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About InterRegioNovation

InterRegioNovation is the International Association devoted to the transfer and exchange of knowledge and innovations at all regional levels (country, region, city, community etc.) between knowledge transfer professionals (business, research institutions, policy makers, government agencies, individuals, others) in all countries of the enlarged Europe, CIS countries and from other continents for stimulating and enhancing economic and social growth in the regions.

This is a policy and research association that brings together all knowledge transfer professionals who are interested in delivering efficient, flexible, innovative and cost-effective services across the private and public sectors. We work closely with business, research and educational institutions, government agencies, policy makers, NGOs, media, individuals and other stakeholders to promote the interests of their industries.

Our members understand the changing needs of the transfer and exchange of knowledge and innovations and through continuous professional development, marketing and networking opportunities offered in this association, we keep current with the latest knowledge trends and issues that challenge people in their work and life journey. We also offer expansive opportunities for partner connection through our networks.

Journal “Regional Innovations” is one of the Association’s tools for innovators and everybody who is interested in any aspects of innovation development.



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About journal

On behalf of the Editorial Board, it gives us a great pleasure to welcome you to the first issue of 2021 of the Regional Innovations Journal dedicated to digital technologies and innovations.

The Regional Innovations publishes original research papers, policy analyses, review papers and book reviews in order to establish an effective channel of communication between business, research institutions, policy makers, government agencies, and individuals relative to the analysis of various aspects of knowledge and innovations transfer and exchange within regional dimensions.

This is an independent, peer-reviewed, Internet-based international journal devoted to publishing original research papers of highest quality, sharing ideas and discussing innovation sector within regional dimensions. The journal welcomes to submit research papers by exceptional innovators, leading universities, globally recognized business, government agencies, policy makers and political leaders.

We intend that our readers will be exposed to the most central and significant issues in innovations development. We wish to publish papers that exemplify the highest standards of clarity, and that promise to have significant impact on existing front-line debates or to lead to new ones. The journal explores key priorities of the knowledge and innovations transfer and exchange in terms of critical aspects of human life (economy, law, science, business, health, education, culture etc.). We therefore welcome submissions not only from established areas of research, but also from new and emerging fields and those which are less well represented in existing publications, e.g. engineering studies, biomedical research etc.

We also strive to ensure that being under expert evaluation, each submission will receive developmental and supportive comments to enhance the article. Our refereeing process will involve that each submission will be reviewed by one or more specialists in the relevant field. Articles will be added to the volumes and the journal audience will receive e-mails updates to encourage them to the new articles.

We are delighted with, and immensely grateful to the large numbers of colleagues, both members of the Associations InterRegioNovation and FranceXP (France), representatives from many universities in France, Latvia, UK, Azerbaijan, China, Nigeria, Belarus, Ukraine and other institutions, who have supported the editorial process. And we are very proud of the expertise that they collectively bring, which we believe is unsurpassed by any contemporary innovative journal.

We are immensely grateful to our colleagues for their support and advice through the process of setting the journal up, and for the confidence they have placed in us in supporting this initiative at a time of economic uncertainty.

In the development of the Regional Innovations to date, we would like to enlist the support of a number of organisations who wish to promote this online journal to their experts. To ensure its sustainability, we would also like to invite other organisations, networks, conferences and meetings to associate themselves with the Regional Innovations. We therefore aim for the Regional Innovations to become the leading online forum to globally disseminate outstanding research papers on innovation sector in regional dimensions. Being an online periodical, the Regional Innovations is also a forum for exchange of imaginative ideas readers wish to share. Contributions of articles on innovations sector and your comments about this issue are very welcome.

To this end, if you lead, represent, or are a member of any such organisation, please contact us to offer your support and commit to promoting the Regional Innovations as a publication outlet for research undertaken by your experts.

We do hope you enjoy and benefit from the Regional Innovations! And many thanks for staying with us in 2021!

Jean-François Devemy
Editor-in-Chief

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IMPROVING LOCAL GOVERNMENT AND SELF-GOVERNMENT IN THE REPUBLIC OF BELARUS BASED ON DIGITAL TECHNOLOGIES

Abstract

The article provides an overview of the legal framework and institutional conditions for the use of digital technologies in public administration in Belarus. The problems of forming a «digital local government» in Belarus are identified. Proposals have been developed to improve the system of local government and self-government on a digital basis, including measures to develop digital democracy, strengthen the activities of local administrations in providing public services to regional citizens, and educational policies aimed at adapting the population to the new digital reality.

Key words: *local government and self-government, local e-government, public services, digital technologies, e-democracy.*

Introduction

The system of local authorities in the Republic of Belarus is based on the so-called state model. According to it, local government bodies represented by the «presidential vertical of power» have a greater influence on the socio-economic development of regions than local self-government bodies (in Belarus, local Councils of deputies).

Digital technologies related to the creation of «local e-government» can become one of the key factors for strengthening the system of local government and self-government. This task has been set and is being solved in the Republic of Belarus in accordance with the **State program for the development of the digital economy and information society for 2016-2020**.

Taking into account the peculiarities of building local authorities in Belarus, the introduction of digital technologies is specific in relation to local self-government as a representative government in the regions and local government as a local government.

In the first case, in fact, we are talking about the development of e-democracy, which should promote the involvement of citizens in local decision-making and

strengthen citizen's confidence in the state, as well as reduce the cost of interaction with regional citizens.

In the second case, the use of information technologies is designed to optimize the work of the administrative apparatus of Executive and administrative bodies of local government and change the nature of interaction of Executive committees with the external environment (the population, private sector enterprises), which should be transformed into the provision of public services.

1. Institutional conditions created in Belarus for the development of «local e-government».

Currently, the Republic of Belarus has created certain legislative and institutional conditions for the formation of a digital economy and the digitalization of the public administration system, including at the regional and local levels.

First, the legal framework is being formed. A national strategy for sustainable development for the period up to 2030 has been developed and is being implemented, which includes several initiatives related to the development of information and communication technologies (ICTs) in various sectors of the Belarusian economy.

Resolution of the Council of Ministers of the Republic of Belarus No. 235 of March 23, 2016 approved the developed State program for the development of the digital economy and information society for 2016-2020, which contains the concept of «digital transformation» of the Belarusian economy and aims to digitalize existing processes in healthcare, public procurement, education and other areas.

In 2015, in order to strengthen the role of ICT in e-government, a strategy for the development of **Informatization in Belarus for 2016-2022** was developed.

Second, the institutional framework is being developed. **Decree of the President of the Republic of Belarus from November 8, 2011 № 515 «On some issues of information society development in the Republic of Belarus»**, the country has established the Council on information society development under the President of Belarus [1].

To implement the state program of innovative development in the Republic of Belarus, The Belarusian cloud technologies LLC was created. The Belarusian hi-tech Park (HTP) is the largest IT-cluster in Central and Eastern Europe, which has become the center of the Belarusian IT sector.

The institutional structure is also represented by **the National center for electronic services, the National automated information system, and the State register of information systems.**

Third, there are examples of successfully implemented practices of using digital technologies in the system of managing regional development and providing services to the population in Belarus, which increase the significance of Belarus in the UN global rankings.

1. a Single portal of electronic services for citizens and legal entities (<https://portal.gov.by/>) which is a single point of access to various electronic services, as well as a source of information about administrative procedures performed by a particular Belarusian Agency or authority.

2. the Integrated system for the provision of public services «One window» (https://nces.by/service/services_oais/pk-oo/) is a subsystem of a nationwide automated information system designed to provide technologies for performing administrative procedures performed against citizens and legal entities in electronic form through a Single portal for the provision of services. The introduction of the «One window» principles has significantly simplified administrative procedures in Belarus and contributed to

the de-bureaucratization of public administration at the national and regional levels.

3. Unified portal of municipal economy «My Republic» (www.115.бел) is a single platform for working with citizens requests to solve various problems of the urban economy.

4. Portal for rating the quality of services rendered by organizations of the Republic of Belarus (www.качествоуслуг.бел/RatingPortal) provides an accessible way for citizens to express their opinion on the quality of public services provided by state organizations, which contributes to improving the quality of public services. The rating of state organizations formed on the basis of these assessments creates an additional incentive to improve the quality of work with the population and contributes to the development of an open dialogue between the government and the population.

5. Open data set Information portal (<http://opendata.by/>) in various thematic areas: urban data, transport, ecology and climate, etc. As a result of the implementation of this national open data portal, there should be a significant increase in the share of services that will be provided by state and local authorities in electronic form.

Currently, further work is being carried out in the Republic of Belarus to digitalize certain areas of the regional economy: education, health, housing and utilities, transport, infrastructure, and regional management.

In particular, in the field of education of regions development of digital technologies associated with the introduction of e-education; healthcare automation and robotics therapeutic and diagnostic processes, the creation of competence centers, as well as 100% translation of all medical documentation into electronic format; at the level of urban information systems of automated management in the field of urban infrastructure (Parking, registration of municipal engineering, traffic, street lighting, transport) and more.

2. Problems of formation of «digital local government and self-government» in Belarus

The most complex is the process of digitalization of regional management. In Belarus, restrictions remain for the development of digital local self-government and the transfer of administrative functions of local government to a digital basis, including:

- incomplete readiness of the population to participate in the work of digital government, low "electronic maturity";
- only a part of the country's population, mainly young people, uses ICTs for interactive

transactions (online shopping, banking, online job search).

- lack of traditions and established practice of electronic communication in the Belarusian society;
- regional differences in the level of equipment of citizens with access to ICT (computers, mobile phones, plastic cards, digital TV);
- morally and technically outdated fleet of computer, office equipment and servers for the operation of state information systems;
- inconsistency between departments and inconsistency of the regulatory framework of state regulators in the field of information security;
- insufficient funding for projects aimed at developing the digital economy, high costs of implementing information and communication technologies;
- lack of demand from government agencies and enterprises for data storage, processing, analysis, and transmission;
- lack of qualified personnel (including outflow of the best specialists);
- the lack of a unified approach to the implementation of educational programs in the network form and the problem of adapting educational programs at all levels of education to the requirements of the digital economy, etc. [2].

3. The direction of digitalization of local authorities in Belarus

One of the key conditions for the formation of local e-government in Belarus is the smooth functioning of the communication system between citizens and local self-government bodies and the information openness of the local Executive power.

In the system of «digital local government and self-government», several interaction modules can be distinguished.

First, between regional Executive authorities (local government) and local councils of deputies (local self-government in Belarus) at various levels. This is one of the components of the interdepartmental network and the state database, the formation of electronic document flow and the electronic vertical of power, etc.

Secondly, between the local authorities and population, as well as non-governmental organizations (voting, referendums, public information, survey, public opinion, education and the promotion or formation of civil position).

Third, between local Executive authorities, on the one hand, and the population and businesses, on the other

hand, regarding the provision of so-called public services.

Taking into account international practice, the formation of these types of communications requires the following measures, implemented in stages [3; 4].

First, creating appropriate technological capabilities for digitizing the management process of local authorities, which includes:

- development of regional ICT infrastructure, including the provision of computers and the Internet to the population of the regions, deputies, employees of local governments, and providing access from various communication channels, any devices and web browsers;
- creation of official Internet portals based on a modular management system and having the options «electronic appeal», «public services», as well as digital platforms for ensuring communication within the Deputy corps;
- creating a technological basis for electronic voting of citizens, providing digital identification of the individual and introducing an electronic digital signature.
- Second, the formation of an integrated information system for regional management, which includes:
- formation of a data Bank on the integrated socio-economic development of the city, gradual transition to the formation of an information portal for a set of open data on the city; including ensuring the availability of strategic and program documents for citizens, comprehensive plans for the development of the territory;
- development of the concept of providing public electronic services in the regions by local authorities.
- Third, improving regional management in accordance with the requirements of "digital local governance and self-government", including:
- optimization of the number of local authorities taking into account the transition to the use of digital technologies;
- development of project-type working groups that bring together employees of various departments and departments for the practical use of project management of the city's economy in certain areas;
- creating regional and urban digital Analytics platforms;
- development of instructions for civil servants of local authorities on prompt responses to citizens' information requests and an algorithm for conducting online consultations with the public on the most important issues of regional policy, as well as methodological recommendations for taking into account the opinion of the population when making decisions of local governments on issues of local significance;

- development of a system for evaluating the effectiveness of public services to the population in a digital format and creation of a portal for rating the quality of local government activities.

