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THE IMPACT OF THE INFORMATION ENVIRONMENT DEVELOPMENT ON MODERN DESIGN

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Abstract: This article is dedicated to the theoretical substantiation of the essence of the information environment, its impact on the transformation of design, and the adaptation of designers to the conditions of the Fourth Industrial Revolution. The study examines the formation of a post-industrial information society, where knowledge and information become strategic resources for solving problems across various spheres of life. The information environment is defined as a dynamic system that ensures the creation, storage, processing, transmission, and use of information. Its key elements are analyzed, including technical means, information resources, subjects, processes, as well as social and cultural factors.

The authors analyze contemporary characteristics of the information environment, such as globality, immediacy, interactivity, data volume growth, and the development of artificial intelligence. They identify the main aspects of designers' interaction with this environment, including multimodality, interactivity, adaptability, data analytics, multidisciplinary collaboration, sustainability, and social responsibility. The article emphasizes the importance of developing designers' digital competencies to effectively adapt to technological and social changes.

The study highlights the necessity of addressing new challenges posed by the information environment to ensure the competitiveness of design products. This particularly concerns adapting to rapid technological and trend changes, using data for design personalization, and implementing principles of social responsibility and sustainability. Understanding the essence and developmental trends of the information environment enables designers to create innovative solutions that meet modern societal needs.

Thus, the research aims to form a comprehensive understanding of designers' interaction with the contemporary information environment. This allows optimizing the process of developing the necessary competencies for effective professional activity in the context of the digital transformation of society.

Keywords: information environment, design, digital competencies, information society, multimodality, social responsibility.

Introduction.

The modern world is experiencing an era of rapid changes associated with the Fourth Industrial Revolution, characterized by the integration of various scientific fields and digital technologies (Floridi, 2014). In this context, a post-industrial information society is emerging, where knowledge and information become the primary strategic resources. The information environment, which is a fundamental aspect of contemporary society, influences all areas of human activity, including design.

Design, as a driving force of consumer-oriented innovation, must respond flexibly to changing external conditions. To effectively adapt to transformations in the modern information society, designers need to develop new competencies, especially digital ones. However, despite the importance of this issue, the interaction between designers and the modern information environment, as well as the development of necessary competencies, remains insufficiently researched.

The relevance of this study is reinforced by the rapid development of information and communication technologies, which change not only the ways information is exchanged but also the tools and methods of design activity. In the conditions of digital transformation, there is a need to rethink the role and functions of design and to identify key aspects of designers' interaction with the modern information environment.

Analysis of previous researches.

The problems of the information society and information environment have been studied by scholars and practitioners. The term "information society" has various definitions. One of them, proposed by the IBM Community Development Foundation in its 1997 report (IBM, 1997), describes the information society as "a society characterized by a high intensity of information in the daily life of most citizens, most organizations, and workplaces; the use of common or compatible technology for a wide range of personal, social, educational, and business activities; and the ability to quickly transmit, receive, and exchange digital data across locations regardless of distance."

The Action Plan, which implements the objectives of the Law of Ukraine "On the Basic Principles of Information Society Development in Ukraine for 2007–2015" uses the terms "information society" and "information environment." The law emphasizes the importance of developing technical and software tools for storing, processing, and transmitting information to enhance the efficiency of science and culture (Закон України, 2007).

Significant contributions to studying the information environment as a factor in design transformation have been made by international scholars, notably (Scherling, L. S., 2024), who investigated the impact of digital technologies on design practice and the adaptation of designers to new technological conditions. The influence of the information environment on design and the development of necessary designer competencies was also studied by (Гардабхадзе І.А., 2009), who stressed the need for digital competency development across all design fields to avoid the devaluation of professional skills in creative industries. Modern aspects of design activity in the context of information technology development were examined in (Чупріна Н.В. та Струмінська Т.В., 2017), who analyzed modern design technologies and their influence on the professional training of designers. However, despite existing research on separate aspects, comprehensive studies on designers' interaction with the modern information environment and the development of required competencies are lacking.

Research Objective.

The purpose of the article is to theoretically substantiate the essence and characteristics of the information environment, determine its influence on design transformation, and identify key aspects of designers' interaction with the modern information environment. This will optimize the process of developing necessary competencies for designers under contemporary conditions.

