



## CONCEPTUAL FRAMEWORK FOR DIGITIZATION OF DEPRECIATION POLICY

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### ABSTRACT

The articles object is a process of accounting and information support for the formation of depreciation policy. The purpose of this article is to develop a conceptual framework for a common accounting and information space of depreciation policy. First, the authors consider the benefits of total digitalization of the organization and methodological support of depreciation policy process and make some assumptions related to the concept of enterprise's economic data protection. Since the scientific challenge is how to effectively monitor and quickly adjust depreciation policy, the authors have chosen methods to analyze the relations between business, government regulation, and economic data security. In the course of the research, a survey



of 376 enterprises of Zaporizhia, Donetsk and Luhansk regions of Ukraine was conducted. To identify impact of the enterprise size on the availability of information about individual indicators, they are grouped according to the selected system of taxation (simplified and general). In addition, the survey results and monitoring of the beta version of depreciation policy's information portal were presented. It was also concluded that the accounting indicators can be used to quickly adjust the depreciation policy at the state level.

**Keywords:** Depreciation policy; public policy; digitalization; information; accounting; reporting; data security

## 1. INTRODUCTION

The process of economy digitalization is not a new area of research. However, the informatization of depreciation policy, as a process of interaction between enterprises and the state is a relatively new direction of accounting theory, as well as a new approach to the perception of depreciation. In many countries, depreciation policy is usually considered at the micro level, mostly studying the state of implementation of depreciation policy in the enterprise. Fewer studies are conducted at the macro level and taking into account industry specifics by analyzing the technical feasibility of exchanging accounting information. One of the purposes of this article is to reveal the idea of effective interaction between state and enterprise in the implementation of depreciation policy and the formation of a conceptual framework of this economic phenomenon.

## 2. LITERATURE REVIEW

### 2.1. Review of the literature on digitalization

Digitalization is commonly understood as a transformation of digital technologies to optimize and automate business processes, increase productivity and improve communication with consumers. Currently, there are three areas of research related to this topic.

First area is a study of the digital products special characteristics depending on the focus of their application. Thus, the recent work by Goldfarb and Tucker (2019) contains an extensive study of the literature on the digital economy to identify its differences. They emphasize the reduction of costs associated with search, replication, transportation, tracking and verification.

In addition, researches by Bakos and Brynjolfsson (1999) study the effectiveness of grouping a large number of information products, taking into account different properties and

uncertainties. In this context, Goldberg et al. (2001) analyzes the cost-effectiveness of mechanisms for digitizing economic processes.

At the same time, the research does not touch upon the consequences of digitalization of the interaction between suppliers and customers, enterprises and the state, does not highlight the digital aspect of "public policy". This article develops the direction in research of complex interaction processes of business and state subjects. The paper considers such a separate element as the depreciation policy from the point of view of efficiency of application with the use of digital technologies.

Second, there is a lot of literature on information asymmetry, some of which is closely related to our article. For example, Sobel and Takahashi (1983) and Cramton (1984) developed a model of interaction of business entities over time. The authors explore the nature of interaction, strategic behavior and timing of relationships between enterprises. In this regard, Besanko and Winston (1990) compare the duration and effectiveness of the interaction, and Hörner and Samuelson (2011) conduct modeling and expand previous research. In our article, we will analyze the available results of long-term interaction of the state and enterprises in the implementation of depreciation policy. Consideration of the state from the angle of a partner unit, rather than a regulatory institution, made it possible to understand the organizational construction of the concept of digitalization of depreciation policy.

Third area of research is the justification of potentially necessary accounting data and the optimal organization of their collection and use. Richard, Lindholm and Hogan (1968) already emphasize the problems of using existing credentials and the need to form a specific information array. We confirmed this concept and expanded it based on the surveys of Ukraine's depreciation policy key stakeholders by adding an organizational mechanism for interaction and exchange of information. Important in the information approach Klenin (2004) assigns the relevance of accounting information, without requiring other characteristics and features that are put forward to the accounting information.

## **2.2. Depreciation policy**

Keating et al. (1999) considered depreciation policy in the context proposed by the state of the highest metrological depreciation output. We worked with representatives that were used for all depreciation support optimization messages and not for policy purposes. At the same time, they claimed that the reliability changed to the depreciation products that were necessary spent on R&D. However, other researchers have found that this applies to research and is not

cost-effective (Mead 2007; Okubo, 2006; Sliker 2007; Fixler 2009). In this article, we as well focused on the organizational component of the depreciation policy implementation.

**The purpose of this article** is to develop a conceptual framework for a common accounting and information space of depreciation policy.

