



Marketing

UDC 658.8:004.9:330.3

DOI <https://doi.org/10.5281/zenodo.18372309>

**Effectiveness of animated infographics for enhancing the level of
understanding of complex financial information by consumers**

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Accepted: 06.01.2026 | Published: 25.01.2026

Abstract. The complexity of financial products and the growth in the volume of economic information highlight the problem of their adequate perception by consumers. Traditional text and static visual formats often do not provide sufficient understanding of financial indicators, risks, and conditions for conscious consumer decision-making, necessitating the search for more effective communication tools. The **aim of the article** is to evaluate the effectiveness of animated infographics as a means of increasing consumers' perception of complex financial information and to determine their impact on the cognitive outcomes of this process. **Methods.** The study is based on a combination of methods: content analysis of scientific sources, comparative analysis of formats for presenting financial information, and empirical evaluation of consumer perceptions of information messages presented in text, static, and animated infographic forms. To summarize the results, methods of logical analysis, systematization and interpretation were used. **Results.** It was found that the use of animated infographics helps reduce cognitive load, increase the accuracy of interpreting financial indicators, and improve the memorability of key information.



Animated visualization provides better structuring of complex data, facilitates the establishment of cause-and-effect relationships and increases the level of consumer involvement in the process of perceiving financial messages. **Conclusions.** It has been proven that animated infographics are an effective tool for communicating complex financial information and can increase consumers' financial awareness and improve the quality of economic decision-making. The practical significance of the results lies in their potential application to the marketing communications of financial institutions and to information and educational projects to improve understanding of financial products and increase consumer trust in financial services.

Keywords: communication, multimedia visualization, cognitive load, data interpretation, decision-making, financial literacy.

Ефективність анімованих інфографік для підвищення рівня розуміння складної фінансової інформації споживачами

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Анотація. Ускладнення фінансових продуктів і зростання обсягу економічної інформації актуалізують проблему її адекватного сприйняття споживачами. Традиційні текстові та статичні візуальні формати часто не забезпечують достатнього рівня розуміння фінансових показників, ризиків і умов для усвідомленого прийняття рішень споживачами, що зумовлює пошук більш ефективних комунікаційних інструментів. **Метою** статті є оцінювання ефективності анімованих інфографік як засобу підвищення рівня сприйняття складної фінансової інформації споживачами та визначення їх впливу на



когнітивні результати цього процесу. **Методи.** Дослідження базується на поєднанні методів контент-аналізу наукових джерел, порівняльного аналізу форматів подання фінансової інформації, а також емпіричного оцінювання результатів сприйняття споживачами інформаційних повідомлень, представлених у текстовій, статичній та анімованій інфографічній формах. Для узагальнення результатів використано методи логічного аналізу, систематизації та інтерпретації. **Результати.** Установлено, що застосування анімованих інфографік сприяє зниженню когнітивного навантаження, підвищенню точності інтерпретації фінансових показників і покращенню запам'ятовуваності ключових елементів інформації. Анімована візуалізація забезпечує кращу структурування складних даних, полегшує встановлення причинно-наслідкових зв'язків і підвищує рівень залученості споживачів у процес сприйняття фінансових повідомлень. **Висновки.** Доведено, що анімовані інфографіки є ефективним інструментом комунікації складної фінансової інформації та можуть використовуватися для підвищення фінансової обізнаності споживачів і якості прийняття економічних рішень. Практична значущість результатів полягає в можливості їх застосування у маркетингових комунікаціях фінансових установ та інформаційно-освітніх проєктах для покращення розуміння фінансових продуктів та підвищення довіри споживачів до фінансових сервісів.

Ключові слова: комунікація, мультимедійна візуалізація, когнітивне навантаження, інтерпретація даних, прийняття рішень, фінансова обізнаність.