Fourth, an educational policy aimed at adapting the population to the new digital reality and developing skills to participate in «e-democracy» and receive electronic public services, namely:

- conducting seminars and training courses to enhance knowledge and develop skills in using electronic tools of open local government;
- support for local initiatives to create it Directors ' clubs, public councils, expert groups in the field of ICT, etc.;
- training of it specialists who are able to work in the field of creation and functioning of local e-government;
- creation of competence centers for teaching it technologies to city residents.

Fifth, improvement of legislation in the area of local governance and self-government and processes of informatization of the society, in particular: introduction to legislative and regulatory legal acts of Belarus the concept of «public services of the local bodies of self-government» and «electronic public services»; the

amendments to the electoral legislation of the Republic of Belarus in part to reflect the order of e-voting etc.

Conclusion

The creation of «electronic local government and self-government» in the Republic of Belarus will contribute to more active involvement of citizens in decision-making at the local level; transparency and de-bureaucratization of local authorities, expanding their capabilities and proximity to citizens; and the introduction of electronic document management at the local level will reduce communication costs, reduce red tape and speed up decision-making. As a result, the prerequisites will be formed for the transition to more progressive models of building the system of local self-government in Belarus within the framework of the public model, etc.

Note: the results of the study were obtained with the support of the Belarusian Republican Foundation of Fundamental Research in the framework of the scientific research project «Scientific basis for digital transformation of activities of local government and self-government bodies in Belarus taking into account the experience of France and other EU countries» (agreement with BRFFR № Г19MC-034 from 02.05.2019г., № State registration 20192039 from 14.08.2019).

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INFORMATION TECHNOLOGY PROJECT MANAGEMENT PROCESSES AND PRACTICES: A COMPREHENSIVE STUDY FOR SUCCESSFUL IMPLEMENTATION OF IT PROJECTS

Abstract

The role of Information technology has become very important in advancing companies. It helps companies facilitate their business processes. However, it's very a challenging process to convert from non-systematic environment to a systemic environment, but it's still a crucial factor for success. This paper discusses the IT project management strategies, skill, factors for implementing IT projects. It also recommends strategies to implement IT projects successfully. It identifies factors that hinder the process of IT project implementation and to the challenges that may be faced during implementation and to determine ways to cope with the challenges.

Key words: *IT projects, Information system, project management strategies, implementation challenges.*

Introduction

Due to the increase in globalization and advancement of technology all around the world, organizations are implementing latest IT applications in order to enhance their operations and to provide the optimum value to their customers. In order to implement the IT applications, comprehensive project management is conducted by the organizations. Adoption of latest technologies is essential for organizations because it not only enhances the efficiency of the organizations it also strengthens their competitive position in the market. An organization can enjoy competitive advantage against its competitors if it holds exclusive rights to a technology which helps it provide better products or services to the customers.

The nature of the IT projects may differ in accordance with the nature of the business of the organization however the tools used to manage the projects remain the same. While undertaking any project, it is among the priorities of the management of the organization to carry out the project efficiently, within a predetermined amount of time, and within the scope of the available resources. In order to ensure these objectives, the strategic core of the organization uses project management techniques which include extensive planning, systematic breakdown of all the steps to be followed till the completion of the project, and identification of the critical path within the segregated

project activities. In the recent past, project management has become more than just a tool for implementation of project. Organizations are resorting to project management as a principle driver of change. Project management has been bringing out desired results for the organization and so this discipline has been ever so evolving in order to make it more efficient.

The aim of this report is to propose the best practices for implementation of an IT project. In order to reach this aim, the report uses an assumed situation and proposes its solution using example of an actual organization that carried out a comprehensive IT project management in the recent past. The report also highlights the factors that are responsible for IT project failures, anticipated challenges associated with the implementation of the IT project, the success factors essential for the implementation, and the recommendations for the organizations that seek to undertake IT projects.

Objectives

As mentioned in the introduction, the aim of this report is to highlight the best practices for undertaking IT project management. In light of this aim, the objectives of this report are outlined below.

1. To devise strategy for successful implementation of a proposed IT project.

2. To identify the factors that are essential for success of IT project management
3. To identify factors that hinder the process of IT project implementation.
4. To identify the challenges that may be faced during implementation and to determine ways to cope with the challenges.

Scope

This research report covers a wide array of topics associated with the subject of IT project management. IT project management has a wide scope because it involves two distinct subjects, that are, IT and project management. These two disciplines merge to form a bigger subject which includes multiple aspects of an IT project and numerous aspects of project management. This research report covers a number of topics from both the sides of the subject. With regard to IT project, the report includes an analysis of the factors that lead towards failure of IT projects and it also includes an assessment of the factors that lead towards success of IT project. With regard to project management, the report includes an analysis of the factors that are essential for successful project management such as: benchmarking, planning, and continuous evaluation. Apart from the theoretical topics, the report also includes an assumed practical scenario for which the report presents a strategically designed solution.

The report also includes a case study of an actual organization that carried out IT project management. This case study helps in the identification of the best practices which help in the development of the best practices recommended in this report.

Significance of the Report

Organizations all around the world are enhancing their operations through implementation of IT projects. This report is highly relevant for such organizations as it highlights the factors that are essential for IT projects and the factors that need to be eliminated. Different organizations have different processes and tools for IT project management, and this report helps in the harmonization of the IT project management process. This report highlights some of the important aspects of project management, such as benchmarking.

This aspect of project management is relatively new and it is highly relevant for IT projects as it helps the organizations follow the best practices derived from similar projects undertaken by other organizations. Therefore, this research study would attempt to determine the best practices that can be implemented by an organization to ensure success in IT project management.

Methodology

In order to achieve the purpose of the report, a comprehensive secondary research was carried out. All the data pertaining to the factors causing failures of IT projects, factors essential for their success, challenges faced in implementation, and the case study of P&G was acquired from secondary sources including books and journal articles. The reliability was checked by the established credibility of the sources. This report places significant reliance upon secondary data therefore it was ensured that the sources for the secondary data were relevant, credible, and reliable.

Analysis

The analysis section of the report is the core as it leads towards the final recommendations for the best practices of IT project management. This section includes a comprehensive analysis of the factors causing IT project failures, factors essential for successful IT project management, an overview of the proposed situation, the proposed solution to the assumed problem, case study of P&G, factors that helped P&G implement IT project successfully, and use of those factors in the proposed situation.

Factors Causing IT Project Failures

The advantages of an IT application can only be acquired by organizations if the implementation of IT projects is carried out successfully. There are a number of examples of failures of IT projects and the causes for the failures have also surfaced. Following is a brief explanation of some of those causes.

Lack of Strategy and Planning

One of the biggest factors that are directly responsible for the failure of IT projects is lack of comprehensive implementation strategy and planning. This is the most important phase in any IT project and this is the phase that is not given the extent of work it deserves. A number of project managers fail to realize that the success of the IT project management depends upon the effectiveness of the initial strategy and the efficiency of the planning (Southon et al., 1999).

The strategy includes the determination of the overall scope of the project, the direction of the project, the extent of resources that will be applied, and the time period within which the project will be completed. Planning is more comprehensive as compared to development of strategy. The strategy provides the direction for implementation; the plan provides the nature and timing of procedures that will be conducted in order to follow that direction. Therefore, both the strategy and the plan for implementation are integral to the whole

project and their determination beforehand can greatly assist in the effective implementation of the new information system. Absence of strategy and planning may lead towards failure of the IT project.

Insufficient User Involvement

According to Social Construction of Technology (SCOT) theory, human action shapes technology (Mingers & Willcocks, 2004). Thus, the development of an IT system originates from the needs and requirements of the users. Thus, another significant factor responsible for the failure of IT implementations is the lack of user involvement. The management fails to realize that ultimately it is the staff members who will be required to operate the new system, and failure to acquire the opinion of the staff members renders the information system ineffective. Due to lack of user involvement, the IT systems are developed with features that staff members do not need, or without features that are essential to the operations. The lack of user involvement may also result in a user interface that is difficult for the staff members to use (Al-Ahmad et al., 2009). All these factors render the IT project ineffective and lead to its failure.

Lack of Oversight by Strategic Core

Another important factor that is responsible for failure of IT implementations is the lack of oversight over the implementation of IT project by the strategic core of the organization. For successful implementation, it is highly important that the senior management personnel of the organization take active part in the project (Bartis & Mitev, 2008). They key management personnel can carry out oversight by gaining regular feedback regarding the implementation of the IT project.

Inadequately Experienced Project Managers

In an organization that is not acclimated to the latest developments in IT, there is lack of managers that have experience with IT applications. Therefore, it is often the case that the manager overseeing the IT project is unaware of the technical aspects of the project, and this leads to multiple shortcomings. It is essential that the project manager and the personnel overseeing the manager hold sufficient IT knowledge and carry sufficient experience to ensure that the project is conducted properly (Marshall, 2006).

Lack of Communication with IT Software Developer

Another major reason behind the failure of IT implementation is that the software developer has a different understanding of the IT requirements of the organization. This leads to the development of an information system that is irrelevant for the organization.

Reluctance of Organizational Personnel

The staff of the organization may show resistance towards the implementation of the new IT applications. The staff members may become acclimated to the current system used by the organization therefore they may find it difficult to accept the new IT system. The staff may also show reluctance towards learning how to operate the new IT applications. This attitude of the staff members may be responsible for the failure of a new information system.

Lack of Competent Staff

Staff members of the company may lack the level of competence required to operate the latest IT applications. Since information systems like 'Entity Resource Planning' are highly complex systems as they integrate multiple functions of the organization and establish a centralized database which is accessible by individuals from multiple departments of the organization. If the staff members are not adequately qualified to operate the new system, the IT project may fail its actual purpose notwithstanding the success of implementation.

Factors Essential for Successful IT Project Management

Where on one hand some factors contribute towards the failure of IT projects, on the other hand there are other factors are necessary for the success of IT projects. The subsequent sections highlight some of the factors that have a positive impact on the overall implementation of IT projects.

Benchmarking

The trend of using pre-existing knowledge and experience within project management is on the rise (Kerzner, 2013). This enhances the overall efficiency of the project along with ensuring its feasibility and timely completion. The past experience and experience of others can be incorporated in project management through the use of benchmarking. Benchmarking is an evaluative tool used to assess different aspects of project management. In simple terms, benchmarking is a process that enables the organizations to build upon existing ideas. The process of benchmarking encourages the organizations to change their point of view from internal to external to ensure that the objectives have been set correctly and the actions necessary to achieve those objectives are being taken properly. Benchmarking generally includes determining of standards, which have been experienced during a past project or which have been acquired through observation of projects carried out by other entities (Barber, 2004). It allows the managers to acknowledge and implement the best practices pertaining to project management (Kerzner, 2010).

Presence of a Strategic Plan

Among the most important factors that influence the effectiveness of project management is the presence of a carefully crafted strategic plan. The organizations should have a clear idea regarding its motives and the goals it hopes to achieve as a result of the project management undertaking (Ibbs & Kwak, 2000). The strategic plan should include a comprehensive account of the objectives of the project, effects of the project on different aspects of business including its competitive position, and how those objectives would be achieved.

Comprehensiveness of Planning

Any project requires comprehensive planning in order to be executed efficiently. The planning phase of a project includes determining the timing for the project, breaking down the project in systematically sequenced steps, allocation of resources to each step of the project, and determining timings for evaluation of the completed work (Meredith & Mantel, 2011). Therefore, in order for the project management to be effective, the planning phase needs to be executed effectively.

Availability of Resources

It is essential that the organization has sufficient resources to implement the project in accordance with the chosen benchmark. If an organization does not have sufficient resources to implement a project in accordance with the best practices, the process of project management is rendered ineffective (Lam et al., 2010).

Strong Leadership and Project Management Skills

A successful execution of a project in accordance with the best practices requires strong leadership and project management skills. The strategic core of the organization needs to exercise regular oversight of the project to ensure that the work is being carried out in accordance with the chosen benchmark. The management should also take note of the variances and the reasons for those variances (Cassell et al., 2001).

Organizational Support

According to Zwikael and Globerson (2006), the success of project management in construction companies is due to intensive organizational support. Project managers are provided with the resources they require to carry out the project and their requirements are prioritised to ensure that the delays in completion of the projects are avoided.