### **3. METHODS OF RESEARCH**

#### **3.1. Measures to assess the reality of the depreciation policy implementation**

Since the scientific problem is how to assess the effectiveness of depreciation policy and what impact the processes of digitalization of the economy have on its formation, first, it is necessary to choose what indicators we should use to assess the effectiveness of depreciation policy. The main indicator of the effectiveness of depreciation policy is the fact of renewal of fixed assets at the expense of own financing sources, increasing the efficiency of financial and economic activities. The production structure of the labor means, performance indicators of the enterprise and its financial statements are directly dependent on the strategic direction of depreciation policy. Scholars in assessing the effectiveness of depreciation policy use mostly the same indicators:

- 1) Determination of the optimal production, age and cost structures of fixed assets;
- 2) Forecasting the useful life of fixed assets;
- 3) Forecasting future economic benefits from the use of fixed assets;
- 4) The choice and optimal combination of permitted depreciation methods;
- 5) Valuation of fixed assets from the standpoint of depreciable value and liquidation value;
- 6) The choice of the most effective forms of reproduction of fixed assets and capitalization of depreciation.

In the course of the research, a survey of 376 enterprises of Zaporizhia, Donetsk and Luhansk regions of Ukraine was conducted according to the listed indicators. To identify impact of the enterprise size on the availability of information about individual indicators, they are grouped according to the selected system of taxation (simplified and general).

We used these indicators exclusively for compiling questionnaires when testing the software product to ensure the digitalization of depreciation policy.

### 3.2. Measures to monitor the effectiveness of depreciation policy

The beta version of the investment portal of the Melitopol city was used as a monitoring system, as part of the work on which the instrument of depreciation policy was modeled. The developed software environment brought together authorities, entrepreneurs and representatives of fiscal structures. We understand that large-scale implementation of the monitoring system requires time, money and other resources, but in turn ensures the achievement of expected results.

The statement of the technical task of such monitoring system followed from the answers to the question "Who? What? When?". Table 1 provides an understanding of the stages and steps of this process.

Table 1: Organization stages of the depreciation policy digitization monitoring system

| Stage                  | Steps                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Planning</b>        | Determining the information needs (taking into account the methodology for assessing the effectiveness of depreciation policy) and who needs it. Determining how often information should be collected. Identification of sources and methods of obtaining information. Determining who is responsible for collecting information. Identification of costs associated with the implementation of monitoring and information collection.. |
| <b>Preparation</b>     | Development and testing of documents for data collection and recording. Drawing up job descriptions defining the powers of participants in the monitoring process. Training of personnel responsible for monitoring operations. Acquaintance of the program staff with the monitoring system                                                                                                                                             |
| <b>Data collection</b> | Automatic mailing of compiled questionnaires. Control over the activity of the monitoring system. Data analysis and comparison. Identify other issues. Finding the causes of deviations and identifying solutions                                                                                                                                                                                                                        |
| <b>Reporting</b>       | Documentation of collected data and analysis results. Determining the impact of digitalization on the efficiency and reliability of the information obtained. Providing information on the results of monitoring of all stakeholders.                                                                                                                                                                                                    |
| <b>Use of results</b>  | Use of monitoring results to improve depreciation policy Determining the characteristics of reporting information for continuous statistical observation will allow to accumulate an array of data for the effective implementation of depreciation policy by forming a single information space                                                                                                                                         |

## 4. RESULTS OF THE RESEARCH

First, we investigated what information is needed to conduct a depreciation policy in accordance with the specified criteria for its effectiveness. Then we determined the availability of such information in the standard forms of statistical and financial reporting of enterprises.

Questionnaires of accounting experts and experts from the state regulation sector helped us to understand at what stages of information processing the problem of its insufficiency arises. At the same time, we found out the optimal level of regulatory policy intervention in the economic independence of enterprise in the development of depreciation policy.

These conclusions were based solely on expert opinion, as there are currently no facts of such operational interaction (see Figure 1).