To achieve this goal, the following tasks are set:

1. To reveal the essence of the concepts "information society" and "information environment";
2. To define key elements and characteristics of the modern information environment;
3. To identify and characterize the main aspects of designers' interaction with the modern information environment;
4. To justify the necessity of considering these aspects for effective designer activity in modern conditions.

The results of the research and their discussion.

Design is a driving force of consumer-focused innovation, playing a flexible role in responding to external changes. Among the significant societal changes at the beginning of the 21st century are those related to the Fourth Industrial Revolution, based on the integration of scientific fields and digital technologies (Floridi, L., 2014). The post-industrial information society is forming, characterized by the exchange of knowledge and information, which become strategic resources for solving problems across various life spheres. According to (Brikše, I., 2006), in the information society, knowledge and information become the primary production resources, transforming into commodities. The information society creates the information environment as a necessary condition for its functioning. According to (Castells, M., 2004), the information environment becomes a key factor in social development, shaping new social practices and transforming traditional activity spheres.

The concept of the "information environment" has evolved significantly with the development of information technologies. Initially, it was associated with libraries, archives, and other traditional information carriers. Today, it encompasses the entire spectrum of digital technologies, including the Internet, social networks, mobile devices, and artificial intelligence.

The modern information environment can be defined as a dynamic system consisting of interconnected elements that ensure the creation, storage, processing, transmission, and use of information. It is not just a set of technical means, but a complex system encompassing technological, social, cultural, and economic aspects of human activity. Key elements of the modern information environment include:

Technical means: computers, networks, software, data storage devices, etc.;

- *Information resources*: data, knowledge, informational products circulating within the environment;
- *Subjects:* individuals, organizations creating, using, and interacting with information;
- *Processes:* collection, processing, analysis, dissemination, and use of information;
- *Social and cultural factors*: values, norms, customs influencing information formation and use.

The modern information environment is characterized by:

- *Globality*: information is accessible anywhere worldwide;
- *Immediacy*: information spreads at incredible speed;
- *Interactivity*: users not only consume information but also create it and interact with others;
- *Big data volumes*: the amount of information is constantly growing;
- *Artificial intelligence development*: algorithms can independently process and analyze large data sets.

These characteristics significantly influence how people perceive and process information, demanding new design approaches.

In the digitally evolving information environment, basic digital competencies integrate into various life spheres, requiring designers to adapt and develop new skills for effective interaction. Designers' interaction with the modern information environment involves several key aspects that significantly impact their activities and those of other creative professionals. These aspects include:

Multimodality: The modern information environment integrates various communication formats such as text, images, video, animation, etc. Designers must be able to work with different media and adapt projects to the specifics of each format. For example, virtual reality (VR) and augmented reality (AR) open new design possibilities: VR can be used to create virtual showrooms and products, while AR allows visualization of design concepts in real environments. Multimodality requires designers to understand the perception features of different information formats and create a coherent user experience combining various communication modes for organizing visual and textual content.

Interactive Solutions: Modern technologies allow creating interactive solutions that change traditional design approaches. Users are becoming active participants rather than passive consumers. Social networks have become important communication channels between designers and users, sources of inspiration and trends. Designers use social media to showcase work, receive feedback, and engage audiences. Designers must consider interactivity to ensure quality user experience, creating mechanisms that allow user-content interaction, individualize experience, and engage users actively. This requires understanding human-computer interaction principles and creating intuitive interfaces.

Adaptability: The information environment is constantly changing, requiring designers to be flexible. Designers must quickly adapt solutions to new technologies and working conditions, including technical aspects (new platforms and software) and aesthetic aspects (trends changes to maintain product relevance). For example, the COVID-19 pandemic accelerated digital transformation and changed user interaction with design, increasing online shopping, virtual events, and remote work, demanding new digital product approaches. Adaptability is a critical competency for designers in a rapidly changing world; they must not only react but anticipate changes, creating long-lasting relevant solutions.

Data and Analytics: Data collection opens new opportunities for tailoring design to user needs. However, data use raises ethical issues that must be considered during product development. Designers must ensure user privacy when collecting and using data. Data-driven design approaches enable creating products better aligned with user needs but require understanding data collection and analysis methods and interpreting results for informed decisions.