Overview of the Proposed Situation

If it is assumed that a customer calls the helpline of an organization and one of assistants answers him/her. Due

to the absence of an IT application to carry out the filtering of callers, the employee will be required to ask the customer if he/she is calling to report the problem or the purpose of calling is to tracking claim that already reported. If it the second case the assistant will ask for the incident number. The assistant will put the customer on hold and will call the customer service representative. The assistant will then inform the representative the nature of call that will be transferred along with the fact whether it is a new claim or old claim attached with incident number.

There are a number of issues which hinder the efficiency of the organization in the described situation. First of all, the assistant that receives the call is required to inquire the customer regarding the nature of the call. After acquiring information regarding the nature of the call, the assistant then transfers the call to the respective representative.

The customer is required to wait while the call is transferred. The overall process does not only waste the assistant's time but also diminishes customer satisfaction due to the extent of time it takes. The subsequent section proposes a solution to the problem.

Proposed Solution to the Situation

Through the implementation of an IT application, the assistant's role regarding receiving the customer's call could be replaced by an automated machine. The machine will provide the customer with two options: "1" to report and "2" to track claim. If the customer hits 2, the automated machine will ask the customer to enter the incident number. Then, the customer will be transferred to customer service representative with the Incident ID and the customer will be facilitated directly by the customer service representative bypassing the assistant entirely. In order to implement the new system, the following steps will need to be followed:

1. Buying a new phone system that allows the procedures specified in the solution.
2. Implement the new system using IT project management.
3. Test the new system to ensure the probability of failure is at an acceptably low level.
4. Ensure the validity of the system by checking that the incident number consists of numbers.
5. Adapting customer service representatives with these new changes through training.

Benefits of the Proposed Solution

Time Conservation

This change will exclude the assistants from answering the calls and save them to another kind of work. Usually

every assistant answers 30 calls in a day at an average of 42 seconds per call. The new system will save 21 minutes for every assistant therefore enhancing the overall efficiency of the organization.

Customer Satisfaction

In the process described in the situation, customers were required to talk to the assistant first and then they were required to wait till they were connected to the service representative. With the implementation of the new system, the level of service will enhance because the automated machine will modify the service process enabling customers to reach the service representatives directly.

Issues Associated with the Solution

Cost of Implementation

The cost of implementation of the new system depends upon the size of the organization. For a small business entity as assumed in the proposed situation, the cost of implementation of a new phone routing system may be approximately \$700. However, this cost is not significant as compared to the extent of benefits that will be derived from the implementation.

Implementation Time

The time of implementation also depends upon the nature and scope of the project. For a very large and complex organization, the implementation time may be in years. However, for a small business entity, the time may be in days.

Reluctance of Customers

Customers may resist the change in system as they may be acclimated to the previous system. No solution is going to please every customer, but most consumers today expect to be greeted with an automated system when calling a business. One option is to allow customers to press 0 if they're unsure how to answer the automated questions.

Case Study of Procter & Gamble Company

Summary of the Case

The Procter & Gamble Company (P&G) has its operations in multiple countries and the business of the company is focused on providing consumer packaged goods. The products of the company are sold in more than 180 countries through mass merchandisers, grocery stores, department stores and many other distribution channels. P&G has five major business segments: Beauty; Grooming; Health Care; Fabric Care and Home

Care; and Baby Care and Family Care. Each of the business segments of the company manages a wide portfolio of brands which are sold in markets all around the world.

The nature of the project undertaken by P&G was very comprehensive as it spanned the global operations of the company. The company needed to upgrade its ordering, shipping, and billing software that was nearly 20 year old along with its work processes (Jackson, 2013). The risk inherent in this project was very high as the software was associated with the core functions of the company's business. In order to ensure that the project was managed successfully, the company had to be extremely careful in identifying and mitigating all the potential risks that could have a detrimental impact on the operations of the company.

As the first step towards the implementation of the new system, the senior management of the company created a comprehensive project charter that included the relevance of the project to the overall business of the company, the assets of the project, and a summary of schedule and budget of the project. The vice president of P&G's global business services, Patrick Arlequeeuw said, "We knew it would be a project that would take several years.

We spent some time on making the business case: What did we want to get out of it? What were the business capabilities we wanted to have? What is the investment and return needed as such? The interesting part is that the preparation time was almost half the project" (Jackson, 2013). Thus, it can be inferred that P&G invested a significant proportion of time in the preparation phase of the project. This allowed the company to assess all the risks and plan comprehensively regarding the milestones of the project.

The implementation of the project was done in multiple phases focusing on different regions where the company operated. The transformation of work process and system was initially done in Western Europe region. This implementation acted as a pilot for other regions. Subsequent seven waves of implementation were done throughout 2011 in other regions of the company's operations. This was an effective way of implementation of the new system as it helped the company ensure continuity of global operations at all times. In addition to that, this allowed greater mitigation of risk as in case of a failure, the impact would be smaller and limited to a single geographic region rather than whole of the operations of the company.

The company ensured continuous identification and evaluation of the risks throughout the project. The senior management of the company benchmarked three sources for continuous identification of risks. The company

evaluated the factors responsible for success or failure in other similar projects in other companies. In addition to that, the company utilized internal knowledge created as a result of smaller implementation of system previously. The company also acquired feedback from retailers regarding their experiences with similar transformations. These activities allowed the company to perform continuous identification of risks and stay proactive in the mitigation of the identified risks.

After comprehensive screening, the project management team identified three major risks, which were: loss of business due to an inability to process orders in a timely way, loss of credibility because of a lack of quality in the shipping process, and loss of sales as competitors took advantage of the transition. The company responded proactively to address these risks and created a board consisting of senior management personnel to ensure smooth continuation of operations. To facilitate implementation of the project, the team responsible for implementation simulated the daily ordering cycle as it would be after the implementation.

Ultimately, P&G was successful in management of this global project. Among the goals of the company, one was to implement the project without the external stakeholders noticing any disruptions. The company was successful in this goal as the business was carried out as usual throughout the phase of implementation of the new system.

Case Learned

There are a number of success factors that can be identified from the case study of P&G. One of the factors is implementation of the project in multiple phases focusing on different regions. This implementation allowed the company to identify and address the risks beforehand. Another lesson learned from the case was continuous identification and evaluation of the risks throughout the project.

The senior management of P&G benchmarked three sources for continuous identification of risks. Another lesson learned was the utilization of internal knowledge. P&G used knowledge created as a result of smaller implementation of system previously. P&G also addressed the risks in timely without influencing the day to day operations of the company.

Recommendations for IT Project Management Based on P&G Case Study

In light of the analysis conducted and the case study, the following recommendations can be made for the organizations attempting to implement IT projects in an optimum manner.

Extensive Planning and Preparation

The first factor is the comprehensiveness of planning and preparation. As mentioned in the prerequisites for successful global project management, planning plays a vital role in the success of a project. Projects that are well thought out tend to reach the level of completion successfully as compared to the projects that are not adequately planned. The planning phase includes, among other activities; determination of the relevance of the project, identification of primary risks, and determination of milestones, timeframe, and resources required.

Implementation in Phases

Another factor that leads towards the success of IT projects is the implementation of the new IT system in multiple phases, each covering a particular function of the organization or its geographic location. Therefore, implementation of a new system in a controlled and isolated environment allows the company to identify the previously unidentified risks and to ensure their elimination in the subsequent waves of implementation.

Regular Risk Assessment

It can also be said that continuous assessment and evaluation of the possible risks emerging from the project is among the factors that leads towards successful management of an IT project therefore all organizations should determine certain key performance indicators (KPI) that help them assess the success of the project in a regular manner.

Utilization of Internal and External Knowledge

For successful project management, utilization of knowledge whether created internally or acquired from external sources is essential as it helps the management minimize the risk of failure. Apart from the utilization of the internal knowledge, the company should study similar projects carried out by other organizations and acquire relevant knowledge that is essential for the company's project.

Zero Impact on Day-to-Day Operations

Among other success factors, one is the implementation of the project in isolation from the day to day operations of the company. As practiced by P&G in their project management, the company isolated the implementation from daily operations. There was a very wide span of operations spread throughout the globe and any small setback could have a detrimental impact on the revenue and goodwill of the company. Therefore, the company implemented the project in such a manner that it did not have any impact on the operations of the company and the external stakeholders remained unaware regarding

the exhaustive overhaul of the internal system of the company. Therefore, for successful implementation of IT projects, organizations should ensure that daily operations are not affected.

Conclusion

Due to the rise in globalization and advancement in technologies, organizations all around the world are

adopting the latest IT applications. In order to implement the applications, they carry out IT projects. This report was centered about such IT projects as it highlighted the factors that are responsible for the failures of such projects and factors that assist in their success. The report undertook a proposed situation for which a proposed solution was provided. The report also included a case study of an actual IT project undertaken by P&G followed by recommendations based on the case study.

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MODEL OF DIGITAL COMPETENCIES OF CIVIL SERVANTS IN THE REPUBLIC OF BELARUS

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Abstract

The formation of the digital economy in the Republic of Belarus as one of the country's development priorities has a significant impact on the activities of civil servants. Modern socio-economic conditions, external challenges and threats, and the rapid development of information and communication technologies require civil servants to respond flexibly to changes. The article presents trends in the impact of the digital economy on the professional activities of civil servants, as well as the author's approach to the formation of a model of digital competencies of civil servants.

Key words: *local government and self-government, local e-government, public services, digital technologies, e-democracy.*

The concept of «digital transformation», which is understood as display of qualitative, revolutionary changes that consist not only in individual digital transformations, but also in a fundamental changes in the structure of the economy, in the transfer of value-added centers to the sphere of building digital resources and end-to-end digital processes. As a result of digital transformation, there is a transition to a new technological and economic structure, as well as the creation of new sectors of the economy [2].

The subjects of digital transformation are citizens, government agencies and organizations, and businesses. The state, as the main subject of management and socio-

economic policy, must respond to changes in a timely manner, assess the consequences and anticipate the pillars of development and expectations of society.

It is assumed that the digital transformation of public administration covers not only individual functions of a state body (organization), but also the entire management cycle (planning, forecasting, processing, controlling and decision-making).

The impact of the digital transformation of public administration on the activities of civil servants is shown in Figure 1.

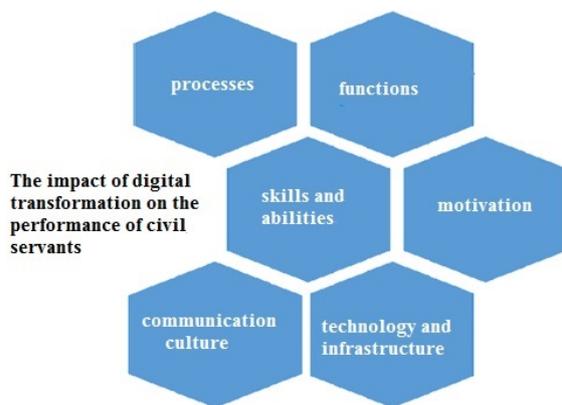


Figure 1. The impact of digital transformation on the performance of civil servants [own elaboration].

Thus, according to figure 1, digital transformation has an impact on the activities of civil servants in the following areas:

1. Changing the processes of civil servants activities, which involves: increasing the use of «big data» for the purposes of developing public policy, generating official statistics, etc.; automating routine procedures and electronic interaction with all subjects; getting rid of duplicate processes in order to increase the efficiency and speed of interaction;
2. The transformation of the management cycle based on: the provision of public services by default (without complaint); change of technologies, quality planning and management decision-making (based on valid and reliable data and algorithms, including artificial intelligence; changing approaches to assessing the performance of civil servants (based on the use of predictive analytics, random controlled trials, other analytical methods based on artificial intelligence technology; improvement of human resources related to changing the role of human resources services (transition from HR departments to HR management services – HR manager), introduction of modern methods of personnel management in the activities of human resources services of state bodies and organizations (Assessment center, KPI, HR analytics).
3. Changing the culture of interaction associated with the spread of the culture of «flexible management» (Agile approach), which is an iterative process of implementing activities with the constant use of feedback mechanisms and adjusting the actions of project participants to feedback [3, p. 11]. In addition, the transformation of public administration requires not only new technologies, but also a completely different culture and level of management, the development of project and process management in the public service, as well

as a culture of interaction with subjects through the use of the Internet.

