



## Formation the Project Maturity of Public Administration in implementation of Digital Transformation Projects

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## Abstract

The purpose of this study is to substantiate the basic principles and prerequisites for the formation of project maturity of public administration for the successful implementation of digital governance projects. The relevance of this study is due to the need to implement the task of digital transformation of Ukraine by solving the problem of modernization of public administration on the basis of constant increase of project maturity of the organizations. The study proved the existence of a direct dependence of prospects for the implementation of digital transformation projects on the level of project maturity of public management. A variant of the project maturity model adapted to the local self-government body is being developed. The model assumes three levels of maturity of local governments. It has established that the majority of the created united territorial communities of Ukraine were characterized by the first two levels of maturity. The implementation of the maturity model makes it possible to assess the current state of the system, choose adequate tools for staff training, create conditions for continuous improvement and realization of the potential of the local community for the implementation of digital transformation projects.

**Keywords:** Project maturity, a public management, Project, Project management, Digital governance, Digital transformation

## Introduction

A digital transformation greatly increases the efficiency of the state as a service institution for citizens, as well as significantly optimizes the internal management processes in the state. The demand for improving the quality of administrative services for the population, the digital transformation of this area will continue to have a significant impact on people's daily lives, as well as on the work of public servants. The issue of digital development of public administration, digital transformation and digitalization is now one of the priorities in the activities of central executive bodies and local governments. The tasks of creating and modernizing administrative service centers (ASCs) and working out, in the process of cooperation with local governments, practical problems and gaps in the legislation that complicate the establishment of an effective system of administrative services in communities.

The system of public administration, which is being transformed in the conditions of digitalization and introduction of digital governance, should be effective in the direction of implementation of socially significant projects. To implement the project approach in the field of digitalization of public administration, it is necessary to focus the attention of responsible public

authorities on key issues of legislation and practice, creating favorable conditions for the provision of affordable and quality administrative services. Over time, a government agencies reach a certain maturity in project management, so there is a need to increase the effectiveness and productivity of project management. In Ukraine, a project approach has being implemented in the activities of public administration bodies. However, there are difficulties in adapting project management tools to domestic public administration. The choice of the project maturity model will identify the strengths and weaknesses of public authorities, assess the quality of services, create a system of monitoring the effectiveness of processes, assess the readiness of local government to effectively manage and implement the project approach. The current model of governance considers the development of public administration as a result of the collaboration process, which involves government agencies, businesses, educational and scientific institutions, NGOs, etc. (Provan & Kenis, 2008; Korepanov, et al., 2020). In such conditions, the latest challenges are new tasks for the sphere of administrative services and ASCs, due to the significant activation of the state in the direction of digital transformation. In particular, we are talking about the automation of ASCs, the use of ASCs to promote e-services; approaches to determining the priority when translating administrative services into e-form, etc. Instead, Ukraine has characterized by targeted diversity of existing regional programs (Babenko, et al., 2019). There is still no long-term register of such programs, there is no unified methodology for assessing the consequences of such programs, there is a poorly coordinated sectoral government policy (Bondarenko, et al., 2021; Krasnobaev, et al., 2019).

As practice shows, regional authorities were mainly focused on solving current issues. The main element of an effective system of government in Ukraine should be capable united territorial communities. Reforming the system of public administration, decentralization of power - require the search for new tools to ensure the capacity of local communities. Most of the responsibility is gradually shifting from the state level to the local and regional level (Hubanova, et al., 2021; Iatsyshyn, et al., 2020; Klochan, et al., 2021). The problem for Ukraine is: the lack of fundsto develop high-quality long-term documents; the insufficiently qualified government staff; the lack of mechanisms of partnership relations and co-financing in the implementation of projects under state regional territorial development programs.

Thus, the need to increase the project maturity of public management became relevant, given the implementation of digital governance projects. The purpose of the study is to substantiate the basic principles and prerequisites for the formation of project maturity of public administration for the successful implementation of digital governance projects. The main idea of the study is that the project maturity of public administration is the main criterion for ensuring and qualitative changes in public management for the implementation of digital government projects.

Research hypothesis: The condition for modernization of the public administration system is the integration of the principles of effectiveness of relations of all groups of stakeholders in

project management for the implementation of digital governance projects on the basis of continuous increase of project maturity of public administration.

## Literature Review

The project-oriented management is one of the most effective solutions in the field of the public administration, in accordance with the rapid changes in the environment, the emergence of new technologies and innovations, digital transformation. Therefore, scientists are actively searching for the ideal model of the project maturity of public administration. Concepts of public administration (a new public management, a political networks, good governance) are being developed, based on the need to form public administration based on a set of selected criteria of efficiency and effectiveness of public administration process in all its forms - economic, social, organizational (Osborne & Gaebler, 1992). The basic priorities of the reform in the field of a public administration are to increase the efficiency of the use of taxpayers' resources, to improve the quality of public services - state and municipal services (Behn, 2001). The customer orientation in the field of public service puts forward the latest need to ensure the individualization of services, improve their quality and, consequently, the quality of public administration (Bozeman & Straussman, 1991). Of particular importance is Governance processes of organizing interaction between the state and society to meet public interests (Osborne & Gaebler, 1992).

Some definitions of project maturity have presented in table 1.