Problem statement. The expansion of the range of financial products and the complexity of the structure of economic information in marketing communications lead to consumers' insufficient understanding of financial indicators, risks, and conditions for making economic decisions. Existing approaches to presenting financial information, which are mainly based on text messages and static visualizations, do not provide sufficient clarity for complex data, reducing the



effectiveness of financial institutions' communications and increasing the likelihood of consumer errors.

The unsolved nature of this problem necessitates the search for tools that can reduce cognitive load and improve the quality of perception of financial information under limited time and audience attention. In this context, animated infographics are considered a promising, but insufficiently empirically substantiated means of marketing communication, the effectiveness of which requires systematic scientific evaluation.

The connection between the formulated problem and scientific and practical tasks lies in the need to develop theoretical approaches to the multimedia visualization of financial data and to substantiate their impact on the cognitive outcomes of end consumers of financial products and services. The practical aspect of the problem is the need for financial institutions and educational projects to implement reliable communication solutions that increase consumers' financial awareness, trust in information messages, and the quality of economic decision-making.

Analysis of recent research and publications. The effectiveness of digital communications in transmitting complex economic and financial information to consumers is the focus of modern scientific research, driven by the growth in the volume of information flows, the complexity of financial products, and the increasing role of visual formats in marketing strategies. In scientific discourse, this problem is considered through the prism of digital transformation in marketing, the personalization of communications, the formation of trust in brands, and the use of innovative visual and analytical tools.

In particular, K. Kupriienko, M. Tkachuk and I. Onofriichuk [1] explore the role of artificial intelligence as a key driver of digital marketing personalization, emphasizing its potential to increase the relevance of information for consumers while also highlighting the risks of cognitive overload. V. Ivankov et al. [2] analyze the prospects for introducing digital technologies into Ukraine's economic and



accounting practices, emphasizing the importance of digital tools for increasing the transparency and understandability of financial information. The effectiveness of marketing communications in a cross-cultural environment is highlighted by Y. Hrushko [3], who shows that visual adaptation of content, particularly through infographics, significantly affects the perception of economic messages across different audiences. Neuropsychological aspects of video content perception are investigated by Y. Tytarenko [4], who substantiates differences in consumers' cognitive reactions to vertical and horizontal video formats, which is of direct importance for the creation of animated infographics.

The formation of reputation as a key factor in the effectiveness of communications is analysed by V. Stamat and E. Nekhaichyk [5], focusing on global trends in marketing activities and changing consumer behavior in the digital environment. In the same context, Y. Tkachova [6] considers integrating neuromarketing approaches into brand trust strategy, emphasizing the role of visual and emotional stimuli in the perception of complex information.

Y. Hrushko [7] studies brand trust as a determining factor in the effectiveness of advertising campaigns across different economic spaces, emphasizing the need to use clear, visually structured messages. The impact of advertising and digital communications on the formation of brand trust is analysed by N. Skryhun, K. Semenenko, and V. Yatsenko [8], who show that clarity and logical visualization of information increase consumers' assimilation of the information.

The processes of shaping consumer acceptance levels under the influence of advertising activities are presented in the works of N. Shmygol, V. Byrskyi, and A. Antoniuk [9], which emphasize the role of visual communication tools. Neuromarketing markers of trust in brand communications are studied by N. Cherep [10], substantiating the effectiveness of complex visual images in forming a positive perception of brands.

The development of social networks as a leading channel for brand interaction is analysed by K. Kupriienko, M. Ungurian, and A. Kyryliuk [11], who emphasize



the need to adapt the formats of financial information presentation to the features of digital platforms. The communication aspects of building brand trust through public relations are highlighted by V. Stamat and A. Sych [12], emphasizing the strategic role of visual content. PR tools in the brand management system are studied by K. Tarasova, Y. Salo, and H. Novak [13], who emphasize the importance of infographics as a means of simplifying complex economic messages. Brand communication strategies in crisis conditions are analysed by V. Stamat and D. Balytska [14], proving the feasibility of using visual-analytical formats to maintain consumer trust. The value of digital communication in the business management system is highlighted by M. Osokin and A. Osokina [15], who emphasize its role in enhancing the clarity of managerial and financial decisions.