4. The development of infrastructure and technology. Digital transformation increases the requirements for the level of technological infrastructure in public administration, which is necessary for the sustainable support of information systems. Under these conditions, the civil servant needs to learn how to work, constantly adapt to changes, and promote the development of information systems in the workplace.
5. Continuous professional development of civil servants associated with the need to acquire new skills and abilities in modern conditions. Digital transformation of public administration implies that civil servants have new competencies that must be continuously developed in the context of the formation of the digital economy and dynamically changing technologies.
6. Changing the system of motivation of civil servants, based on the dynamic value orientations of society in the context of digital transformation (blurring the boundaries between work and personal life, flexible working hours, focus on results, not working hours).

Thus, information and technological transformations, the increased role of information and communication technologies (hereinafter-ICT) in the activities of public servants pose the task of training qualified personnel. However, the lack of developed methods for identifying the structure of digital competencies raises the problem of finding relevant and in-demand competencies for effective work of civil servants in the context of digital transformation.

Analysis of foreign approaches to the formation of digital competence models allows combining them into 4 blocks (Appendixes – Table 1).

Based on the approaches presented above, other studies, as well as regulatory legal acts of the Republic of Belarus, we will draw the Model of digital competencies of civil servants (hereinafter referred to as the digital competencies Model) (Fig. 2).

As shown in Figure 2, the digital competence model includes managerial, communication, and technical competencies, which are distributed according to the category of civil service positions and the qualification requirements for civil servants.

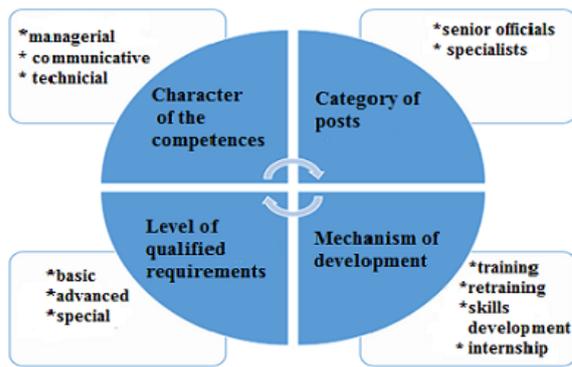


Figure 2. Model of digital competencies of civil servants in the Republic of Belarus [own development]

Thus, the team of authors identified the following types of digital competencies of civil servants:

- managerial competencies are a set of knowledge, skills and personal characteristics of a civil servant that allow them to effectively perform their professional activities in the context of digital transformation. Managerial competencies include cognitive and socio-behavioral skills, including: intellectual, business, leadership, moral qualities, as well as organizational skills of a civil servant (work planning based on ICT; coordination of employee's activities through special software, etc.);
- technical competencies – professional knowledge, experience, and skills in the field of ICT that determine the effectiveness and efficiency of the professional activity of a civil servant (ability to work with various technical devices, files, online services, and applications; adaptation of professional activity to the organizations information systems, etc.);
- communication competencies – the ability to apply professional knowledge, skills and abilities to work with information, while ensuring effective interaction (communication), including using ICT (the ability to work in interdisciplinary groups and teams).

In accordance with the digital competence model, the above-mentioned competencies are systematized according to the levels of qualification requirements: basic, advanced, and special.

The basic level of qualification requirements in the field of digital technologies is a general list of professional knowledge and skills of a civil servant in the use of

technical and software tools necessary for the performance of official duties in the context of digital transformation.

The advanced level of qualification requirements in the field of digital technologies is a list of professional knowledge and skills in the use of technical and software tools necessary for solving managerial tasks in the context of digital transformation.

Special quality demands in the field of digital technologies are a list of additional (to basic or expanded levels) professional knowledge and skills in ICT, which must have government employees in charge of ICT in the activities of state bodies and organizations.

Thus, the «Manager» category also requires an extended level of qualification requirements. A special level of qualification requirements is imposed on officials who are responsible for the implementation of ICT in the activities of relevant state bodies and organizations.

By forming the trajectory of professional development of a civil servant, the competencies related to different levels are distributed by the personnel service of the state body and organization, depending on the category of the civil servant (Manager, specialist) and his / her functional responsibilities. The balance of managerial, communicative and technical competencies, as well as communicative, cultural and psychophysiological personality traits of a civil servant is taken into account.

An important element in the model of digital competencies is the mechanism for developing competencies as a condition for improving the effectiveness of professional activities in the context of digital transformation of public administration. The main direction of development of communicative competences of civil servants is continuous education, including: training and retraining; professional development and internship (short-term seminars); self-education.

Thus, for a civil servant, the list of digital competencies is an understanding of the trajectory of professional development. For a government agency or organization, it is possible to evaluate specific digital competencies in relation to a civil servant (taking into account the category and qualification requirements). For the public administration system, the digital competence model is a step towards digital transformation.

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Appendixes

Table 1

Foreign approaches to the formation of digital competence models [1, 4]

№	Name of the approach	Content of the approach
1	European model of digital competencies for education	Digital skills are divided into user skills (the ability to work with various technical devices, files, the Internet; skills for working in online applications, digital services, etc.) and specialized skills (skills that are the basis of high-tech professions).
2	Model of digital competence for citizens	It includes 5 areas (information literacy, communication and collaboration, digital content creation, security, problem solving) and 21 digital competencies needed by all citizens. The classification is applied in 21 EU countries (France, Italy, great Britain, Poland, etc.)
3	Target competency model 2025	Digital skills are considered as technical knowledge in the field of ICT, in close connection with «soft skills» and general knowledge. This model highlights cognitive, social-behavioral, and digital skills.
4	Digital competencies of civil servants	Digital competencies: organizational (Soft Skills) and technological (Hard Skills). Organizational: ability to design and plan roadmaps for programs and projects; ability to organize projects and programs, manage changes, etc. Technological competencies are associated with obtaining knowledge and skills in the field of development and operation of information systems, depending on the practical activity of a civil servant: the ability to work with the architecture of information systems, the ability to model and manage the development and testing of information systems, build software monitoring system, etc. [3, p. 71-73].

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DIGITAL SYSTEM OF ANTI-EPIZOOTIC ACTIVITIES FOR AFRICAN SWINE FEVER

Abstract

The article presents the results of a digital system for managing the epizootic situation of African swine fever (ASF) using unmanned aircraft systems as an additional tool for developing anti-epizootic measures that takes into account possible mechanisms and factors of ASF spread in accordance with the general scheme of the ASF pathogen biological cycle in natural and anthropogenic environmental conditions. The digital system for the development of anti-epizootic measures for ASF using unmanned aircraft systems (UAS) is made on the example of the Belgorod region of Russia. The principle of operation of the Digital system is based on the General Scheme of the biological cycle of the pathogen, which is necessary to take into account all the features of the life cycle of the virus. The developed Digital system makes it possible to see the locations on the map of the pig breeding enterprises (PBE) area and separately the boundaries of 5 km of safety zones, which makes it possible to determine whether there are possible mechanisms and factors for the transmission of ASF infection in these five-kilometer zones and how these 5 km safety zones intersect with other PBEs located in close proximity to each other and, accordingly, affecting the epizootic situation in the event of an outbreak of infection near these farms. On the information layer "Agroholdings" veterinary specialists and heads of enterprises can see in a matter of seconds to which agroholdings one or another PBE belongs. This will allow in the shortest possible time to stop the development of the epizootic process within the Agroholding and prevent the spread of infection to neighboring agroholdings. For example, on the map of Shebekinsky and Belgorod districts one can see the highest density of intersection of communication routes between PBEs of different agroholdings, which contributes to the spread of ASF on the PBEs of another agroholding in the event of an outbreak of infection. The next information layer on field maps automatically indicates to plant managers and veterinary services what crops are grown in the first and second threatened areas, as well as near PBE. As a result, the Digital System will instantly point out to those PBEs near which the food base for wild boars is grown and where clinical material from ASF boar patients can be accumulated and thus contaminate these cultures that will be used to feed pigs. In the Shebekinsky district, we see wild boar beds of a 5-kilometer safety zone near the PBE "Osinovaya Rosha" in Shebekinsky district, where naturally other symbionts and parasites are found that when moving boars remain on these fields, for example, flies and ticks, which are biological and mechanical carriers of ASF. Thus, the principle of operation of the Digital System using information layers allows not only to predict the spread of infection from the epizootic focus, but also to offer the heads of enterprises and the veterinary service the most effective anti-epizootic measures aimed at breaking the epizootic chain, as well as preventing the spread of infection and ensuring the welfare of PBEs in ASF taking into account the scheme of the biological cycle of the pathogen. This gives the Digital System the ability to manage the epizootic process.

Key words: African swine fever, pig breeding enterprises, digital system, control, epizootic situation, unmanned aircraft systems.

The pig breeding industry is currently developing intensively in Russia. The limiting factor for the development of the industry is the difficult epizootic

situation and the unfavorable situation with African swine fever (hereinafter - ASF), which threatens the very existence of pig breeding as an agricultural production

sector. There are currently no vaccines available against ASF. And in case of its occurrence, according to the veterinary instructions, all pig herds in the focus of ASF infection should be immediately destroyed. In the absence of limiting factors for the spread of ASF, its development can lead to the loss of pig herds not only in individual enterprises where ASF outbreaks are formed, but to call into question the existence of pig breeding at the regional or even country level. If, according to the leading epizootologists of Russia V.A. Kuzmin, V.M. Aronov and the official statistics of the Federal Service for Veterinary and Phytosanitary Surveillance in 2007, only 7 outbreaks were recorded throughout Russia in the southern regions, then in 2017 - more than 100 outbreaks, but already in all regions of the country. This means that the epizootic process of ASF in Russia is in an active phase, despite the obligation to take measures to prevent the spread of this infection and to fulfill all the points for the eradication of ASF set out in the ASF Control Instructions [1-2].

Even more intense threats to the spread of ASF from the adjacent territories to the Belgorod region are observed from Ukraine.

Thus, in the last 4 years, 435 outbreaks of ASF were registered in Ukraine, among them 80% in the population of agricultural pigs and 22% (95 cases) in the population of wild boars. As for the seasonality, the research carried out by the Research Institute of Experimental Veterinary Medicine (Kharkiv) found that ASF outbreaks are most often recorded in May and August (among domestic pigs), and among wild boars in December and February. As for calculating the likelihood of ASF, the researchers found that, according to the results of cluster analysis of populations of wild and domestic pigs, the average number of outbreaks in Ukraine per 1 cluster was 11 ± 8 , the average radius of distribution 76 ± 44 km, and the average duration of existence the focus of infection for 430 days. [9].

To strengthen measures to prevent the spread of ASF and more effectively combat emerging foci of infection, this Instruction was supplemented by the document "Veterinary rules for the implementation of preventive, diagnostic, restrictive and other measures, the establishment and cancellation of quarantine and other restrictions aimed at preventing the spread and elimination of African swine fever foci dated May 31, 2016 No. 213, which prohibit: to import into the territory of the Russian Federation domestic and wild animals, products of their slaughter and feed of all types from countries unfavorable for African swine fever; to the crews of ships, aircraft, train crews and drivers of buses and trucks traveling to the Russian Federation, to deliver to the territory of the Russian Federation animals and meat products (except canned food) purchased in foreign countries that are unfavorable for African swine fever; to

take meat, meat products, sausages imported from foreign countries ashore from ships; dispose of food waste and garbage from ships, airplanes, wagons and other means of transport in the waters of seaports, in the airspace of the Russian Federation and along the highways of railways and highways.

The above measures do not give the desired results [3] because paragraphs 22.1 and 22.2 of the Rules [4] provide for the possibility not to carry out anti-epizootic measures for pig breeding enterprises (hereinafter, PBEs) of the fourth and third level of the compartment, which may, under certain circumstances, contribute to the spread of ASF.

Since, on the basis of the above paragraphs of the Rules, the PBEs of the fourth and third levels of the compartments are excluded from the threatened zones, if at the time of the decision making at the specified enterprises, the farm does not meet at least one of the criteria for compartmentalization specified in the rules for determining the zoo sanitary status of pig farms, as well as organizations slaughtering pigs, processing and storing pig products, approved by order of the Ministry of Agriculture of Russia dated July 23, 2010 No. 258.

As a result, pig breeding enterprises of the third and fourth levels of the compartment are artificially isolated from the general system of anti-epizootic measures even if they are located in a five-kilometer zone from the focus of infection, which, according to the biological laws of the existence of biocenoses, contributes to its more rapid spread. As a result, the preservation of the epizootic chain and the further spread of the infection are maintained.