Table 1. Some definitions of the project maturity category

Category	Definition of the category	Source
A maturity of organizational project management	the level of the organization's ability to achieve the desired strategic results in a predictable, controlled and reliable manner	Project Management Institute, 2013
A maturity of management projects	the degree of penetration of the project approach, including methods, tools, processes of formal, classical, project management in the practice of the organization	Organizational Project Management Maturity Model (OPM3) - Knowledge Foundation, 2003
A project Cycle Management (PCM)	Management and decision-making procedures that apply throughout the project life cycle and include, in particular, the delineation of key objectives, the assignment of roles and responsibilities, the availability of basic documentation and the availability of decision options.	Souza & Gomes, 2015; Tahri & Drissi-Kaitouni, 2015
An assessments of project management maturity	Mechanistic approach and further narrow focus of maturity models. Introduction of a broader approach to assessing the maturity of project management, development of more appropriate models of maturity.	Görög, 2016

The characteristics of government public administration are: a targeted approach to the activities of public institutions and services; an effectiveness; a managerial instrumentalism; an integrative government, a connections between different state structural units (Considine, 1988; Komadinić & Majstorović, 2017). To implement projects in the public administration, the public management system must acquire an appropriate level of project maturity (Kerzner, 2001; 2015; Backlund, et al., 2014) and institutionalize the project management, according to the organizational context and strategies (Vianaa, 2016). There are different variants of project management systems related to which organization they have implemented (Demir & Kocabaş, 2010; Backlund, et al., 2014): a corporate project management systems; a state project management systems; a municipal project management systems; a project management information systems, etc.

Comparative characteristics of the models are presented in table 2.

Table 2. Characteristics of some models of design maturity

Model	Characteristic	Benefits	Disadvantages
Capability Maternity Model Integration (CMMI)	The model includes elements: goals and strategy; application of project management; people; methodology; organization; technology. Includes 22 process areas, including project planning, measurement and analysis, etc.	<ul style="list-style-type: none"> <li>• universality - possible application to assess the level of maturity both at the national level and at the level of authorities of local governments and bodies;</li> <li>• the model can be used not only to assess the organization of project activities.</li> </ul>	<ul style="list-style-type: none"> <li>• significant time spent on gathering the information needed to assess the level of maturity;</li> <li>• the complexity of the assessment methodology;</li> <li>• the complexity of applying the model at the municipal level, the complexity of the assessment.</li> </ul>
Project Management Maturity Model (PMMM) -	Five-level model with a description of the characteristics of the organization at each level and the conditions for achieving the appropriate level of maturity.	<ul style="list-style-type: none"> <li>• ease of use;</li> <li>• no need to involve external certified specialists to assess the level of maturity;</li> <li>• low evaluation costs;</li> <li>• availability of specific recommendations for the transition to the next level of maturity.</li> </ul>	<ul style="list-style-type: none"> <li>• lack of clear criteria for evaluating parameters;</li> <li>• the need for external experts to eliminate the subjectivity of evaluation;</li> <li>• general and descriptive nature of the model, lack of specific tools for further development.</li> </ul>
Organizational Project Management Maturity Model (OP3M)	Model consists of three elements: knowledge that provides the organization with information about best practices, abilities, KPIs in the field of project management; assessment, which allows to determine the current maturity of project management and the main areas of competence; improvement - using evaluation results to select a strategy.	<ul style="list-style-type: none"> <li>• integrated approach, description of the project management system from an individual project to a project portfolio;</li> <li>• detailed description, systematic approach, best practices for the standard;</li> <li>• provides for continuous improvement of project management processes and increasing organizational maturity.</li> </ul>	<ul style="list-style-type: none"> <li>• does not contribute to the creation of unique abilities, which are the basis for the formation of a permanent competitive advantage;</li> <li>• does not take into account national specifics;</li> <li>• the tool is quite cumbersome and requires the presence of highly qualified specialists in the field of project management.</li> </ul>

Level assessment model management maturity projects in the organization (IPMA-SOVNET)	The model consists of 4 levels, mainly focused on assessing the project maturity of corporate governance systems.	<ul style="list-style-type: none"> <li>• simplicity of the model;</li> <li>• assessment of project development priorities;</li> <li>• the ability to conduct and evaluate the effectiveness of gradual integrated improvements.</li> </ul>	<ul style="list-style-type: none"> <li>• the need to involve external certified specialists to assess the level of project maturity;</li> <li>• the specifics of the organization of project activities in government are not taken into account.</li> </ul>
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According to the definition of the International Organization for Standardization (ISO), the maturity model describes a set of elements that ensure the implementation of processes and opportunities for gradual improvement of their quality - to regulated mature processes of appropriate quality and efficiency (ISO / IEC / IEEE 24765: 2017). In public administration, an important point is to assess the maturity of project management in organizations using the model of maturity of project management processes. The best practices of project maturity models used in the implementation of e-government were studied by Fath-Allah et al. (2015). Assessment of the level of maturity of the organization of project activities is necessary to identify existing problems and areas for their solution. Currently, there are several basic models for assessing the maturity of project activities in the organization, which have described in detail in various sources. There are about 30 models of maturity and approaches to assessing maturity in the field of public administration. These models can become the basis for improving the existing model of maturity, ie compliance of public administration processes with the requirements of international standards. Methods for estimating the level of maturity of specific systems for the selection of the vector for further improvement of the model and processes are considered by Mettler (2011) and Helgesson et al. (2011). Regardless of the chosen model, the assessment of project maturity in the field of public administration allows to solve the following tasks:

- to assess the current state of project management, get a complete picture of existing achievements and problems;
- to identify priorities for improving the project management system, including the harmonization of both the project management system itself and the subsystems involved;
- to identify the methods, techniques that are most acceptable for project management at this stage of project maturity of the organization.