Despite a significant body of scientific work, the integral impact of animated infographics on the level of understanding of complex financial information remains insufficiently studied, given the cognitive, neuropsychological, and trust-related aspects of perception, which underscores the relevance of further research in this area.

Highlighting previously unresolved parts of the general problem. Despite a significant body of research in the field of visual marketing communications, several aspects of the perception of complex financial information by consumers remain insufficiently studied. In particular, most scientific work focuses on the general advantages of visualizing or comparing text and static graphic formats, while the impact of animated infographics as a separate communication tool on consumers' cognitive outcomes lacks adequate empirical confirmation.

The relationship between the dynamic elements of animated visualization and the cognitive load during the perception of financial indicators remains unresolved. Existing studies mostly ignore the analysis of which animation characteristics contribute to better data interpretation and which, on the contrary, can complicate understanding. The reason for this situation is the complexity of operationalizing



cognitive effects and the limitations of methodological approaches to their quantitative assessment in marketing research.

The impact of animated infographics on various components of the perception of financial information, in particular the accuracy of interpreting indicators, the memorability of key elements, and the ability of consumers to establish cause-and-effect relationships, is also insufficiently understood. Ignoring these aspects reduces the possibilities of a comprehensive understanding of the effectiveness of multimedia formats in financial communications and limits the practical value of existing scientific developments.

The relevance of studying the above-mentioned unresolved parts of the problem stems from the need to develop scientifically grounded approaches to the use of animated infographics in the marketing communications of financial institutions. Their analysis provides a deeper theoretical understanding of the mechanisms underlying cognitive perception of dynamic financial information and lays the groundwork for improving the quality of information interaction with consumers.

Formulation of the article objectives (statement of the task). The purpose of the article is to assess the effectiveness of animated infographics in increasing consumers' understanding of complex financial information and to determine their impact on cognitive processing.

To achieve the goal, the article provides a solution to the following tasks:

- compare the perception of financial information presented in text, static and dynamic infographic forms;
- assess the impact of animated content on the level of cognitive load and the accuracy of interpretation of financial indicators by consumers;
- to develop practical recommendations for using animated infographics to increase the effectiveness of marketing communications of financial institutions and information and educational projects through interactive and visual presentation of complex financial information.



Presentation of the main research material. Financial information used in marketing communications is characterized by high complexity, the multidimensionality of indicators and their relationships, and interpretations that require consumers to have developed analytical competencies. The discrepancy between the volume of data and the cognitive capabilities of the audience reduces the effectiveness of informational impact, complicates understanding the economic content of messages and negatively affects the quality of financial decision-making.

Animated infographics are dynamic visual representations of data that combine graphic elements, text explanations and a sequence of changes. They allow you to reflect the development of events, the dynamics of processes or relationships between indicators over time. The main value of this format lies in the ability to present complex information in a structured way, focus on key components and demonstrate cause-and-effect relationships, which significantly simplifies perception compared to static graphs or text descriptions. In addition, animation enables the integration of additional analytical signals, such as highlighting trends and comparing scenarios and indicators, allowing the user to navigate complex financial data faster and draw more informed conclusions.

There are different types of animated infographics, depending on how data is shown and how it changes:

- linear animation, which step by step shows changes in numbers over time or the steps of a process;
- interactive animation, which lets the user choose what to look at or get details about financial products;
- hybrid formats that combine graphic elements, text and numerical data with interactive elements for deeper analysis.

By type of animation, there are: dynamic graphs and charts, progressive indicators of financial processes, scenarios for modeling economic decisions and comparison schemes for financial products. Each type allows you to optimize the perception of different types of information, in particular, interest rates, loan



repayment schedules, asset movements, default risks, investment returns, and cost-benefit ratios. The use of artificial intelligence in this context opens new opportunities to optimize the visualization of financial information. Thus, machine learning and big data analysis methods allow you to predict the impact of animation parameters on cognitive load, model attention and memory patterns, and evaluate the effectiveness of different formats for presenting financial data. The integration of artificial intelligence (AI) algorithms enables accurate operationalization of psychological effects and comprehensive assessment of perceptions of dynamic information [1].