The Digital system being developed will enable enterprises of the fourth and third level of the compartment to carry out an objective assessment of potential threats in connection with the directions of flows, the dates of the removal of liquid organic fertilizers (LOCs) to the fields, the migration of wild boars and synanthropic animals, the intensity of precipitation, the direction of the flow of rivers and other factors that provide routes the spread of the ASF pathogen from the epizootic focus. As a result, PBEs of the 3 and 4 levels of the compartment will be able to take additional measures to prevent the spread of infection on their own initiative.

Despite the implementation of anti-epizootic measures, today in Russia it is not possible to prevent the spread of ASF, obviously, because not all existing factors and mechanisms of the spread of ASF are taken into account in the veterinary instructions. Similar processes of aggravation of the ASF epizootic situation and the observed tendencies for an increase in the stationary of this infection are also recorded in the world: in Poland there are more than 200 outbreaks, in Romania - more

than 700, in the Baltic countries - more than 100 outbreaks, in Ukraine - more than 200 over the past two years [7-8]. In this regard, the tasks of R&D are to give the Digital system the ability to identify the main pathways, factors and mechanisms of transmission, which will give the System the ability to manage the epizootic situation of ASF and offer the heads of enterprises, regional authorities of the agro-industrial complex, veterinarians an additional method for developing anti-epizootic measures, which will allow taking into account additional factors of possible routes of spread of ASF. These additional funds will be based on the use of modern information technology and advances in aerial photography using unmanned aircraft systems.

The creation of a digital system is a new tool for identifying the threats of the spread of ASF in the framework of modern trends in the development of precision agricultural technologies.

For the first time, a digital control system for the ASF epizootic situation has been developed using unmanned aircraft systems as an additional tool for the development of anti-epizootic measures, taking into account the possible mechanisms and factors of ASF spread in accordance with the general scheme of the biological cycle of the ASF causative agent in natural and anthropogenic environmental conditions.

The purpose of this work is to develop software modules for a digital system for the development of anti-epizootic measures for African swine fever (ASF) using unmanned aircraft systems.

Methodology. To create a Digital System for the Development of Anti-Epizootic Measures for African Swine Fever (ASF) using unmanned aerial systems, the following problem solving methods were used:

The method of veterinary analysis of the mechanisms and factors of ASF spread due to the presence of geographically distributed links of the ASF epizootic chain, which is based on information from the information layers of the Digital System being developed and consists of the following: comparative historical description; comparative geographical description; epizootic examination; statistical processing of materials (analysis).

The method of surveying the terrain using UAS and creating orthophotomaps, with its help, provided the creation of a cartographic basis for the subsequent accurate mapping of objects participating in the epizootic chain as its individual links. Aerial photography was carried out by UAS "Geoscan 201 Agro / geodesy". UAS "Geoscan 201" designed for automatic performance of aerial photography, which is equipped with an automatic control system (autopilot), inertial navigation system,

GPS / GLONASS signal receiver, payload control controller, digital communication channel for transmitting command and telemetry information and high-precision geodetic receiver Topcon (L1-L2, GPS / GLONASS / BeiDou).

The method of vectorization of orthophotomaps for creating maps of the location of pig breeding enterprises (hereinafter PBE), water bodies, roads of federal, regional and intermunicipal (local) values, borders of fields, settlements, with its help vector maps were created with the exact location of objects and binding the necessary data for the subsequent analysis of the epizootic situation for ASF. To create maps of the PBE location, a high-resolution orthophotomap obtained by aerial photography was used. Knowing the address of the location of the pig farm, the corresponding addresses were found on the orthophotomap and digitized. In the system database, PBE data are polygons. An information card of the object has been created for each PBE in the database, which contains information about the name, belonging to the agricultural holding and other characteristics. To create maps of the location of water bodies, field boundaries, settlements, the method of visual location determination was used. As a result of digitization, the corresponding layers were created in the System database. To create maps of roads of federal, regional and inter municipal (local) significance, maps of the location of roads of the Belgorod region were used on paper. By visually searching for the location of roads in the System database, a layer "Road network" was created.

The research methods are based on the scheme of the biological cycle of development of the ASF pathogen (Fig. 1).

Research results

The digital system for the development of anti-epizootic measures for ASF using UAS was carried out on the example of the Belgorod region. The principle of operation of the Digital system is based on the general Scheme of the biological cycle of the infectious agent (Fig. 1), which is necessary to take into account all the features of the life cycle of the virus.

After entering the System, the user can designate the boundaries of the districts of the region. Further, there is a separate opportunity to see the location on the map of the PBE area and separately the boundaries of 5 km of safety zones, which makes it possible to determine whether there are possible mechanisms and factors for the transmission of ASF infection in these five-km zones and how these 5-km safety zones intersect with other PBEs located in close proximity to each other and, accordingly, affecting the epizootic situation in the event of a focus of infection near these farms (Fig. 2).

This capability is incorporated in the Digital System and does not require additional time investment from veterinarians and farm managers to determine the location and safety zones around the PBE, which speeds up the decision-making process tenfold. In addition, this gives an idea of the density of the location of PBEs in a particular area of the Belgorod region, the number of livestock, which affects the intensity of the development of the epizootic process in ASF per unit area of the region. We can see the areas of the oblast where there are no PBEs, although there are forest belts in which natural sources of the ASF causative agent - wild boars - can live. This simplifies the management of the epizootic process and makes it possible to concentrate the attention of veterinarians in those territories where the density of PBEs and the number of livestock is high, and therefore in these regions more stringent anti-epizootic measures should be taken regardless of the level of their compartment.

Considering the map of the Belgorod region, it can be seen that in the Prokhorovsky district the highest density of the location of PBEs, followed by the Rakityansky, Borisovsky and Ivnyansky districts. In these areas, there is a higher probability of ASF occurrence, therefore, it is necessary to correct additional anti-epizootic measures in order to ensure ASF welfare. The smallest numbers of PBEs are located in the Starooskolsky district and they are located at a great distance from the rest of the PBEs in other areas, which will not require the development of additional anti-epizootic measures to preserve the well-being of ASF using the developed Digital System.

On the next information layer of the System, you can see other livestock enterprises that can contribute to the mechanical spread of infection due to close ties with PBEs being in their 5-kilometer safety zones (Fig. 3).

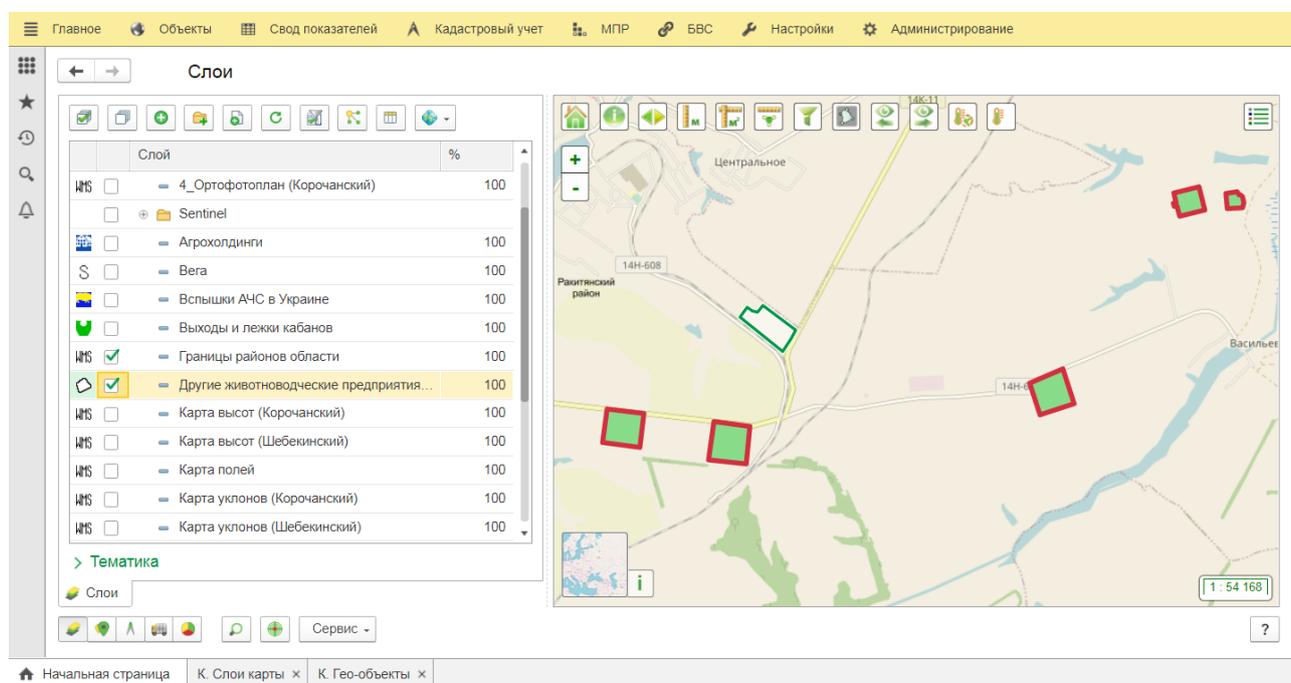


Figure 3. Information layer showing other livestock enterprises

Their economic and economic activity can contribute as a subjective factor that temporarily contributes to the preservation of the pathogen in a given territory. In addition, in these farms one can see the presence of fields with a forage base for wild boars, as well as the presence of open sources of LOCs that are not subject to disinfection, where biological vectors of ASF can be found. Such carriers can be synanthropic animals, which can affect the intensity of the epizootic process and the spread of infection to other PBEs. In addition, other

livestock farms can be seen, which allows veterinarians and farm managers to take measures to ensure the most effective measures in relation to neighboring livestock farms in order to prevent the spread of ASF to PBEs and thus break the epizootic chain in a timely manner.

On the information layer "Agroholdings", veterinary specialists and heads of enterprises can in a matter of seconds see which agricultural holdings this or that PBE belongs to (Fig. 4).

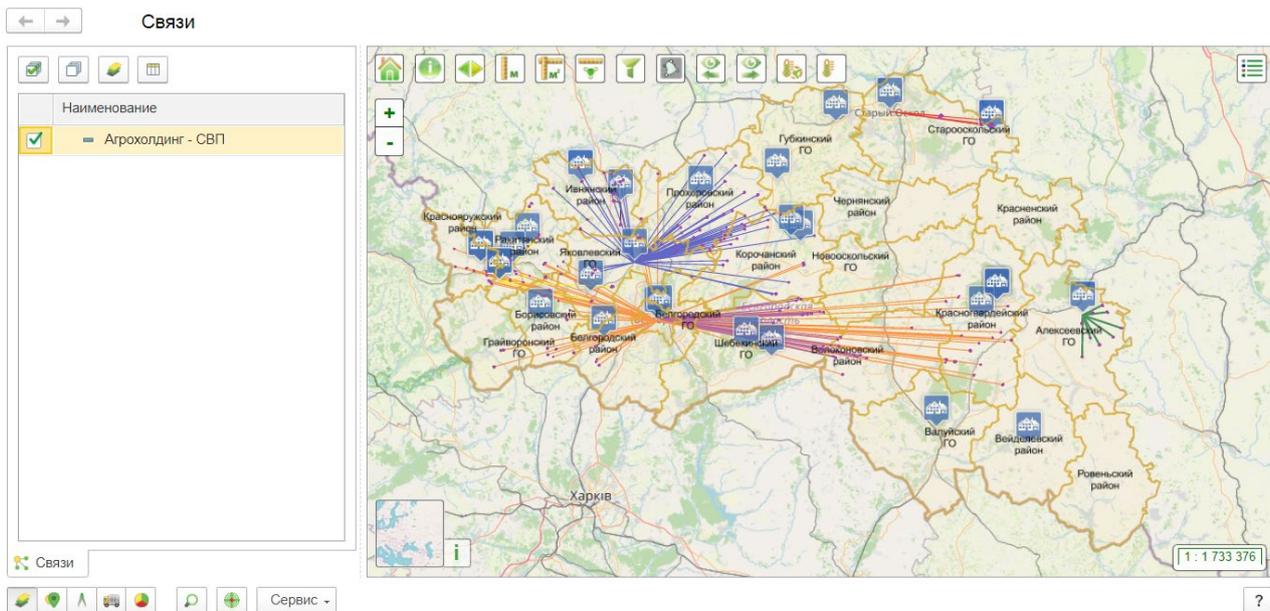


Figure 4. Information layer showing agricultural holdings and PBEs

This will allow, in the shortest possible time, to stop the development of the epizootic process within the Agroholding and prevent the spread of infection to neighboring agroholdings. For example, the map of Shebekinsky and Belgorodsky districts shows the highest density of intersection of communication routes between PBEs of different agricultural holdings, which contributes to the spread of ASF to PBEs of another Agroholding in the event of a focus of infection. This provides an additional opportunity to promptly warn the management of the neighboring agricultural holding in order to prevent the spread of ASF epizootics on their PBEs, which enhances the effect of breaking the epizootic chain. The situation is much simpler with the PBEs of the corresponding agricultural holdings located in Alekseevsky and Starooskolsky districts, where there are no intersections of economic relations of different holdings and coordination of efforts of managers and veterinary services to ensure the welfare of ASF is not required. For the first time, this layer makes it possible to practically manage the epizootic process through instant analysis using the Digital System of mechanisms and factors of transmission of the pathogen in a specific territory.