Such models of maturity provide an opportunity to assess the current state of the system, choose adequate tools for staff training, create conditions for continuous improvement and capacity building. Currently, the maturity models that have been tested in the corporate business sector are being actively implemented in the field of public administration and administration. For example, in the activities of the Local Governmental Organizations of Greece for the implementation of local development projects implemented Project Management Capability Model (PMCM) (Fitsilis & Chalatsis, 2014).

To choose the model of project maturity of the organization it is necessary to evaluate:



- the degree of involvement of employees in the implementation of quality models;
- the nature and extent of changes in current activities within the organization;
- the level of readiness and ability of the organization to change as a consequence of the implementation of specific models of maturity.

Levels of process maturity of different models have common features, their own characteristics of transitions to the next level of maturity: initial - repetitive - standardized - measured - continuous improvement - integrated. The highest level of maturity is the integrated level, which reflects the nature of integration into the internal processes of organization of supply chain management processes together with suppliers and customers. To improve and ensure the effectiveness of public and private management systems, it is necessary to create conditions for combining separate standardized management systems into a single integrated management system (IMS) (Komadinić & Majstorović, 2017; Sudomyr, et. al. 2020). The purpose of the implementation of project management systems is to ensure cost-effective implementation of projects to achieve the goals and obtain the necessary results within the existing constraints on time, budget and quality.

Under the condition of digitalization, a large number of projects were implemented. During the implementation of projects there are difficulties with the allocation of human resources, deadlines and budget are not met, the content of reports does not allow to make optimal management decisions. For local governments, the transition to a higher level of project maturity will reduce the impact of the human factor (Rodchenko, et. Al. 2019; Romanenko, et. Al. 2016).

The main indicators of the effectiveness of project management, which characterizes the project maturity of the organization are: effective implementation of the strategy in the organization; effectiveness of basic resources; overall project success and project management.

Thus, maturity models can be considered a guide to assessing the quality of project management processes in the organization. In order to implement and develop a project management system, a structural unit or a separate organization have created - a project office or a project management office. A project office is a physical or virtual organizational structure designed to support the implementation of projects at different levels of management in the organization through the introduction of a common methodology, standards, procedures and templates, consulting and administrative support for project managers, support for multimedia planning and project coordination. and generalized reporting to senior management. The project office in the organization is an independent structural unit, to the approved staff list and a place in the organizational structure of the organization. The project office in the organizational structure of the project-oriented organization is subordinated to the general director or his deputy for project activities. The project office reports all the heads of the functional structural subdivisions necessary for the project implementation, or their subordinates, ie the project team.

Experts and specialists can be involved in outsourcing and consulting to participate in complex, innovative projects.

## Methodology

To achieve the goal of this study, a system of general scientific and special methods and approaches was used, in particular: general, general scientific, interdisciplinary and special research methods.

The basis of this study was the methodology of project cycle management in the public sphere for project management. According to this methodology, project management processes form a project cycle, which consists of six stages: programming; identification; formulation; financing; implementation; evaluation and audit. Project Cycle Management (PCM) refers to the management processes and decision-making procedures used throughout the project life cycle and include, inter alia, the delineation of key objectives, the assignment of roles and responsibilities, the availability of basic documentation and the availability of decision options.

PCM has focused on the active participation of stakeholders involved in the project in order to promote the principle of local ownership. Stakeholder analysis involves identifying all stakeholders / organizations / institutions that may be affected by the proposed intervention (both positively and negatively), identifying and analyzing their interests, problems, potential, etc. (Khomutenko et al, 2019). The conclusions of such an analysis are then integrated into the project plan. Each stage in the project cycle includes the main criteria for assessing the quality of performance (Bondarenko et al, 2021). For each stage, key documents with sound information (ie those that contain common concepts and definitions) should be developed on the basis of which informed decisions can be made (Dykha et al, 2020; Kuznetsov et al, 2019, 2020).

The logical-structural analysis has used to implement PCM, as well as other tools for analysis / evaluation of key aspects (such as problems, goals and strategies). Based on this analysis, a set of safety indicators for project implementation were determined. The logical-Structural Analysis (LAS) is an analytical process and set of tools used to support project planning and management. The analysis process forms a set of interdependent concepts that have used as part of an iterative process to facilitate structural and systematic analysis of a project or program idea.

The logical scheme template (or logframe for short) consists of a matrix with four columns and four (or more) rows, which summarize the key elements of the project plan, namely:

- a hierarchy of project objectives (project description or intervention logic);
- a key external factors that are important for the success of the project (assumptions);
- a method of monitoring and evaluation of achievements within the project (indicators and sources of verification).



The logical-structural analysis has used at the stage of project cycle management identification, making it easier to analyze the existing situation, study the relevance of the proposed project and identify potential goals and strategies:

- At the stage of formulation by logical-structural analysis, the preparation of an appropriate project plan has carried out with clear goals, measurable results, risk management strategy and defined levels of management responsibility.
- During the implementation of the project / program, logical-structural analysis provides a key management tool that allows to involve contractors for the performance of works, planning of operational work and its monitoring.
- During evaluation and audit, the flow chart template provides a brief description of what was planned (objectives, indicators, and key assumptions), and thus provides a basis for assessing effectiveness and impact.