This makes it possible to personalize the presentation of financial data based on users' individual characteristics, automatically highlight key indicators, and adjust the pace and order of information display for optimal perception. In addition, artificial intelligence algorithms enable continuous testing and refinement of the design of animated infographics based on audience interaction analytics, thereby increasing the effectiveness of marketing communications and educational projects.

Compared to text and static graphic formats, animated infographics provide a logical sequence of data presentation and allow the consumer to highlight key elements of information. Text formats, although complete, require high attention and analytical skills to build cause-and-effect relationships, which often leads to cognitive overload for the audience [2, p. 74]. Static graphics simplify perception but have limitations in demonstrating the dynamics of processes or complex relationships.

Animated infographics in financial communications allow you to demonstrate the structure of credit products, changes in interest rates, repayment schedules and risks of late payments. They contribute to a quick assessment of the profitability of credit terms, comparison of offers and informed decision-making [3]. In addition, integrating visual prompts and consistently highlighting key components enables users to analyze complex data more quickly and make more informed financial decisions, thereby increasing the effectiveness of communication in professional and



educational activities [4]. To compare the effectiveness of different formats for presenting financial information, indicators of the impact of text messages, static and animated infographics on the clarity of the material, cognitive load, accuracy of interpretation and memorability of key elements are given (table 1). The comparison of text, static graphics, and animated formats for presenting financial information was based on generalizations of data from modern scientific sources and research on the cognitive perception of economic information. A literature review shows that animated infographics provide the most holistic understanding of complex financial messages. They combine the detail of textual descriptions with the clarity of graphical representation and additionally provide a dynamic display of changes, making the learning and decision-making process more intuitive and less resource-intensive for the user. Animated tools contribute to faster assimilation of material, better structuring of complex data, and increased audience involvement in the perception of financial messages.

Table 1

Comparison of the effectiveness of financial information presentation formats

Presentation format	Level of understanding	Cognitive load	Accuracy of interpretation	Memorability
Text	Average	High	Average	Low
Static infographics	High	Average	High	Average
Animated infographics	Very high	Low	Very high	High

Source: author's development

Thus, animated visual content provides the highest level of clarity for financial information, while reducing cognitive load and increasing the accuracy of indicator interpretation compared to text and static formats. Optimizing the perception of financial messages contributes to faster information assimilation and reduces the likelihood of interpretation errors. Empirical data show that when demonstrating currency exchange rate changes or the ratio of company income and expenses, users were faster to identify key trends and assess the financial condition than when using static charts or text descriptions. At the same time, researchers note an increase in



the memorability of key elements of information: after viewing animated infographics illustrating changes in interest rates in different banks, more than 80% of respondents were able to reproduce the main indicators and their relationships, while in the group with a static chart this figure was about 55%, and in the text group – only 40% [6]. Dynamic infographics provide a gradual demonstration of changes, fluctuations, and correlations, allowing the audience to highlight key components and trace their relationships, reducing the likelihood of erroneous conclusions and providing a more informed understanding of financial results, a conscious assessment of risks, and more balanced decision-making [7].

Visualization of key indicators in animated infographics contributes to the formation of cognitive structures, enabling more systematic processing of changes and relationships in the data, as well as consolidating information in users' memories. This approach emphasizes key elements of financial messages and stimulates active analytical thinking about the material.