The next information layer on field maps automatically indicates to the heads of enterprises and veterinary services what crops are grown in the first and second threatened zones, as well as near the PBE. As a result, the Digital system will instantly indicate those PBEs, near which a forage base for wild boars is grown, where

clinical material [7-8] from wild boar patients with ASF can accumulate and thus contaminate these crops that will be fed to pigs. In the Shebekinsky region, wild boars are lying in a 5-kilometer safety zone near the PBE. Fattening plant "Osinovaya Rosha" in Shebekinsky region, where naturally there are other symbionts and parasites that remain in these fields when the wild boars move, for example, flies and ticks, which are biological and mechanical vectors of ASF. And since these arthropods can enter PBEs by air, including parasitizing birds, the likelihood of pig's infection increases. In addition, if wild boars die in these fields with ASF, they become a food base for predators, rodents, birds and other synanthropic animals and, thus, arbitrarily migrating to PBEs, they can introduce infection into these farms.

In addition, you can see data on the removal of LOC to the fields in the first and second threatened zones, in which the ASF causative agent may be located (Fig. 5).

Considering the last outbreak in 2018 at the Tambov Bacon PBE, the Digital system automatically indicated that 2 months after the removal of the LOC to the fields near the PBE "Balanovsky Reprodutor" (Tambov Bacon) from another PBE in the first threatened zone, an ASF outbreak occurred in the PBE "Balanovsky Reprodutor". This was most likely associated with the export of LOCs contaminated with the ASF pathogen, which clearly demonstrated the Digital system's ability to manage the epizootic process by identifying a specific source of the pathogen.

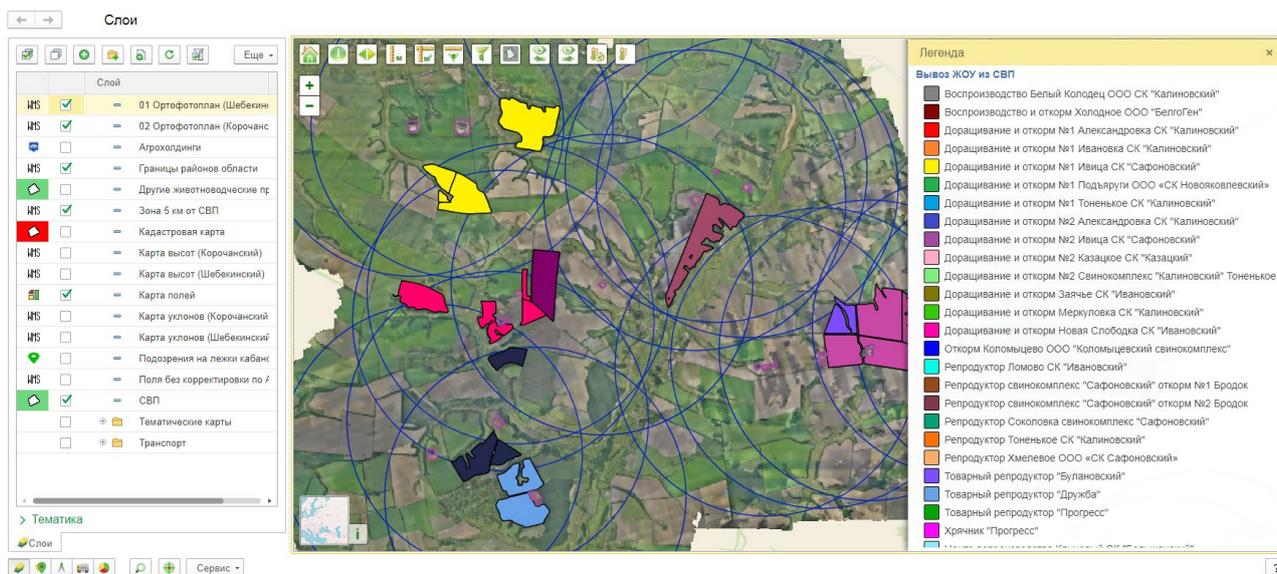


Figure 5. Thematic map “Removal of LOC from PBE”

Thus, the principle of operation of the Digital system using information layers allows not only to predict the spread of infection from the epizootic focus, but also to offer the heads of enterprises and the veterinary service the most effective anti-epizootic measures aimed at breaking the epizootic chain, preventing the spread of infection, as well as ensuring the welfare of PBEs in ASF taking into account the scheme of the biological cycle of the pathogen, which gives the System the ability to control the epizootic process.

As a result of the application of the developed Digital system in the event of an ASF outbreak in 2018 at the PBE “Tambov Bacon”, the system automatically

indicated that 2 months after the removal of the LOC to the fields near the PBE “Balanovsky Reprodutor” (Tambov Bacon) from another PBE, an outbreak occurred in the first threatened zone ASF in PBE "Balanovsky Reprodutor". That, most likely, was associated with the removal of the LOC contaminated with ASF pathogen. What happened at the intersections of five-kilometer zones around the PBE. This clearly demonstrated the ability of the Digital system to manage the epizootic process by identifying a specific source of the causative agent of the infection and made it possible to take emergency measures to stop the development of the epizootic process in ASF, affecting a specific focus of infection.

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STRATEGIC APPROACH TO IMPLEMENTING DIGITAL INNOVATIONS «SMART CITY» IN THE REGIONS OF BELARUS

Abstract

The article discusses «Smart city» initiative in the Republic of Belarus on the example of the city of Krichev on the introduction of digital technologies in city management. The article shows the key directions of digital transformation of various spheres of life of the city and city administration through the development of a strategic document involving all interested stakeholders in this process. Structural elements of the «Strategy of digital transformation for managing priority areas of life and ensuring sustainable development of Krichev» are presented: goals, priorities, main points of growth, risks, expected effects, as well as indicators for evaluating the achievement of positive changes.

Key words: information (digital) technologies, «smart city», strategy.

Introduction

The development of information (digital) technologies in public administration both at the level of the government of the Republic of Belarus and at the regional level is one of the most urgent tasks today. The relevance of this task is confirmed by the adoption of a number of documents at the state level that define priority areas of informatization and encourage regions to follow this course of development. The main documents include the *Strategy for the development of Informatization in the Republic of Belarus for 2016-2022*; *State program for the development of the digital economy and information society for 2016-2020*; «*Model concept for the development of «smart cities» in the Republic of Belarus*», prepared by the Ministry of communications and informatization of the Republic of Belarus.

Implementations of advanced IT-solutions in urban infrastructure that contribute to the formation of «smart cities». These directions are also reflected in the *National Strategy for sustainable development of the Republic of Belarus until 2030*.

The adoption of these documents in the Republic of Belarus creates prerequisites for the development and implementation of smart city projects in a number of cities in the country. The city of Krichev is one of those cities where the administration, using a strategic

approach, is actively implementing digital technologies in the life of the city and district, and the heads of various structures are constantly working to digitally transform the regional management system and improve interaction with investors and the population.

Prerequisites for implementing digital initiatives at the local level

The city of Krichev is located in the Eastern part of the Mogilev oblast. Krichev is one of the major railway junctions in Belarus. It is located at the intersection of important transport communications: national highways. Krichev is the administrative center of the eponymous district of Mogilev oblast. By population, it is among 18 medium-sized cities of the second type (20-50 thousand inhabitants). The average annual urban population in 2019 was 25,704 inhabitants. A decrease in the working-age population and an increase in the proportion of elderly people with a predominance of the female population is a systemic trend of changes in the socio-demographic structure of the population in Krichev. The share of the population younger than working age and older than working age is almost half of the population of Krichev (45.1%), which is a very high burden on the working-age population, negatively affects consumer demand in the region, the business and business environment [1].

Krichev district is one of the industrial centers in the Mogilev oblast. The basis of the economic potential of the city Krichev is the industrial sector of the economy, which includes manufacturing enterprises: OJSC «Krichevcementnoshifer» (building materials, cement), «Manufacture of rubber products, city of Krichev» (rubber materials), OJSC «Belshina» (rubber materials for tires), the JLL «Cement-bonded particle boards Belzarubezhstroy» (cement particle boards), and others. JLL «CSP BZS» is the only manufacturer of cement particle boards in the Republic of Belarus. Export-oriented products account for more than 80% of the total volume of products sold [2].

Krichev, like many other regional cities in Belarus, is characterized by typical problems in the economic sector, lack of jobs and places for recreation for citizens, irregular transport, bad condition of road infrastructure and unstable Internet-connection.

The concept of «Smart city» for Krichev is an interconnected system of communication and information technologies, the implementation of which is aimed at improving the standard of living of citizens and reducing the costs of management processes in urban development.

Krichev already has experience in implementing IT-technologies in various areas of the city's life.

Thus, the Krichev district Executive Committee has implemented the «Electronic BUSINESS» program and a virtual automatic telephone exchange (VATS). In order to increase crime prevention in the city, the «Safe city» direction is being developed and video surveillance is being introduced. The site of the district Executive Committee is being developed, where, for example, the investment passport of the Krichev district is located (<http://krichev.gov.by/ekonomika>).

Work is underway to implement a multi-level regional geographic information system, develop a basic spatial data base and a unified classifier of objects in the Krichev district.

The city is actively implementing ICT in the field of banking services to the population. The AZIMUT – 2 automated dispatcher control system (GPS) has been introduced to regulate public transport. An innovative system for technical control and diagnostics of gas reduction points «PLEXOR®» manufactured by Wigersma&Sikkema (the Netherlands) was introduced. The site for maintenance and repair of external gas pipelines is equipped with a remote laser detector of methane leaks by Sewerin RMLD (Germany), which allows to remotely detecting leaks on natural gas pipelines.

The «Electronic prescription» system has been introduced in the Krichev Hospital. Secondary school No. 8 in Krichev is an innovative platform where the E-school project is being implemented in stages. The historical museum of Krichev is working to create a modern information environment in the museum space of the Potemkin's Palace [3].

The next steps to digitalize the city of Krichev are related to the development of «the Strategy for digital transformation of management of priority areas of life and ensuring sustainable development in Krichev» (hereinafter referred to as the Strategy). This is one of the first strategic regional documents in Belarus related to the development of the urban economy based on digital technologies.

The Strategy as a road map for digital transformation

The Strategy was the next step and, and indeed in fact, it is «road map» of Krichev's digital transformation. The document was developed taking into account the priorities of State and regional programs for the development of the digital economy and information society in Belarus. The strategy takes into account global approaches to the «smart city» concept, recommendations of specialized experts, specialists of the United Institute of Informatics Problems (UIIP) of the National Academy of Sciences of Belarus, and also corresponds to the achievement of global goals for sustainable development of regions and territories.

When developing the Strategy, the opinion of representatives of local authorities and specialists of telecommunications, medicine, education, culture, and library organizations was taken into account. The document was also publicly discussed.

To determine the priority strategic directions for the development of the «smart city» in Krichev, the SWOT analysis method was used. The data obtained as a result of situational analysis were the basic elements in the development of strategic goals and objectives of digitalization for the sustainable development of the town.

Based on the conducted research, the priority sectors in need of intellectual modernization for Krichev were identified as the following: public administration, town infrastructure and economy [4].

The main strategic priorities for implementing digital technologies in each of the areas are shown in table 1 (Appendixes).

Structural elements of the strategy

The structure of the Strategy includes three main sections.

The first section presents an analysis of the potential of the Krichev district and the city of Krichev to implement the concept of «smart city», the region's readiness to create an information society.

The strategic goals, objectives and priorities for the development of the information society in Krichev are contained in **the second section**.

On the way to the «smart city», set out the goals to achieve a state of the city where investments in human capital, modern ICT and communication infrastructure ensure sustainable economic growth and a high quality of life with reasonable management of the available natural and industrial resources of the region.