Research methods use analytical and expert assessments of forecasts for the development of digital transformation projects. The study has based on a comprehensive analysis and further evaluation of the main results of the implementation of the processes of technological transformation of projects by public administration in key areas of digital transformation and reform of Ukraine.

For example, Sweden's progressive experience in digital transformation and implementation of projects in public administration has considered, with the possibility of using such experience in Ukraine during the implementation of digital transformation projects.

## Results and Discussion

### Swedish experience of digital transformation of the public administration system

To solve the purpose of this study, it is advisable to study the positive experience of Sweden as one of the world leaders in the field of digitalization of administrative services. According to the Network Readiness Index (NRI), Sweden ranks first among the 134 economies surveyed in the world. Ukraine currently ranks 64th (Portulans Institute, 2020).

For Sweden, the process of digital transformation has marked by the following special features: a decentralized system of government; a delegation of a significant part of the powers to autonomous local governments; a high level of trust in the authorities (Statskontoret, 2017); a fairly long history of IT development in the public sector. As the experience of Sweden shows, the prerequisites for the digital transformation of the country, as well as the successful digitalization of the public administration sector are: an infrastructure development (Internet); a development of appropriate standards; a creation of cooperation networks; an increase user competence.

The basis of the entire Swedish administrative system is local self-government and trust in the authorities. The Swedish model of local self-government was also called the model of building the welfare of a country that works effectively. Sweden's decentralized model of the government consists of three levels: a national, a regional and a local. State, regional and municipal public authorities are autonomous and have the appropriate powers to determine the order of priority of digital transformation, at their discretion, as they deem appropriate.

The advantages and the additional opportunities for the successful implementation of the processes of launching and managing local digitization projects for Sweden are small administrative units. In such conditions, it became possible to implement small digitization projects fairly quickly. After all, the implementation of more significant national projects requires mostly large investments, which takes a long time.

Political initiatives at the national level to intensify the digitalization of society were:

- "Home PC reform" (Reforming a home personal computer);
- "Government broadband funding" (Government broadband funding).

The Home PC reform initiative was launched in the late 1990s. This enabled working residents of Sweden to take out a tax-free loan or rent a personal computer (PC) with gross payroll. It was the possession of a PC that enabled the population of the country to improve their computer skills. This was reported by respondents during a poll conducted by the IT Commission in 2002. Thus, 71% of a respondents said that they had acquired basic digital literacy skills due to having a home PC. 74% of employers believe that workers have improved their computer skills by subsidizing the rental of personal computers for private households. At this stage, the reform covered only the working population (Steen, 2002; IT-kommisionen, 2015).

The government broadband funding has become a national initiative to ensure a stable and fast Internet connection for all citizens of the country. This initiative was aimed at closing the gaps between urban and rural areas of the country. The government's broadband strategy "Sweden fully connected in 2025 - a broadband strategy" ("Full connection of Sweden until 2025 - broadband strategy") was launched in December 2016. The main goal of the strategy is to provide all of Sweden with access to high-speed broadband by 2025 (Regeringskansliet, 2016).

According to a recent study by the Swedish Communications and Telecommunications Authority (PTS), 81% of all Swedish households and companies have access to broadband at 100 Mbps. The introduction of broadband as of 2020 was still subsidized (PTS, 2019). A home PCs and broadband have helped enable the country's population to connect to the Internet and take advantage of new technologies. At present, the Swedish government has announced a digitalization strategy, which defines the directions of the government's digitalization policy.

To achieve the overall goal of the digitization strategy, the following sub-goals have identified:

1. The digital competence. Everyone should be able to develop and use their digital skills.
2. The digital security. The best conditions must be in place for everyone to be able to participate, take responsibility and have confidence in a secure digital society.
3. The digital innovation. The best conditions must be provided for the development, dissemination and use of digital innovations.
4. The digital management. Appropriate, purposeful and legally safe development of efficiency and quality must take place through digitalization.
5. The digital infrastructure. People throughout Sweden should have access to infrastructure that provides high-speed broadband, stable mobile communications and digitalisation.

In the budget 2021, the Swedish government has put forward a number of proposals that will help strengthen the digitalisation of society: the investment in broadband and the digital infrastructure (Finansdepartementet, 2020). In recent years, a special attention has been paid to the digitization of public services. The approach of local government autonomy to digital transformation became the basis for the introduction of digital transformation in public management. The absence of a central agent and the need to wait for decisions at the central level paved the way for rapid digitization in Sweden. For example, the Swedish Tax Agency was one of the first organizations to successfully implement the process of digitization of state tax services for individuals, businesses, non-profit organizations and government agencies.

However, the initial lack of a central function and guidelines has led to a fragmented IT environment and an uneven distribution of services in Sweden. Depending on the government, region or municipality, there is a difference in the quality and quantity of digital services. Starting in 2018, the e-Government Agency (DIGG) has been established in Sweden to coordinate and support the joint digitization of public administration.

