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## INFORMATION SUPPORT OF THE MARKET OF CREDIT SERVICES OF UKRAINE

The formation and development of the national economy depends on the stable operation of the credit services market, namely the information support of the credit services market of Ukraine, as the attraction of credit resources into the country's economy is an important factor in its development.

The credit market contributes to the growth of production and trade, the movement of capital within the country, the transformation of money savings into investment, the implementation of the scientific and technological revolution, the restoration of a fixed capital. The economic role of the credit market is in its ability to influence the concentration and centralization of production and capital. An important feature of the credit market is the strengthening of the influence on the process of the world economy internationalization  by ensuring the migration of a capital. The credit market also performs a macroeconomic function [1].

Information is one of the main and most important resources of the credit services market, so current trends and rapid development of the information space require a proper management of such complex infrastructure, especially in the development of the information economy.

Information infrastructure as a component of the general infrastructure of financial markets creates conditions for their development, observance of market discipline, effective implementation of a state supervision. The information infrastructure, first, includes the institutional set-up and structures that affect the quality, accessibility and transparency of information on monetary and financial conditions and policies at various levels; secondly, it represents the incentives and organizational structures necessary for the implementation of the state policy on the regulation of financial markets. Thus, the information infrastructure includes: a device to ensure the transparency of monetary and financial policy; accounting and auditing frameworks to help identify and verify information disclosed to the public and regulators; mechanisms for collecting, processing and disseminating information on the financial conditions and creditworthiness of borrowers and other issuers of financial obligations [2, p. 241].

The information infrastructure of the credit services market is an extensive network architecture of institutions with information relationships between them and other financial market participants. The information infrastructure of the credit services market of Ukraine includes: creditors (public authorities, legal entities and individuals), borrowers (public authorities, legal entities and individuals) and the state as a regulator and guarantor (NBU, Verkhovna Rada of Ukraine, Ministry Finance of Ukraine), as well as credit bureaus, credit rating agencies, trade organizers (stock exchanges), depositories, custodians and registrars.

Financial market information support is the most important for attracting investments and credit resources into the economy of the country and individual regions. But at the present stage of development of financial markets, it becomes clear that the formation of appropriate information support under the influence of only the market mechanism is too slow. The level of development of information institutions of the financial market does not meet the needs of participants in financial relations, that leaves Ukraine on the periphery of global financial processes, increases risks for businesses, poses a threat to macroeconomic stability. The functioning of the financial market is impossible without the appropriate information content. Information provides decision-

making by key market players. Lack of information means the cessation of functioning of the financial market itself. Researchers note that the urgent tasks of financial market development in Ukraine are its de-shadowing and increasing transparency [3].

Information support of the credit services market consists of a set of documents (strategy, development program), regulatory framework and management decisions based on operational analysis and forecast of economic indicators, monitoring, analysis of the activities of market participants.

The formation of information support is due to information received from outside entities and information generated in the institutions themselves during the systematization, processing and analysis of information. The well-established organization of the information support process will form the receipt of high-quality, reliable, complete and timely information, which is necessary for the adoption of management decisions, optimization of the credit process.

The basic question that arises concerns the qualitative characteristics of information, its composition and sources of formation. Qualitative characteristics of information significantly affect the validity of management decisions. Regarding the qualitative characteristics of economic information, in particular credit information, there is still no consensus in the views of individual scholars and practitioners. The analysis of scientific research in this area gives grounds to identify the following basic characteristics of economic information in the context of its application in the lending process: relevance, reliability, completeness, timeliness, efficiency and comparability [4; 5; 6; 7].

The main requirements for information support should be: minimization of requirements for obtaining information; clarity of information for managers in order to make productive decisions; elasticity of information infrastructure in accordance with changes in current legislation; operational collection and processing of information.

Information security is created by a set of special measures regarding the rules of use, accessibility by staff, computer processing procedures. Security measures may include verification of information, control of access to the premises, separation of powers, encryption of information, use of digital signatures on messages, use of antivirus protection, control of information integrity, regulation of rules and methods of document protection, availability of instructions for users, restriction of access to archives, reducing privileges for information users. One of the most common ways to protect information is to regulate access to it.

Therefore, information support of the credit services market should be considered as a single mechanism with general principles and rules of interaction of information infrastructure entities of the credit services market, it should develop conditions for secure information interaction between market participants and obtain reliable information with equal access for entities, and the most important thing is to ensure the balance and sovereignty of the information space when Ukraine enters the global information space.

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## GRAMMARLY: AN ONLINE-SERVICE OR A FUTURE MIND-TOOL TEACHER

Grammarly is a worldwide class IT-company with more than 30 million daily active users[1]. The startup with roots from Ukraine gained 200 million dollars of investments, and newly its capital was evaluated at 1 billion dollars. This fact made the company the first Ukrainian "unicorn".

Grammarly is an intelligent online-service for checking English grammar based on Machine Learning technology. Max Lytvyn, Alex Shevchenko, and Dmytro Lider founded Grammarly in 2009, intending to help people communicate more effectively.[1] It became public in 2010 as a web-based editor. During 11 years of growth, they developed various browser extensions, desktop, mobile apps, keyboards for smartphones, and many other products to reach their goal. Grammarly has reached 20 million daily active users in 2019.

It has a basic plan with simple writing suggestions and a premium one with style, tone, and clarity improvements for writing with a 29.95$ price for monthly, 19.98$ per month for quarterly, or 11.66$ per month an annual subscription[2].

Although Grammarly is interesting for its linguistic opportunities, it's also attractive from the side of technology. The developers declare using such technologies as Data Science, Machine Learning, Natural Language Processing. In addition to this, they're using cloud technologies to not overload users' devices. It's a highly complex solution. It's not getting easier to understand the fact that there are no open-sourced parts of this system. You know, it's developed by a lot of different teams, starting with computational linguists and continuing deep learning engineers. In any case, It's not a big deal for us to find out how it works under the hood.

There are pretty long discussions about how Grammarly actually works on different forums. What is essential for us is that Grammarly, like any other kind of software, follows some specific concrete algorithm, in other words, pattern.

For example, we can give you a general idea of its tone detector. Imagine that we have a list of positive and negative words, and we have to make a classifier to define the tone of some message. To achieve that, we could simply calculate the sum of all the words we met in every list and just make a subtraction to judge from which list were more words. Due to its simplicity, it has some problems. The most obvious is the complexity of words.

We can also introduce a linear classifier in which every word corresponds to some numeric value, positive or negative. In other ways, we can suppose that we have only two words. We can