Among the key objectives of achieving the goals of the Strategy are the following:

- development of the information society and implementation of e-management of the territory based on the national e-government program;
- improving the availability and quality of public and municipal services;
- creating conditions for advanced economic development and increasing its investment attractiveness through effective use of ICT;
- improving the information space and ICT infrastructure of the region for further development of the economic, socio-political, cultural and spiritual spheres of local society;
- ensuring the continuity, reliability, and security of information flows in the district.

The strategy provides for the use of systematic, complex, non-standard, innovative solutions, taking into account the historical, geographical and social conditions of the territory.

The third section contains a plan of priority actions, programs and projects for the implementation and development of digital technologies until 2025, expected results, possible mechanisms for implementing the Strategy, and risks assessment that may affect the success of achieving the goals and objectives.

The Strategy defines key actions for each of the listed strategic directions for the introduction of digital technologies.

In the field of public administration:

- ensuring smooth functioning of the communication system between town residents and representatives of the Executive power, information openness of the town administration;
- creation of an electronic register of employment of the population of Krichev district;
- electronic participation of citizens in city management process and ensuring that the documentation of strategic planning for the region's development is up-to-date and accessible to citizens;
- introduction and application of electronic student cards; development of electronic medicine; development of IT in the field of tourism services.

To stimulate the development of the city's economic potential and competitive advantages, it is planned to:

- implementation of IT innovations (regional geo-information system for solving problems of monitoring the state of territories and objects);
- organization of competence centers for the development of digital technologies on the basis of enterprises and organizations of the city;
- the development of a system of electronic distance education;
- provision of electronic document management;
- ensuring transparency of public tenders and purchases;
- creating an automated intelligent power grid;
- modernization of street lighting; introduction of a software and hardware complex for water supply management; development of an environmental safety monitoring system, etc.

In order to reach a new level of innovative development based on digital technologies, the Strategy identifies growth points that could have a direct impact on the socio-economic potential of Krichev.

The determining factor on the path to achieving the goals of digital transformation is to create conditions for priority development of the ICT sector of the regional economy, including the development of innovation infrastructure (techno-parks, business-incubators, centers of IT- competence, IT- accelerators, etc.) to facilitate commercialization and effective implementation of modern scientific developments; the development of IT-startups; the formation of ICT clusters through development of existing supply chains of it products and services.

It is also important to ensure the development of *human resources* and staff capacity that have the competencies and motivation necessary for effective implementation of targeted activities to create and use the components of the information society. Therefore, the priority is to support the development of the IT-personnel training system;

improve the IT skills of citizens; create electronic employment services and systems for training and retraining of temporarily unemployed people; create remote jobs for people with disabilities.

It is important to step up the development of IT in public institutions in such priority areas as education, culture, health, and social services for people with disabilities. To analyze progress in achieving the goals set, the Strategy includes the most important quantitative and

Indicators of implementation of ICT technologies in the economy of smart cities

It is proposed to evaluate the effectiveness of the Strategy implementation in other areas proposed earlier in the concept of the project «Krichev – small smart city. Krichev district. Develop together». Among them:

- improving the quality of work with potential investors when making decisions on the implementation of investment projects in the city of Krichev and Krichev district;
- the emergence of new «smart» jobs through the creation of new and modernization of existing enterprises and industries;
- creating an open and transparent information environment for interaction between authorities and citizens;

qualitative indicators for assessing the development of the smart city direction, including international indicators established in national documents or supplemented by others, taking into account the narrow specifics of the region.

To comply with international approaches to assessing KPIs for smart sustainable cities, the Krichev Strategy expert group recommended that they be included in the indicative map for assessing the progress of sustainable city development [5].

- creating a more comfortable living environment for citizens in the city of Krichev and Krichev district;
- increasing the volume of output and sales of products by enterprises of the Krichev district using the developed information tools and technologies;
- improving resource efficiency with the help of developed information tools and technologies by saving energy, labor and material resources by enterprises of the Krichev district.

Monitoring of these activities contributes to the acquisition and dissemination of experience in the development of digital technologies by the specialists involved in the process, and encourages progress towards compliance with standards in the field of sustainable development at the local, national and international levels.

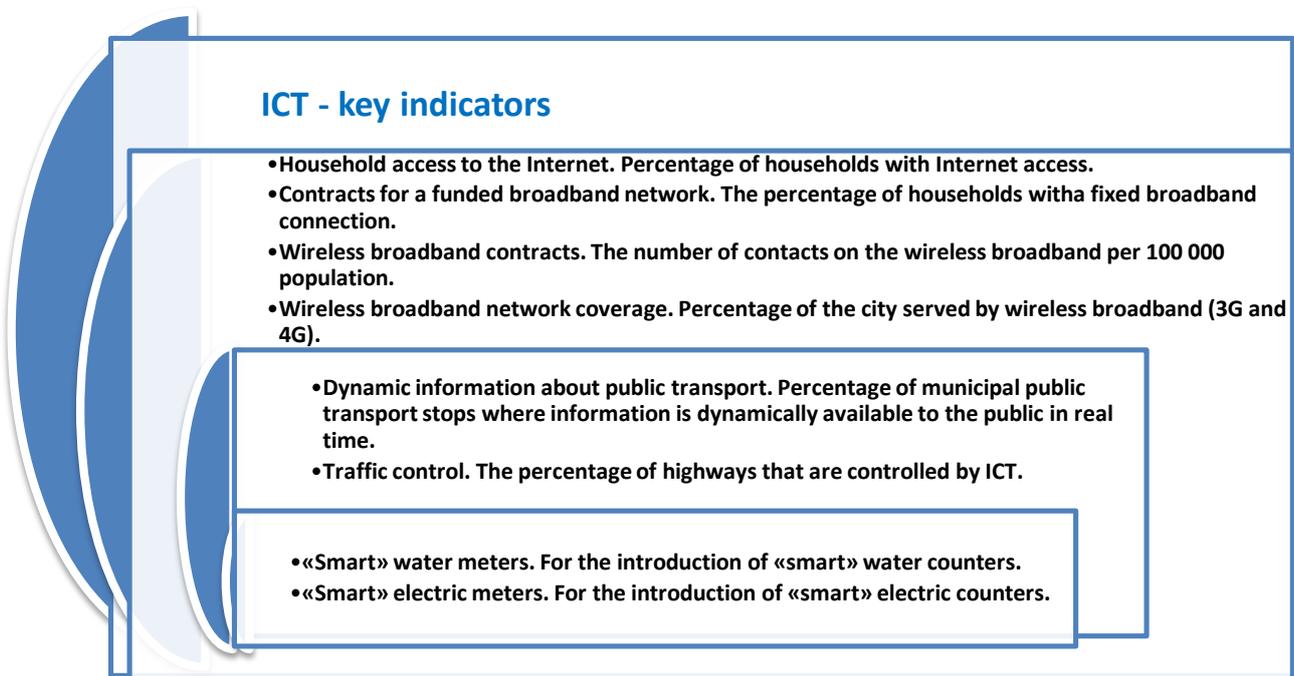


Figure 1. Key indicators of the introduction of ICT in the economic sphere

ICT - additional indicators

- **Availability of WI-Fi in public areas.** The number of access points to the public WI-FI network in the city.
 - **Open data.** Percentage and number of open data sets that are published.
 - **E-government.** The number of public services provided electronically.
 - **E-procurement in the public sector.** Percentage of availability for public sector procurement that is carried out in electronic form.
-
- **Control of intersections.** Percentage of road intersections that use adaptive road control or priority setting measures.
 - **Control over the water supply with the help of ICT.** Percentage of water supply systems controlled by ICT.
 - **Monitoring of wastewater / stormwater systems using ICT.** Percentage of runoff/ storm water systems controlled by ICTs,
 - **Control of electricity supply using ICT.** The percentage of power supply systems that are controlled by ICT.
-
- **The proliferation of demand-side management.** The percentage of consumers of electricity, having the ability to regulate demand.

Figure 2. Additional indicators of the introduction of ICT in the economic sphere

Expected results in the Implementation of the strategy and possible risks

The development and implementation of the strategy will ensure the transition of management in Krichev to a new level, allowing to introduce more advanced management tools, form an innovative digital format of the city's economy, and ensure a higher quality of life for the population. This approach encourages the formation of digital local governance and self-government and allows multiplying successful management experience in other regions of Belarus.

Investments in modern digital technologies and communication infrastructure will ensure Krichev's sustainable economic growth, better management of natural resources, and increase its competitiveness. Thanks to digital innovations, less resource will be consumed in the city, which will make it more environmentally friendly and safe. Increasing the investment attractiveness of small towns by creating the necessary infrastructure for the operation of regional competence centers in small towns is an urgent task. This will allow, taking into account the peculiarities of a particular region, to apply elements of effective «smart» management systems in large and medium-sized cities in a small town.

The implementation of the Strategy encourages the improvement of local human resources competencies; the creation of a unified information space and the development of new digital methods of regional

development management to de-bureaucratize local authorities and actively involve the population in solving local issues.

Implementation of the Strategy will improve the territory's ability to learn new knowledge and implement digital innovations, both by business entities and citizens; ensure the mobility of human resources and the development of modern knowledge and technologies at the regional level. Thanks to the introduction of digital innovations, the region's access to the outside world, markets, and sources of foreign and domestic investment will increase to ensure the integrated development of the regional economy based on the principles of sustainable development.

At the same time, the Strategy contains the following potential risks of its implementation.

Administrative risks associated with inefficient management of this territory, low efficiency of interaction between stakeholders, failure to implement the measures laid down in the strategy, and failure to achieve the Strategy's goals.

Financial risks associated with the lack of sustainable sources of financing for the implementation of smart city technologies, which may lead to underfunding, reduction and termination of planned activities.

Environmental risks associated with negative impact on the environment.

Personnel risks caused by a shortage of qualified employees in the field of ICT, which reduces the efficiency of the city's organizations, expanding the range and quality of its services provided.

Legal risks associated with changes in legislation regulating activities in the field of implementation and application of digital technologies.

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Appendixes

Table 1

Strategic directions of digital technologies implementation in Krichev

I. Public administration	II. Innovative economy	III. Urban infrastructure
Administrative services for citizens	Innovations in the industry, clusters, districts of the town	Transport
Representative and direct democracy	Smart workforce: Education and employment	Energy /municipal services
Services for citizens: quality of life	Creating high-tech companies and investment projects	Environmental protection/ safety

Source: authors own development



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IMPACT OF COVID-19 ON THE ECONOMY AND SOCIETY: A CRITICAL APPRAISAL

Abstract

The article discusses «Smart city» initiative in the Republic of Belarus on the example of the city of Krichev on the introduction of digital technologies in city management. The article shows the key directions of digital transformation of various spheres of life of the city and city administration through the development of a strategic document involving all interested stakeholders in this process. Structural elements of the « Strategy of digital transformation for managing priority areas of life and ensuring sustainable development of Krichev» are presented: goals, priorities, main points of growth, risks, expected effects, as well as indicators for evaluating the achievement of positive changes.

Key words: information (digital) technologies, «smart city», strategy.

Introduction

Many years ago, we thought that the world will be put to a stop by the use of atomic bomb or ballistic missiles, little did we know that the world will be at a standstill because of a microscopic virus called corona virus (COVID-19). There and then I started changing my mind with regard to the movement of things in life and the effect of this pandemic, to the point of regarding it as a major potential tool for the sake of realizing a more just and progressive society especially in the area of trade and business. The aim of this article is to briefly explain the reasons of this change of mind after my initial skepticism, and the effects of COVID-19 on world trade/business.