Institutional regulation of the digital transformation of the public sector is underway, the Law on Access to Digital Public Services has been adopted. The Swedish Association of Local Authorities and Regions (SALAR) is working with services that can be joined by all regions and municipalities to make the provision of digital services more coherent throughout the country. However, there is still a lack or inconsistency of interaction between different local systems, which is an urgent problem for the Swedish authorities. After all, in order for the digital society to work properly, it must be possible to exchange data between different actors. Thus, there is now a need for Sweden to improve interoperability - further development of common infrastructure, which requires significant costs. In addition, studies show Sweden has

characterized by digital inequality. Thus, about 6% of the population (600,000 Swedes) do not have a sufficient digital presence (Internetstiftelsen, 2020). Almost half of the Swedes surveyed in this category do not use the Internet at all, and about the same number say that they use the Internet very rarely, not every day. These are elderly people, pensioners who live mostly in rural areas and are often single, are disabled. Therefore, there is a need for support models for users who lack competence and motivation, who use the Internet very rarely, not every day.

To address these issues, new initiatives are being implemented at both national and local levels to bridge the gap between actual Internet access, including equipment, and the end user. The most active government initiatives are: the state service centers; the digital presence centers (DigidelCenter). The first state service centers were established in 2018 to make it easier for citizens to receive various services from government agencies. Such the Centers have located throughout the country to ensure the availability of services for citizens in need of support, regardless of where they live. The service centers can help with taxes, social insurance, pensions. Residents of Sweden have the opportunity (Finansdepartementet, 2019):

- get a general instructions and advice, help in filling out forms and applications;
- obtain an information and documents on current affairs and assistance in arranging meetings with administrators to resolve specific issues.

Currently, there are 117 service centers in the country, which employ about 800 people. In 2021, the government will invest new funds in opening 28 new service offices in places where many members of vulnerable groups live. The main idea is to strengthen the state's presence in the regions with socio-economic problems, while bringing services closer to residents.

The data show that the services of service centers have in demand, they have visited by almost three million people annually (Statens servicecenter, 2020). In addition, an initiative is being introduced at the local level to introduce physical centers to bridge the gap between citizens and the use of digital services. The Digital Presence Centers (DigidelCenters) have been set up, which are places where municipalities can turn for help with issues that require Internet access. The digital presence centers have usually located in easily accessible places, such as the library or the public reception of the municipality. The goal of the DigidelCenters is to improve the digital skills of the municipality's residents and provide assistance with digital services and technologies. In November 2020, 23 Digital Presence Centers have been established in Sweden (Digidel, 2020).

Thus, it can be noted that the main component of the success of the Swedish model of digital transformation is the actual history of the decentralized model of government. Having a decentralized structure simplifies adaptation to local conditions and challenges. Therefore, the transformation is fast and efficient, ensuring the digital development of state and local

authorities, organizations and society as a whole. Sweden is currently facing the challenge of connecting a network of different digital functions across the country. There are ongoing initiatives at both the national and local levels to help resolve the situation. There are a large number of models for building a strategy for digital transformation. The most important principle for the formation and implementation of digital transformation strategy is human-centered and user-oriented. The study "Swedes and the Internet" (Svenskarna och Internet) for the first quarter of 2020 analyzed how the population used the Internet and what help was needed in using digital services. Those who use the Internet infrequently or not at all, especially the elderly and the least educated, were most in need of help. In terms of education, the gap between the low- and high-educated population is very large. For example, 45% of those with only primary education need help using a mobile bank identifier (BankID) compared to 11% of those with higher education.

The digital services must be provided to all citizens fairly, protecting vulnerable groups and respecting human rights. Therefore, this principle must be enshrined in the strategy of digital transformation. In addition, as long as large groups of consumers lack access, competence or motivation to use digital services, there will still be a need for parallel analog processes. However, from a social and administrative standpoint, maintaining parallel systems is very expensive.

In 2019, the Swedish National Council for the Digitization conducted a socio-economic analysis of a sample of seven municipal services. A comparison of the costs of:

- the traditional (analog) system of municipal services, which has based mostly on forms, regular mail and telephone calls;
- the valid in parallel with the Internet system of municipal services;
- the scenario, when mostly everyone uses the Internet system of municipal services.

Studies have shown that the potential effectiveness of digitization of the studied municipal services is significant. Additional costs of approximately 20-25% arise due to the need to support parallel processes (analog and digital) for the same service. This is especially true for smaller municipalities, for which such costs are significant (RISE & stelacon, 2019).

Since 2020, 16 municipalities in Sweden have used robotic process automation (Loman, 2020).

For the strategy, cooperation with all stakeholders is key. Therefore, all key stakeholders should also be considered when developing a digitization strategy. For example, business partners, trade unions and non-profit organizations can play an important role. We have a hierarchy of strategies: the EU has one strategy, the national level can have its own digital transformation strategy, and the local / municipal level can have its own digital transformation



strategy. The implementation of strategic goals of digitalization has carried out through project management. It can be difficult for project managers and decision-makers in an institution to be guided by so many policy documents.

The Swedish Association of Local Authorities and Regions, a cooperation organization representing municipalities and regions, has been set up in Sweden to reconcile all stakeholders. The defining feature of SALAR is the attitude to other organizations. The SALAR Digitization Strategy (SKR, 2019) is an example of a clear understanding of the interaction between one's own strategy and the governing documents of other institutions and organizations.

The vision of the digital transformation is to support the overall goals and values of the institution - to clarify the priorities between digital transformation and other activities. One of the goals is to provide citizens with appropriate municipal services with high availability. The focus for digitization, which supports this goal, are:

- Accessibility should increase through the use of digital services.
- The municipality will provide relevant information about the municipality and online services through digital services, regardless of time and location.
- The municipality's digital services are easily accessible and adapted to strict information security requirements.