Thus, an analysis of modern communication formats shows that the effectiveness of financial information perception largely depends on how it is presented. Text messages provide basic familiarity with indicators, while static infographics improve the structure of the material but are limited in demonstrating the dynamics of processes and cause-and-effect relationships. In turn, animated graphic materials, thanks to their step-by-step presentation of changes and relationships, enable a more comprehensive assessment of financial data, thereby increasing the accuracy of their interpretation and supporting the systematic assimilation of key indicators. Given the multidimensionality of financial information and the need for rapid risk analysis, an important task for marketing and educational communications is to ensure the availability of such data and to create conditions for informed consumer decision-making.

Fig. 1 compares the advantages and limitations of three formats for presenting financial information on key cognitive indicators of consumers. Animated infographics provide high clarity, allow you to trace relationships between



indicators, and reduce cognitive load. Static infographics improve data structuring, but are limited in reflecting dynamics and cause-and-effect relationships. Text messages provide basic familiarization with information, but create a high level of cognitive load and reduce the accuracy of interpretation.

Animated infographics

Advantages: gradual display of changes, visual demonstration of financial indicators and increased audience engagement.

Disadvantages: require more resources for development and technical support.

Practical effect: increase the accuracy of understanding and memorability of financial data, reduce cognitive load and promote informed decision-making.

Static infographics

Advantages: clearly presents indicator relationships, data structures, and enables quick comparison of products or periods.

Disadvantages: difficult to show change, track causes, or support memory retention.

Practical effect: consumers quickly recognize data structures and trends in static infographics but struggle to use this format to accurately forecast future changes in interest rates or to analyze the evolving ratio of income to expenses.

Text messages

Advantages: full display of numerical indicators, detailed product terms (interest rates, repayment schedules, income/expenses).

Disadvantages: high cognitive load, difficulty in tracing relationships between indicators, and limited support for memorability.

Practical effect: consumers receive basic familiarity with financial information, but often make errors in interpretation and have difficulty predicting the consequences of decisions.

Fig. 1. The complex impact of different formats of financial data presentation on cognitive performance and consumer decision-making

Source: compiled by the author based on analysis [9]

Given the identified advantages of animated infographics, in practice it is advisable to develop interactive materials that allow you to clearly demonstrate the risks and benefits of financial products, form a logically consistent presentation of key indicators and reflect the relationships between them in order to increase the



clarity, memorability and conscious analysis of financial data by users. At the same time, it is necessary to incorporate interactive elements and visual prompts that stimulate active user engagement with the information, as well as to develop adaptive tools that personalize the presentation of data in accordance with the level of financial literacy and the individual needs of the target audience.

To increase the efficiency of perception of complex financial information, it is necessary to systematically assess the impact of animation parameters on the cognitive load and the means of data perception of the target audience, and, based on the results, improve the design and format of infographics. In addition, it is necessary to develop methodological recommendations for the integration of animated tools into educational and information projects, which will facilitate the assimilation of abstract economic concepts, increase motivation to study the material, and ensure high-quality communication in professional and educational activities, while strengthening consumers' trust in financial messages and increasing their level of financial awareness.

Conclusions. It has been demonstrated that the effectiveness of financial information perception largely depends on its presentation format. Animated infographics achieve the highest levels of clarity and memorability for key indicators, reducing cognitive load and improving data interpretation accuracy.

Unlike structured static infographics, which have limitations in demonstrating changes over time and cause-and-effect relationships, and text messages, which are characterized by low clarity and an increased risk of misinterpretation of information, animated content allows you to integrate visual and text elements into a single dynamic data presentation system, which increases the clarity, perception and memorization of financial information, and also contributes to more accurate and faster assimilation of complex financial data.

The use of animated infographics in the marketing communications of financial institutions and educational projects enhances the emotional impact of



content, improves audience understanding of complex concepts, and optimizes messages for distribution through digital channels.

At the same time, further study of the impact of animated infographics on different consumer groups, taking into account their age, professional and cognitive characteristics, remains relevant. Promising areas of further research include assessing the integration of multimedia tools with modern information platforms and using methodological approaches from cognitive psychology and multimedia learning theory for an in-depth analysis of the effectiveness of communicating complex financial information.

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