basis of autonomous agent or Web-service technologies and Semantic Web technologies. It should have a network-centric service-oriented architecture and support such attributes as openness, distribution, adaptability and the ability to self-organization.

Though the imperfection of the regulatory framework and some organizational difficulties in positioning virtual cyber-physical systems within the structure of public administration and regional management, the application of agent technologies in the field of management activities digital transformation based on RMC and situational centers is stipulated by three determinants: the high dynamics of the management entities functioning environment, the need to decentralized decision-making coordination and the

human factor accounting, which is manifested in the active impact of the controlled system on the management processes.

Thus, as a technological basis for the RMC integrated digital platform implementation we propose application of the autonomous software agent technology, ontologies, agent learning methods, simulation tools, integration tools of heterogeneous information resources and digital services. The set of RMC implementation tools is schematically shown in Fig. 4.

The proposed toolkit for engineering and functioning organization of unified digital platform of the RMC does not contradict the currently used development standards of the situational centers and RMC, but complements and expands its technological capabilities at the expense of agent-based virtualization techniques of decision-making processes in terms of formation of the network-centric information infrastructure for situational management of regional development. The implementation techniques of virtual RMC support such attributes as interoperability (compatibility) and portability, and therefore well correlate and integrate with the typical components of situational centers and RMC.

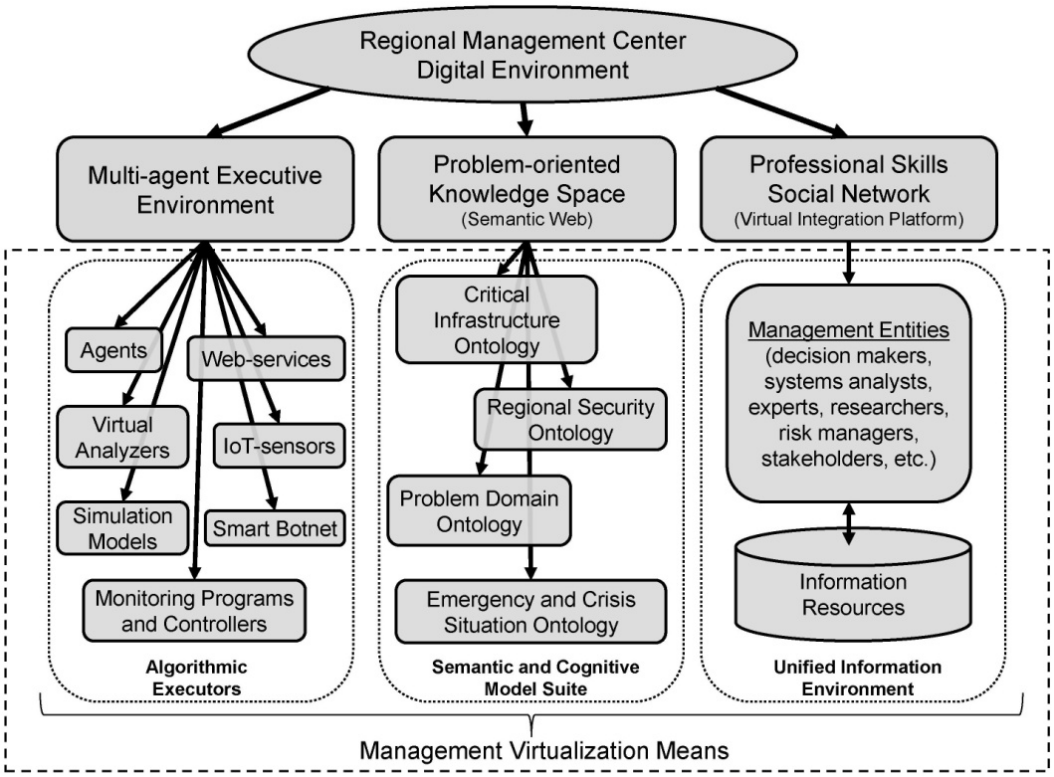

Fig. 4. The implementation techniques and tools of the virtual RMC

In addition, at various levels of the RMC functional organization the following types of resource support are used: personnel, financial, program-technical, algorithmic, informational, instrumental, organizational and legal. The composition of the program-technical support includes a set of general-system programs, special software and technical documentation (operating systems, programming systems, development toolkit, test and diagnostic programs, telecommunications and information security means), functional software (workstations, database management systems), a set of hardware and technology (computing systems, devices for collecting, storing and outputting information, data transfer devices, office automation equipment, operational materials) that ensure the regular functioning of the RMC backbone components for the goals and objectives realization of the RMC. Information support includes intersystem and non-systemic sets of primary, processed and integrated data. Algorithmic support is a set of mathematical models and methods used in the information-analytical system of the RMC for situational analysis, management and data processing problem-solving. The organizational and legal support of the RMC includes a set of organizational and technical regulations for the interaction specifying of software, hardware and service personnel of the RMC under development and operation of RMC and corresponds a set of legal norms that determine the design process, legal position and functioning rules of RMC, as well as regulating the procedure for data accessing, transformation and application in accordance with current legislation.