Through the use of these key areas, everyone who decides to implement a new digital municipal service knows that the highest priority should be accessibility, information security, ease of use, information provision and interactivity.

The strategy should outline the main projects and stages to be achieved and their relationship. As the strategy should cover long-term perspectives (at least several years), planning should be carried out at a high level, leaving details for steering committees, project managers and other decision-makers. Some projects and stages concern the creation of value for the institution and consumers (citizens, companies, partners, etc.). Other projects and milestones are only available to ensure further development and added value. Both must be covered by the strategy.

The Swedish government does very little planning in the strategy, but at the same time uses the hierarchy of strategy goals as a basis for reporting on decisions made on digitization policy. Swedish government agencies report such decisions, which are marked by the focus areas of the strategy on the official homepage of the digitization strategy. The provision of services by an internal unit, rather than through outsourcing, provides a higher level of control. However, this often has other consequences for the institution, such as the need to recruit new employees and pay for investment costs. An appropriate trade-off between cost and quality is extremely important and is often best assessed at the tactical or operational level in the organization.

Sometimes the strategy can provide guidance on these issues, such as identifying key services that should not be outsourced. One of the financial consequences of digitalization is the transition from investment costs to operating costs. Rental of servers and use of (often cloud) services with payment for the service creates costs in the operating budget, and for this there must be financial mechanisms. Conducting an investment analysis of digital services is different from other investment analysis for budgeting. The presence of outdated IT means that over time, costs will increase due to the dismantling of the old system and data migration. To be able to calculate the investment costs for the digitization of social services in Sweden, SALAR has developed an investment model. The model was introduced on the basis of a number of investment areas.

Sweden is constantly evolving and improving its way of digitizing society. In the Swedish context, the local government and the long history of IT development in the public sector play an important role. This context means a high perception of digital processes, as well as technical obsolescence and fragmentation of the IT environment. Sweden's digital transformation has been characterized by a decentralized system of government, delegation of much power to autonomous local governments, a high level of trust in government and a long history of IT development in the public sector, reminiscent of the current situation in Ukraine. Swedish experience based on hard (physical) and soft (technological) infrastructure and value creation. It has been proven that infrastructure, development of standards, creation of cooperation networks and increase of user competence provide a better position for the future. The digital transformation plan should coordinate infrastructure projects, which will promote further development and ensure rapid results. The Swedish experience shows that there can be many different ways of digital transformation, but it is important to plan for many years ahead the resources and interaction of different stakeholders.

The success of project implementation has ensured by the appropriate level of project maturity. To do this, according to the model of project maturity, the overall level of skill of organizations in the field of project activities was assessed.

### **Implementation of the digital transformation projects of the public sector of Ukraine**

Ukraine is undergoing a large-scale digital transformation of all spheres of society, including the public sector. The development of electronic services promotes the active involvement of people in self-government processes. The Ministry of the Digital Transformation of Ukraine has identified four main goals of digital transformation of the state:

1. To translate all government services offline.
2. To provide 95% of the population of Ukraine with the Internet.
3. To teach six million Ukrainians basic digital skills.

4. To increase the share of IT and creative industry in Ukraine's GDP from 4% to 10%.

Currently, the Ministry of Digital Transformation of Ukraine is introducing a methodology of effective management, based on the implementation of projects. This launches an online dashboard with a description of each project, clear deadlines, officials responsible for processes and ratings.

Currently announced in Ukraine 94 digital transformation projects in key areas. Among the presented projects: e-Notary, e-Health, e-Property, e-School, e-Social Security, e-Permit and many others. The list of projects approved by the Government will be implemented within three years and will contribute to the development of a digital state.

In 2020, the following projects were implemented in the direction of digital transformation:

1. Launch the application and the Action portal. 9 digital documents are available in the mobile application: driver's license, vehicle and car registration certificate, student card, citizen's passport in the form of a card (ID-card) and foreign biometric passport, tax number, child's birth certificate and internal certificate displaced person. And on the Diya portal there are more than 50 online services, including the fastest business registration in the world. An application for registration of a sole proprietorship can be submitted online in 15 minutes, and a limited liability company - in 30 minutes. Private individual registration services were used 288 thousand times online.
2. Launch of a comprehensive service is-Baby. These are 9 services on one application for parents of newborns - in 20 minutes online on the Action portal. Or offline in 780 settlements of Ukraine. Thanks to the launch of eBaby Ukraine, Ukraine has become a world leader in the number of public online services for parents of newborns.
3. The national project to provide a high-speed Internet to all residents of Ukraine. More than 2 million Ukrainians in 5.6 thousand cities and villages received 4G for the first time. In total, 7 million Ukrainians gained access to 4G mobile Internet.
4. The national Digital Literacy Platform Action. The Digital Education. The aim of the project is to teach basic digital skills to 6 million Ukrainians. In less than a year, more than half a million Ukrainians have been trained on the portal. Launched more than 50 educational series on digital literacy. On the platform, everyone can check the level of digital literacy - take the "Digits" test. In addition, a network of 2,000 offline digital education hubs throughout Ukraine has already been built, and another 4,000 hubs are being added to the network.
5. The Diya. The biznes project was launched to stimulate the development of entrepreneurship in Ukraine. The project exists in two formats - an online portal and a network of offline support centers. On the online platform, users have access to 50 types of free consultations in the areas of financial management, HR, marketing, sales, etc. There is also a national online school for

entrepreneurs. In Kharkov, Nikolaev and KNU Shevchenko in Kiev already work offline centers Diya.Biznes.