COVID-19: undesirable yet desirable

At the root of my initial skepticism towards COVID-19 was the conviction that this virus was an undesirable phenomenon meant to destabilise the economic system and thus lead to a very difficult life. Why did I say undesirable? Because it appears to be an ill-wind that blows no one any good. In the first place, it has led to the privation of liberty of all kinds and also to loss of lives and loss of businesses. It could be described undesirable because it appears to have come when the world seems not to have been prepared for it. On the other way, I don't think it is a problem of preparedness, a priori, I think we

are prepared but not prepared for a lost, not prepared for the eventualities and the unexpected. Business is a game of profit and lost. The lost for one person is a profit for the other. So, we should prepare for the two. But, since we have developed the habit of preparing for profit in business, the fact of lost always take us unaware. In the business world, we should prepare for the best, wait for the worst, and then accept whatever that comes in order to re-adjust. The act of managing the unexpected is what makes a good business person. Right now, some people are creating new businesses out of the exigencies of COVID-19, while other businesses are closing because of the devastating effects of COVID-19. Sometimes our lives and businesses are like tea bags, whose taste and value can only be felt when it is dipped into a hot water. I think in the face of the problem of COVID-19, what we need to change is our natural disposition to it and then develop a more pro-active approach. This means that we need not only change our attitude but we must also change our aptitude. Actually, there is awakening call to move from theory to praxis. In order to observe this movement, we need to update our working materials, and our method of technical know-how, if not we will be left behind. The world is in supersonic motion, it waits for nobody, therefore, my maxim should be, thou shall not be left behind. Let us join the moving train that is moving from *savoir* (what we know) to *savoir-faire* (what we can do).

However, the impact of COVID-19 could be understood from different points of view. For some people, it is a catalyst which has come to change our mode of living and speed up business actions and reactions, and to others it is a cataclysm that has come to set us back in our progressive system of living. Be that as it may, it is interesting to know that we cannot talk of the impact of COVID-19 on the world trade without talking of human person, because the place of human person is important in analyzing business relations, especially with regard to respect, solidarity and liberty. These cannot be possible if we don't understand the real impact of COVID-19. But why think of man? Because, it was man that felt the impact of COVID-19 more than any other creature. Man should be considered first before business and trade. This is because you must be alive before you can do business. Most often when the owner of a business is not alive, the business ceases to function or sometimes does not function well. This reminds me of a philosophical Latin adage that says: *primum vivere deinde philosophari*. We have to be alive before we can philosophize. This is an invitation for one to live an active and healthy life before devoting oneself to speculative reflection; it could also be a warning to those who devote themselves to theorizing, without having their feet on the ground. We have to be alive before we can do business. The relationship between business and man is like the relationship between a baby and a baby-sitter. If you really want to take care of the baby, first of all take care of the baby-sitter, if not the baby may suffer. If we really want to take care of our business, let us try to take care of ourselves. Even if we are using robots in the name of artificial intelligence to work, we should know that machine or robots have no conscience or thinking faculty to know the difference between good and evil. They only make use of what we have put into them. Therefore, man remains indispensable and must be taken care of, for now in the world of business and trade.

COVID-19: more desirable than I thought

Most powerful in affecting my views on the desirability of COVID-19, was when I saw how the world was busy applying social distancing, ethical rules and behavioral principles, and in the same society another group of people were busy closing the gap, creating a world without distance, with more business profits and less human hazards. These group of people are the internet driven businesses, not excluding internet driven universities/e-learning. As COVID-19 tries to separate us through social distancing, the internet driven business tries to close the gap, while widening the horizon of business. We can say that the major problem of internet driven business is fraud. But fraud is a human factor and not internet problem, once humans can get rid of fraudulent mentality and embrace respect, solidarity and liberty, there will be no fraud in business. For there to be sustainable world trade, there must be respect for human

person, solidarity among business persons, and liberty which goes beyond self-development to interpersonal trust, thereby giving us an enabling environment for businesses, which gives us access to wealth. That is why many centuries ago, John Donne an English poet, observed that "no man is an island". One can apply this dictum of Donne to the world trade, by highlighting the importance of interdependence and interpersonal relationship, enshrined in the liberty of purpose in the world of business. The changing and spreading effects of COVID-19 in and around the world of business gave it a globalized nature. It is global because it made us to recognize that we are one human family and that irrespective of our class, business, and position, we are all vulnerable. COVID-19 raised a serious question in the minds of many. The question of why me? And why now? But if it is not me who should it be? And if it is not now when shall it be? Every generation has its own problems. Let us think of the question of how to handle the situation and not why the situation.

COVID-19 a paradigm shifter or a paradigm paralyzer?

The only thing that is constant is change, says Heraclitus an ancient philosopher. The world doesn't seem to like change but even when they do, it is not like the drastic change of COVID-19. However, no matter how you look at it, COVID-19 has taken flesh and it is here with us, and what we should be thinking now is how to move along with the change in motion brought about by the pandemic. The wind of change can come from any pole: east, west, north and south. The following can as well bring about change in our economy or in our society: war, disease, religion, culture, politics, science and technology. However, our nature, with the capability to adapt to this wind of change, through our endowed rational faculty, gives us advantage to think and rethink our relationship with this phenomenon COVID-19. That is what distinguishes us from other animals, who neither think nor complain of COVID-19. The game has changed. The rule of the game has equally changed. With the recent development, each organization should develop his own strategy, his own rules, update himself and update his working materials, search for more practical oriented and skillful workers. Meanwhile, it is our method that will convince people. Choose a method that is as sure as simple mathematics $2+2=2$, this is because people have no time to listen to long stories, even after the long story, they will ask you what will be the result? We are in a world where everybody is in a hurry. They don't have time to read even long messages, but they want result. We are in a world where the end justifies the means. But that is not all about business. Remember that an honesty process and respect for people's privacy also count. Many businesses have collapsed because of vote of no confidence. So, before we embark on the principle of the end justifies the means, we should also

know that the ethics of business teaches us that a sincere means justifies a happy end.

The civilizing power of COVID-19

COVID-19 subjected the world to a litmus test, whereby the state of our preparedness and foresightedness in trade and business are being questioned. Although some companies appear to have foreseen the circumstances or were more or less in visionary state before the coming of the COVID, and got themselves prepared in advance. For example, a multinational company like Amazon, which started many years ago in 1994, did not know about COVID-19 before embarking on online business but today it is able to contend the effect of Corona virus. Many universities did not know of COVID-19 before embarking on online studies. The originator of 'Zoom' application since 2011 never knew that it will be one of the leading ways of learning and communication. As I have said before, the wind of change can come from anywhere, all we need is to be prepared and be visionary oriented. The transformative and the civilizing power of COVID-19 has reduced the hassles and cost of travelling, giving people opportunity to attend to their needs from their homes, thereby gaining more time, and reducing travelling hazards. Online business is not only future business but it is already with us. Even, securing visa to travel for studies and work in a foreign country could be limited to people's home. Social media is going to become more easy ways to advertise, that is why we should think of making more use of the positive aspect of it. We must develop more of our communication skills to reach out to people, with respect to non-violent verbal communication, that is, self-respect and respect for others during communication while doing business. We should learn to create more of e-space and e-time for gatherings and meetings through the internet. Companies should be thinking of training more of their workers in economics, statistics and internal/external internet security. Universities should embark on formation of more cybersecurity engineers to checkmate the e-business fraud, training of more marketing agents who have the internet technical know-how and are more advert pro-active, using social media and all possible means to reach-out to people. We should also use some artificial intelligence means, which appear to cost less but with much effective results.

However, we should not forget that anything that has advantage has also disadvantage. The hypocrisy of COVID-19, shows that, all that this clarion call of change brings about are not roses. The impact of COVID-19 which appears to change and speed up our way of living, will equally reduce physical contacts, make our business relationship more mechanical than affectionate, reduce interpersonal relationship, promote non-verbal communication, thereby making us more of computer *geek* in search of business links. If we put all our fate in

the computer/robot, it may make us lazy and may put some people out of job, notwithstanding that it enhances the productivity and the capacity of human person. Irrespective of the negative impact of COVID-19 on the world trade, it has also brought to our consciousness that we should always think of business reservoir or business back-up for unforeseen circumstances. We are now obliged by the virtue of necessity to re-invent new ideas and ways of doing business. In as much as we cannot over-emphasize the justification about COVID-19, let us be more interested in thinking of how to be incorporated and be integrated in the new ways of doing things for a better future. 'Life can only be understood backwards, but it must be lived forwards' so says a philosopher Soren Kierkegaard. We cannot go back, we have to forge ahead. We must learn from the past of others, and from our own past, so as to build a better future. In order for a business to grow we have to nurture and culture our business, and that means that we have to maintain a network like food-web or food-chain for a business to have a proper network. Feedback is a necessary tool to a sustainable business. Just think ahead of yourself and you will not be disappointed in yourself tomorrow. The negative impact of COVID-19 can be seen here and now, but the positive impact will be seen there and then. According to Friedrich Nietzsche (1889), in his book, *Twilight of the Idols or how to philosophize with hammer*, he said, 'what doesn't kill me, makes me stronger'. The spirit of resilience and being visionary should be our watch-word in the world of business and trade. It is a digital world, digital in the sense of globalization. Digitalization means the legalization of the use of digits or the generalization of digits. Digitalization could be called miniaturization or portabilization. It gives the world of business a sense of reaching-out, within a short period of time, with just a small platform. We live in a world of network. Sooner or later we will be known by the network we belong to and no more by the name of our street or our country. Business is now a matter of network. Network has an extension character because of its digitalization charism. So, for you to do business in the present world, you have to be digitally charismatic. By that I mean, you have to develop the quality of versatility in a digital sense. Therefore, business persons should emulate this virtue of extension and versatility. Before COVID-19, businesses were digitalized but after COVID-19, businesses will now take a form of dematerialization, by that I mean, online documents, online signature, and online approval.

Conclusion

COVID-19 is an undesirable but necessary crisis for a better business re-positioning. With the effect of COVID-19 on the world trade, it becomes non-negotiable to dialogue with the present situation of things with regard to health and economic crisis. It is obvious that a new dawn has arrived. The world of business is now the world of numbers. Business transactions are now done with

codes, we are being recognized by our account numbers and no more by our real names. We now have microchipping humans with microchip implant helping to access homes, offices, by just swiping our hands against a digital reader. Statistics account show that more than 4,000 Swedes have opted for micro-chip implant. Students are now being accessed by their student's identity numbers and no more by their names. In the banks and offices, we are called by our code numbers and no more by our names. The embassy does not know us by our names rather by our visa numbers, the airport service recognizes only our barcode. Little wonder an ancient philosopher Pythagoras born in 570 BC (Before Christ) was likening "all things to numbers", as cited in the Stanford encyclopedia of philosophy. For him life is a matter of numbers. Today's business does not absolutely need us in person but rather our numbers or codes. And should we think of doing business in this

number-oriented world we must consider the importance of numbers by taking cognizance of our passwords which are our future in business. Our passwords are our future because they are geared towards our attainable goals, it opens the future for us, and our identifying numbers are our yesterdays because they depend on the business concepts we have created, and today is me, because I am the only person that has the e-code to open the e-space within an e-time to welcome new ideas and to allow it to diffuse to other people, through their e-numbers, e-codes or e-mails. Let us embrace the impact of COVID-19 by allowing ourselves to move from the world of COVID to the world of *CODE-VITE* (moving faster with our codes but in a lively way), that should be a better response to the impact of COVID-19 on the world trade and in our society today. COVID-19 has pushed us further into numerical/digital business relationship, therefore, let us control embrace (ctrl+embrace) but with prudence.

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Requirements for papers

- Papers are accepted in English and French. Good English and French spelling and punctuation are preferred. Papers should be written in a third person, impersonal style and any use of ‘I/we’ should be avoided.
- Papers should not normally exceed 10,000 words. All papers are refereed by acknowledged experts in the subject.
- Abstracts of approximately 300 words are required for all papers (abstract in English and French is required for articles written in French).
- Paper should include no more than 7 keywords.
- Papers should be compiled in the following order: title page; abstract; keywords; main text; acknowledgments; appendixes; references.
- The introduction should clearly define the nature of the problem being considered. The new contribution the paper makes should be identified and situated in relation to the relevant scientific literature and, wherever possible, the practical relevance of its results should be indicated. The “Regional Innovations” journal will publish papers that evaluate important topics relevant to new areas of emerging research and policy.
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- For all papers non-discriminatory language is mandatory.
- The use of tables and color figures to summarize critical points is encouraged. Tables should be prepared on separate sheets; they should not be embedded within the text. Each table should have an appropriate caption.
- All photographs, maps, charts and diagrams should be referred to as “Figures”, and should be numbered consecutively in the order in which they are referred to in the text. They should be prepared on separate sheets.
- Endnotes should be marked clearly in the text at a point of punctuation, and listed consecutively at the end of the paper. They should not be listed at the bottom of each relevant page.
- The full references should be listed at the end of the paper. They must include the names and initials of all the authors, the year of publication in parentheses, the full title of the paper (or book), the full name of the journal, the volume number and pages and, for books, the publisher's name and city of publication. The references in the text should be done in square brackets (for example, [2; 4; 15]).

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