RMC experience of Murmansk region

Within the bounds of President Commissions of the Russian Federation (March 1, 2020, Order No. 354) the special-purpose hardware-software system "Unified Digital Platform for Regional Management" was introduced throughout Russia[1]. This project funding was organized by autonomous non-profit organization «Dialog» under national program «Digital Economy of Russian Federation» realization[2]. The RMC expects taking control over eight main fields of the regional socio-economic system management: public health, education, social policy, energy sector, roads, transport, housing-communal services and domestic waste disposal. For each area the RMC is using a set of key indices for operational planning and assessment of the responsible services activities. At that, citizen appeals are the main source of raw data for the assessment. Thereby, a unified platform for regional management provides digitalization of the key components of regional management.

The digital regional management platform of Murmansk region was developed under IT-project of the JSC «Rusatom Infrastructure Solutions». The adoption was preceded by business process in-depth analytics for the purpose of regional life areas selection that most urgently need digitalization. In 2019-2021 the implementation of "Smart Region" and "Smart City" projects has been launched in Murmansk region. At the same time a G2C(Government-to-Citizen)-feedback portal "Our North" (www.nashsever51.ru) has been deployed. The Investment portal of Murmansk region has been also updated. The development of tourist guide portal and information system "Land and settlements improvement" is carrying out. The detailed RMC solution includes following components of sectoral information systems: "Intelligent accounting system for building, housing renovation (service) of the courtyard and public areas, municipal facilities located in the Murmansk region", "Monitoring system for the municipalities cleaning control in Murmansk region", «Unified data warehouse», «Multi-level digital control panel for regional management», «Problem statement and commission execution control, project management», «Form designer of data acquisition» and «Business process management system». The introduction of the RMC-technology allowed features and performance enhancement both of the G2C-feedback and the activities assessment of regional authorities. The architecture and system components of the unified digital management platform of Murmansk region are shown in Fig. 5.

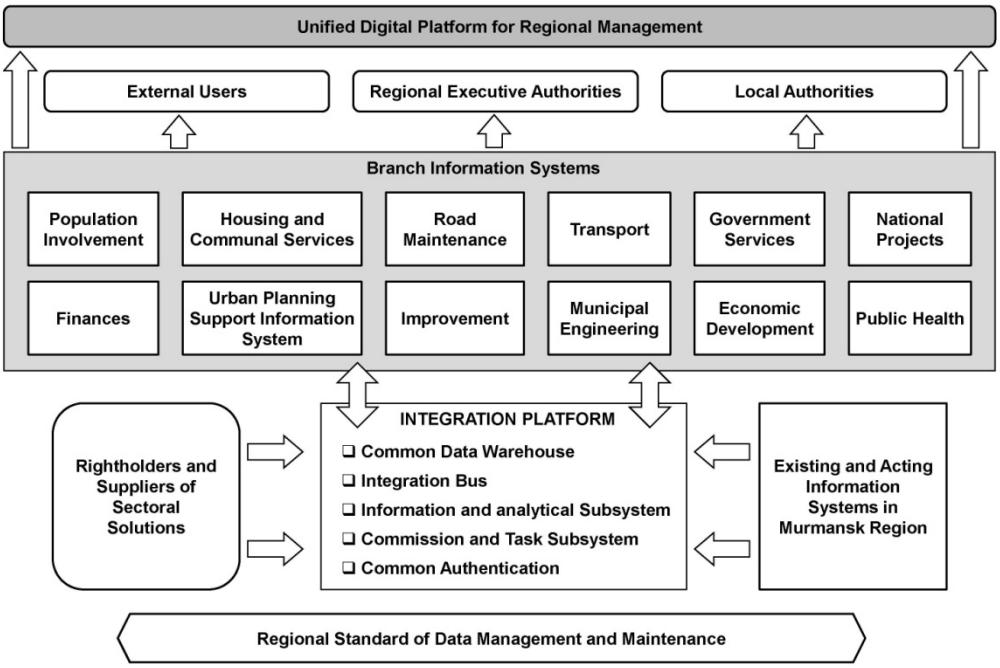

Fig. 5. The architecture of the integrated digital platform for regional management [15]

[1] О создании и функционировании Центров управления регионами в субъектах Российской Федерации (Перечень поручений Президента РФ от 1 марта 2020 г. № Пр-354, п. 1.16, п. 3, п. 12.3). URL: http://kremlin.ru/acts/assignments/orders/62919