An important factor is publicity, which will allow every citizen to monitor the implementation of projects in real time and give their recommendations. Active digitalization of the medical sphere was planned. In particular, the projects will include a patient's e-Cabinet, where you can make online declarations. The E-Hospital will allow you not to stand in queues in health care facilities, and get a medical certificate of incapacity for work online. As part of the e-School project, we are launching the All-Ukrainian Online School, where distance learning courses will be available for students in grades 5-11. And teachers in e-classrooms will be able to create their own courses. In addition, students will have free access to electronic textbooks. And the e-Clerical project will introduce a class journal and a diary in electronic form. Will move to online and social services - the appointment and provision of targeted assistance, benefits, pensions and more. Within the framework of the e-Social protection project, for the first time an electronic information system of the social sphere and a single social register are being created. The e-Democracy project will also be implemented, which will introduce the possibility of holding electronic elections and referendums, as well as such tools as electronic petitions, polls, etc.

The projects presented by the Ministry of Finance will allow the public to receive information that will be published in open access and in a convenient format and will provide an opportunity to conduct a comparative analysis of various financial indicators. The projects will simplify access to information on budget funds, ensure more efficient interaction with software at the local level, and automate data collection and processing.

In 2021, the Ministry of Digital Transformation will continue to transfer public services online, establish state registers, cover the country with access to high-speed Internet, create a special legal regime for IT, develop electronic trust services and more. Funds in the state budget of Ukraine are laid for the implementation of projects, which will be directed to:

Development of mobile application and portal Action. The Ministry plans to digitize the 200 most popular public services for citizens and businesses.

Development of basic state registers. It has planned to create a single registration platform and launch a full-fledged population register, modernize and fill the state register of property rights, the register of real estate, the register of addresses.

The launch of the special legal regime Action City, which has planned for the first half of 2021 and is able to almost double the share of IT in the country's GDP in a short time.

Development of electronic trust services and electronic identification. Among other things, the Ministry of Finance is introducing a short-term qualified electronic signature Smart Action in a

mobile application - so government services will be available online even from smartphones.

Development of the national educational platform Action. Digital education and launch of new educational courses that will help teach 6 million Ukrainians digital skills.

Development of electronic document management in government agencies and Trembita electronic interaction system. This will reduce bureaucratic procedures and save money and time on services.

Opening priority datasets that have a strong anti-corruption and economic effect. 500 million UAH in the budget is set aside for the connection to high-speed fixed Internet of about 6,000 social facilities in villages. Another 602 million UAH will go to the National Informatization Program. The projects of digital transformation in the spheres of health care and social protection, education, urban planning, ecology, etc. will be implemented. The Ministry of Finance will also continue to develop the sphere of administrative services. 231 million UAH has provided for the expansion of the ASCs network. The goal of the ministry is to make the ASCs accessible with quality services in each territorial community.

To implement the process of digitalization of regions, the Ministry of Digital Transformation has introduced the position of DDT - Deputy for Digital Transformation. They already exist in every ministry and are gradually appearing in every community. It is created in each territorial community department of the project management, an investments and the digital transformation of the executive committee of the village council as a structural subdivision of the executive committee of the village council. The main activity of the department is to implement the powers of the executive bodies of the village council in the field of socio-economic development of the community, attract investment to ensure standards of comfortable living for community residents, create favorable conditions for industrial development, small and medium business, increase budget revenues, participate in international grant proposals, providing information and communication activities in the community, ensuring the presence of a united territorial community in the Internet space, implementation of policies in the field of cooperation of community settlements with foreign partner cities.

### **The model of the project maturity of the digital transformation of public administration of Ukraine**

The implementation of the project management methodology in the public administration sector directly depends on the maturity of the current state of the project management system and the definition of strategy and tactics of its development. To assess project maturity, maturity assessment models have used, which allow to establish priority directions of development of the organization as a whole and directly of the project management system. Within the framework of this study, a model with 3 levels has proposed to assess the project maturity of public



administration in the implementation of the digital transformation projects.

The project is proposed to be considered as including the following five phases of the project: initiation, planning, implementation, control and completion. To assess the project maturity, a questionnaire has developed, an expert group is selected, which evaluates the selected parameters. A certain level of maturity has assessed in points from 1 to 3. To calculate the final assessment of maturity in the model uses the averaging of the results of answers to all questions in each of the 8 areas of knowledge and the five phases. This model identifies 8 key areas that are crucial for the implementation of digital transformation projects:

- the project content management;
- the terms of project implementation;
- a cost of project implementation;
- a quality of project implementation;
- a human resources for project implementation;
- a means of communication for project implementation;
- the project implementation risks;
- providing and supplying resources for project implementation.

Table 3 describes three levels of maturity with typical organizational measures used by organizations in the field of the public administration during the implementation of digital transformation projects.