Collaboration and Cross-functionality: The modern information environment requires teamwork with specialists from various fields such as programmers, marketers, analysts, etc. Multidisciplinary teams are the norm in contemporary design. Effective collaboration skills are key for complex project success. Designers must understand other specialists' work specifics and communicate ideas clearly.

Sustainability and Social Responsibility: Contemporary information environments must consider social challenges such as climate change, social inequality, and responsibility. Designers should create digital products that are not only effective but environmentally safe and sustainable, including energy-efficient servers and optimized code to reduce energy consumption. Accessibility and inclusiveness are also crucial, creating interfaces that meet diverse user needs and ensure equal information access. Designers can help reduce social inequality by offering resources and solutions for underserved populations and supporting local community development initiatives. Research (Melles, G., 2011) shows socially responsible design is increasingly important in product and service quality evaluation, especially among younger consumers.

Conclusion.

This theoretical study aims to develop a comprehensive understanding of designers' interaction with the modern information environment. It systematically examines key aspects of this interaction: multimodality, interactivity, adaptability, data and analytics use, cross-functional collaboration, sustainability, and social responsibility.

The novelty of the research lies in identifying and analyzing these aspects as defining factors for effective professional activity of designers amid society's digital transformation. It demonstrates that successful adaptation requires not only mastery of digital tools but also understanding the information environment's functioning principles and the ability to leverage its opportunities to create innovative and socially responsible design solutions.

Despite the results, the study has limitations due to its theoretical nature. Further research may focus on empirical verification of these interaction aspects, exploring the impact of specific information environment technologies on various design fields, and developing practical tools and methodologies to foster necessary competencies.

Prospects for future work include studying impact latest trends, such as development artificial intelligence design, use blockchain technologies protect intellectual property designers, study peculiarities interaction designers metaverse new forms digital environment. Separate research area devoted development ethical standards use data design formation principles socially responsible design information society.

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ВПЛИВ РОЗВИТКУ ІНФОРМАЦІЙНОГО СЕРЕДОВИЩА НА СУЧАСНИЙ ДИЗАЙН

Анотація: Стаття присвячена теоретичному обґрунтуванню сутності інформаційного середовища, його впливу на трансформацію дизайну та адаптацію дизайнерів до умов Четвертої промислової революції. У дослідженні розглядається формування постіндустріального інформаційного суспільства, де знання та інформація стають стратегічними ресурсами для вирішення завдань у різних сферах життя. Інформаційне середовище визначається як динамічна система, що забезпечує створення, збереження, обробку, передачу та використання інформації. Розглядаються його ключові елементи: технічні засоби, інформаційні ресурси, суб'єкти, процеси, а також соціальні і культурні фактори.

Автори аналізують сучасні характеристики інформаційного середовища, зокрема глобальність, миттєвість, інтерактивність, зростання обсягів даних та розвиток штучного інтелекту. Визначено основні аспекти взаємодії дизайнерів із цим середовищем, такі як мультимодальність, інтерактивність, адаптивність, аналітика даних, співпраця в мультидисциплінарних командах, стійкість та соціальна відповідальність. У статті наголошується на важливості розвитку цифрових компетенцій дизайнерів для ефективної адаптації до змін у технологічному та соціальному контексті.

У дослідженні підкреслюється необхідність врахування нових викликів інформаційного середовища для забезпечення конкурентоспроможності продуктів дизайну. Зокрема, це стосується адаптації до швидких змін технологій і трендів, використання даних для персоналізації дизайну та впровадження принципів соціальної відповідальності й стійкості. Розуміння сутності інформаційного середовища та тенденцій його розвитку дозволяє дизайнерам створювати інноваційні рішення, які відповідають потребам сучасного суспільства.

Таким чином, дослідження спрямоване на формування комплексного розуміння взаємодії дизайнерів із сучасним інформаційним середовищем. Це дозволяє оптимізувати процес розвитку необхідних компетенцій для ефективної професійної діяльності в умовах цифрової трансформації суспільства.

Ключові слова: інформаційне середовище, дизайн, цифрові компетенції, інформаційне суспільство, мультимодальність, соціальна відповідальність.