[2] Программа "Цифровая экономика Российской Федерации" (утв. Распоряжением Правительства РФ № 1632-р от 28 июля 2017 г.). URL: http://static.government.ru/media/files/9gFM4FHj4PsB79I5v7yLVuPgu4bvR7M0.pdf

The RMC of Murmansk region is designed and developing on the basis of Information Technologies Center of Murmansk Region under support of the Ministry of Digital Development of Murmansk region. The RMC is focused on aggregating all possible information on problems and appeals of citizens, on-line processing and analysis of the data obtained and the formation of a general heat map of the socio-economic problems of the region. On the basis of this information the forecasts of regional development in particular situations will be made, various scenarios of anti-crisis management will be simulated and analyzed, variants generation of regional problems solving actions will be carried out and the execution control of taken measures and made decisions will be fulfilled. First of all, the access to summary data and analytical information is organized for the governor and departmental officials of the region.

At the same time it is operating a situational center on the basis of Information Technologies Center of Murmansk region for the purpose of activities digitalization of the executive authorities. This center is aimed at organizing inter-sectoral interaction and assistance to the RMC specialists responsible for information processing received from departments and municipalities. At the moment, the 20 information system integration at the level of 16 regional departments has been carried out. In the future, federal structures that are operating on the territory of the region will be connected to the situational center systems.

As of 2020, at the initial stage of development the RMC of Murmansk region consisted of 16 staff servants, including 12 operators and 4 analysts. 8 specialists were involved in maintenance of the situational center. For the year of functioning the resources and staff of the new situational management structure have step-by-step expanded due to the involvement and formation of operational and analytical groups of profiled departmental specialists. This made it possible to coordinate the strategic plans and programs implementation to achieve the activities targets of the regional authorities in 2021.

The RMC provide the following capabilities:

– on-line problem monitoring and formation of the complex visual «heat map» of regional problems;

– identification of social tension points and burst, and problem dynamics analysis in section of the territories;

– automatic classification of citizen appeals by subject area, object categories and terms of problem-solving, the use of typed response templates;

– time frame reduction of citizen problem processing and solving in the region, providing guaranteed problem solutions with delayed deadlines;

– ensuring transparency for the regional population of the passing and processing process of citizen appeals through a unified access point to the United Regional Management Platform with auto-notification by e-mail or phone;

– providing high-quality targeted request responses to population of the region;

– simplification of citizen messages processing by the departmental, administration and lower organization executives by means of duplicate identification and automatically generation of standard responses to duplicate messages;

– quality control of made decisions implementation and activity assessment of departments, administrations and lower organizations;

– preparation of consolidated analytical data for the higher authorities and the region officials to strategy and priorities determination of measures financing to solve regional problems;

– population informing of the region on the public administration authorities activities and directions of development, causes of problems, available services and the public opinion poll results.

Conclusion

For the purpose of efficiency enhancement of the public administration transformation under digital economy at the expense of development and application of the distributed situational center system, it is extremely necessary to constantly improve the system itself as a whole, and individual situational centers of various level which form its composition from the design and implementation of new situational centers to specification synthesis and dynamic configuration of situational centers subject to uncertainty of the emerging management problems and high dynamics of the external environment. Therein, the desired effect can be achieved through the comprehensive automation of the development process and information and analytical support of the situational centers at all stages of the situational center life-cycle, as well as through the application of program-technical and normative assurance appropriate and relevant to decision-making and management problem solving within the conceptual, virtual and organizational levels of the situational center functioning.

To address these issues the study considers a framework of regional management center and contributes it as a possible way of the current system of distributed situational centers functionality extension and efficiency enhancement. Proposed specification and use-case of the typical regional management center as a component of this system are quite urgent both for G2C-feedback and public safety ensuring in the region. It is also needed to coordination and operability support of the regional development problems promptly solving. The implementing technique of the regional management center framework provides flexible integration within the situational center of the region and operational reconfiguration of its decision support system subject to management problem specification or context of the current situation.

In practice, the approach of regional management centers implementation allows to smooth over such unwanted factors that hinder the development of regional situational center infrastructure as the high cost and long period of engineering and implementation of situational center systems for municipal, regional and federal public authorities, security services, agencies and corporations, as well as the problems of interaction coordination between the distributed components of decision-making process in situational centers of the region, and the complexity of its integration into the unified digital environment and support after its commissioning into activity of the one or another department or organization. Other possible positive effects include a potential growth in the number of management problems solved per unit of time in the regional situational centers and the minimization of resource and temporal costs under various operating modes (normal functioning, strategic planning, crisis situation, etc.) of the situational centers.

General statements and guidelines of this study will be used under implementation of the «National security strategy of Russian Federation» (approved by President of Russian Federation Decree no. 400, July 2, 2021)[1] in the Murmansk region as the proposals to development of regional management center and appropriate digital platform for managing information-analytical support in accordance with the List of commissions to the government given by the President of Russian Federation at March 1, 2020, Order no. 354[2].

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