Table 3. Three-level model of project maturity of the organization in the field of the public administration during the implementation of digital transformation projects

Stage of project maturity	Organizational measures for project management	Choice of management influence options
Primary (initial) level of project maturity	have an understanding of the importance of project management; there is a selective, usually unprofessional use of certain project management tools in their implementation; certain problems often arise and, as a result, there are deviations in terms and / or budget.	unpredictability of project implementation results; inconsistency of project management plans; project implementation depends entirely on the specific manager.
Second level of project maturity (standardized)	formalization of project management processes is created; developed standards and tools for project management; the organizational structure on coordination of realization of projects is created; special training for project management is carried out.	the results of the project are projected; project management; high probability of successful project implementation.
The third level of project maturity (managed methodology)	clearly established project management processes; systematic use of project management methods and tools; developed and maintained knowledge base - internal regulations / standards / instructions that summarize the requirements and practices of projects by their types and categories.	the organization has successfully implemented projects; deviations in the cost and duration of projects are infrequent, their size is minimal; project implementation is constantly being improved and improved.

To test the model, ten united territorial communities of Ukraine were surveyed. The respondents were government officials, managers at various levels, representatives of IT companies, as well as the local population, which was conducted through a survey on the social network. The main criterion for selecting respondents was the desire and willingness to share information about their current state of affairs in the field of project management. A total of 600 people took part in the survey, respectively 60 respondents from each of the 10 territorial communities. The names of territorial communities have coded ( $X_1$ - $X_{10}$ ).

The results of the study, broken down by areas of project management knowledge, are presented in table 4. The analysis of the results showed that none of the surveyed united territorial communities of Ukraine reached the third level of maturity (managed methodology), but in communities  $X_9$  and  $X_{10}$  there is a second level of maturity, which is also high, while in many surveyed united territorial communities of Ukraine the level of maturity in many areas of knowledge on project management is initial, the level of maturity of the project phases varies between the initial and the level of individual planning.

Table 4. The result of the assessment of project maturity of individual territorial communities during the implementation of digital transformation projects

Key areas of project implementation	Name of organization (territorial community)									
	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$	$X_9$	$X_{10}$
project content management;	1.3	1.3	1.6	1.8	1.7	2.0	2.2	2.3	2.2	1.9
terms of project implementation;	1.1	1.0	1.1	1.4	1.6	1.9	1.9	1.8	2.1	2.2
cost of project implementation;	1.0	0.8	1.0	1.5	1.6	1.9	2.3	1.9	2.3	2.3
quality of project implementation;	0.9	0.7	1.1	1.8	1.9	2.2	2.1	2.1	2.2	2.1
human resources for project implementation;	1.1	1.4	1.6	1.9	2.2	2.3	2.4	2.5	2.4	2.1
means of communication for project implementation;	0.8	1.3	1.4	1.6	2.1	2.0	2.0	2.1	2.6	2.2
project implementation risks;	1.3	1.4	1.6	1.5	0.9	1.0	1.9	2.3	2.4	2.3
providing and supplying resources for project implementation	0.8	0.9	1.0	1.9	1.9	2.3	2.5	2.2	2.2	2.2
Total	8.3	8.8	10.4	13.4	13.9	15.6	14.8	13.1	18.4	17.3
Average rating	1.04	1.10	1.30	1.68	1.74	1.95	1.85	1.64	2.3	2.16

The developed model allowed to form recommendations for the further development of the project management processes for the united territorial communities of Ukraine, which took part in the survey. For each integrated territorial community, three areas of knowledge with the lowest level of maturity were identified as the most important for development. The targeted actions to improve these processes will provide communities with the conditions to move to a higher level of project management maturity. Quantitative assessment of the level of project maturity will also allow to perform a comparative analysis of different approaches to project management of the united territorial communities of Ukraine. At the same time, it is important for the organization to assess its financial benefits (return on investment) from the transition to a higher

level of maturity. Thus, based on the analysis of knowledge and practice of the areas of project management in the field of the public administration of Ukraine, the following results can be distinguished:

- The united territorial communities, which are at a high level in terms of the level of project management maturity, have quite significant prospects for the implementation of digital transformation projects.
- The level of maturity of the organization of public administration, as well as individual local communities in the field of project management directly depends on the knowledge management practices in the fields of project management and the level of information infrastructure of the organization.

The study confirms the hypothesis that modernization of the public administration system is possible on the basis of the principles of effectiveness of relations of all groups of stakeholders in project management on the implementation of digital government projects while increasing the project maturity of public administration.

## Conclusion

This study considers the main aspects of the formation of project maturity of public administration in the implementation of the digital transformation projects. The existence of a direct dependence is proved prospects for the implementation of digital transformation projects from the level of project maturity of public management. Sweden's progressive experience in digital transformation and implementation of the projects in public administration has considered, with the possibility of using such experience in Ukraine during the implementation of digital transformation projects. It has been established that the main component of the success of the Swedish model of the digital transformation is the history of the decentralized model of government. Having a decentralized structure simplifies adaptation to local conditions and challenges. Therefore, the transformation is fast and efficient, ensuring the digital development of state and local authorities, organizations and society as a whole. This experience is interesting for Ukraine. A variant of the project maturity model adapted to the local self-government body has been developed and is being implemented in the conditions of Ukraine. This model highlights key areas that are crucial for the implementation of digital transformation projects. The model assumes three levels of maturity of local governments. It has established that the majority of the created united territorial communities of Ukraine have characterized by the first two levels of maturity. The implementation of the maturity model makes it possible to assess the current state of the system, choose adequate tools for staff training, create conditions for continuous improvement and realization of the potential of the local community for the implementation of digital transformation projects.

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