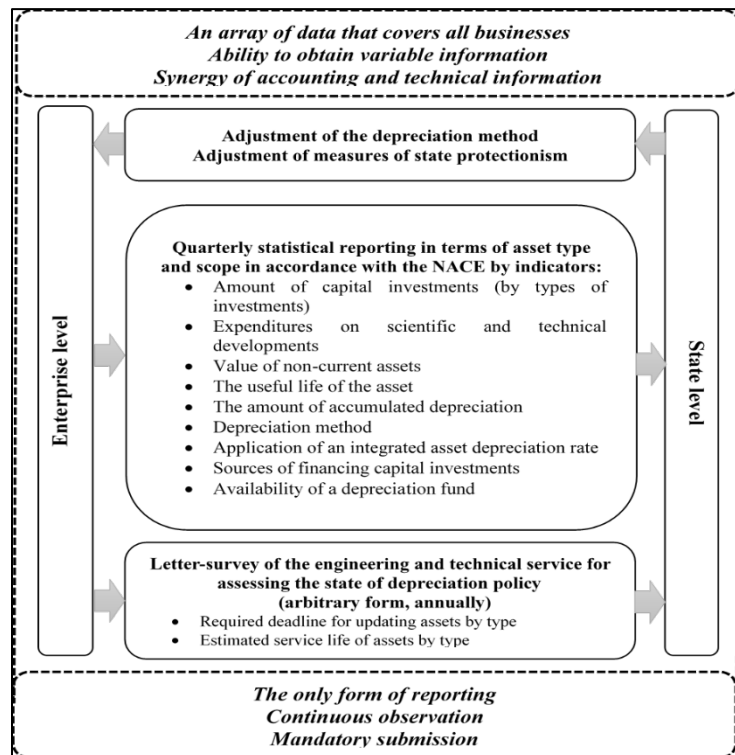


Figure 1: Depreciation policy accounting and information support system

To optimize the exchange of information in the implementation of depreciation policy, it was suggested to develop a conceptual framework. At the same time, it solved the problem of setting a technical task for the development of a software product for the digitalization of the information exchange process and the formation of an array of data for the operational regulation of depreciation policy (see Figure 2).

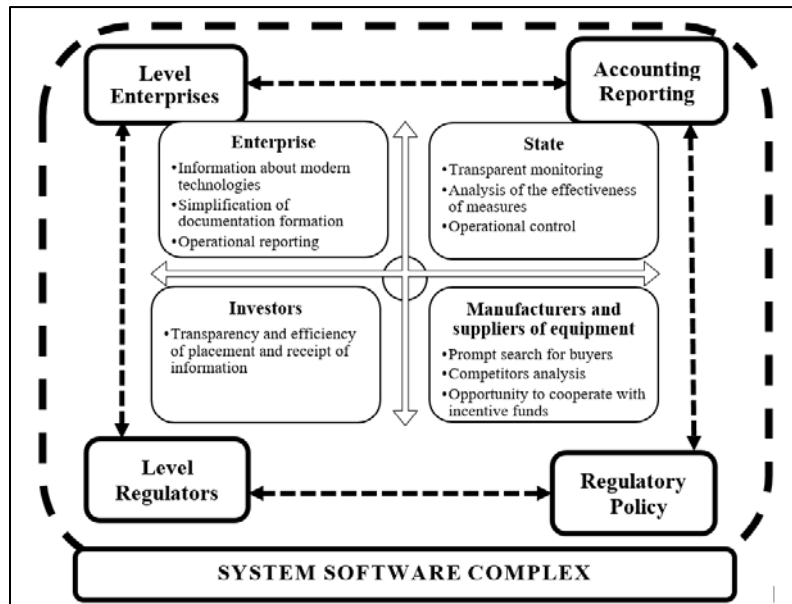


Figure 2: Conceptual framework for digitalization of depreciation policy

The developed conceptual framework of depreciation policy was tested in the regional project "Investment map of Melitopol", which was initiated by Melitopol City Council of Zaporizhia region in cooperation with NGOs and producers in the region to establish a systematic dialogue between government and business. The study of the economic background and information content was conducted with the assistance of the public organization "Innovation and socio-economic initiatives".

The result of this cooperation was a beta version of the interactive map of the region as part of the digitalization of depreciation policy. Such a software product was offered to companies and is currently being tested. For Ukraine, this form of interaction between state regulators and enterprises that are interested in technical re-equipment and ready for open cooperation is new. Discussion of such a concept is currently carried out in the methodological, technical and user areas.

## 5. CONCLUSIONS

The authors reviewed the literature on the digitalization of the economy and the implementation of depreciation policy. Different approaches to the principles of organization of interaction between the state and business entities allow us to make some assumptions related to the concept of digitalization of depreciation policy. First, depreciation policy cannot be separated from the general trends of digitalization of society. Second, depreciation policy at the macroeconomic level cannot be effective solely through the components of the depreciation

methodology, such as depreciation methods, useful lives, asset values. A simplified understanding of depreciation policy as an accounting operation with a fixed algorithm is no longer relevant or effective.

The authors also described the trends of digitalization of the economy, creating a general structure for the disclosure of its interaction with.

Since the scientific problem is how to assess the effectiveness of depreciation policy and what impact on its formation have the processes of digitalization of the economy, the authors chose which indicators should be analyzed when assessing the effectiveness of depreciation policy. Performance evaluation indicators, which are most popular in various scientific studies, were presented.

As the selected indicators are not present in the standard statistical and financial reports of Ukrainian enterprises, the authors transferred them to the created questionnaire (questionnaire form). This form was used in the creation of the beta version of the software complex of the investment portal of the city of Melitopol, which has in its components exactly those instruments of depreciation policy that can be used in the scale of national digitalization of depreciation policy. To set the technical task of such a complex, a conceptual framework of a single accounting and information space of depreciation policy has been developed. The technical task outlines the functionality of the software package, requirements for users and generators of information, terms, forms and methods of filling the information environment, organizational mechanisms of interaction of the participants of the proposed space.

The main conclusion of the research results is that in the information society the efficiency of economic processes increasingly depends not on the methodological tools, but on the organization of data exchange. Operational analysis and feedback also play an important role in shaping an effective depreciation policy.

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