

2. Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
3. Moore, M. G. (2013). *Handbook of Distance Education* (3rd edition). Routledge.
4. Кугай, К. (2025). Особливості реалізації провідних принципів індивідуального і персоналізованого підходів в іншомовній підготовці студентів комп'ютерних спеціальностей. *Педагогічна академія: наукові записки*, (16). <https://doi.org/10.5281/zenodo.15172948>
5. Кугай, К. Б. (2024). Персоналізація навчання за допомогою онлайн-курсів та інтерактивних платформ: переваги та виклики. *Інноваційні педагогічні технології в цифровій школі: матеріали VI Міжнародній науково-практичній конференції молодих учених (Харків, 15-16 травня 2024 року)*, 188–190. <https://er.knutd.edu.ua/handle/123456789/27522>

Kyrylo Tkachuk

*Kyiv National University of Technologies and Design
(Kyiv, Ukraine)*

Nataliia Gudkova

*Kyiv National University of Technologies and Design
(Kyiv, Ukraine)*

THE ROLE OF DIGITALIZATION IN THE TRANSFORMATION OF THE MODERN ECONOMY

The rapid development of digital technologies has become one of the defining features of the twenty-first century. Digitalization affects almost every sphere of human activity, including business, education, healthcare, public administration, and finance. Today, the modern economy is increasingly based on information technologies, automation, artificial intelligence, and digital communication systems. As a result, digital transformation has become a key factor of economic growth, competitiveness, and innovation (Brynjolfsson & McAfee, 2014).

Digitalization can be defined as the integration of digital technologies into economic and social processes. It changes traditional business models, improves productivity, and creates new opportunities for enterprises and consumers. Modern companies actively implement cloud computing, big data analytics, blockchain technologies, and artificial intelligence to optimize their operations and increase

efficiency. These technologies allow businesses to reduce costs, improve customer service, and make more accurate managerial decisions (Tapscott, 2015).

One of the most significant impacts of digitalization is the transformation of the labor market. Automation and robotics replace routine and repetitive tasks, while new professions related to information technology, cybersecurity, and data analysis are emerging. Employees are required to develop digital skills and adapt to changing labor conditions. Therefore, education systems must modernize their programs to prepare specialists for the digital economy. Online learning platforms and digital educational tools also contribute to improving access to education and professional development (Schwab, 2017).

Digitalization also plays an important role in the development of entrepreneurship and international trade. E-commerce platforms enable companies to sell products and services worldwide without physical limitations. Small and medium-sized enterprises can access global markets more easily due to digital technologies and online payment systems. In addition, digital marketing and social media platforms help businesses communicate directly with consumers and promote their products more effectively (Castells, 2010).

Another important aspect is the development of financial technologies (FinTech). Digital banking, mobile payments, cryptocurrencies, and blockchain systems have significantly transformed the financial sector. Consumers can perform financial transactions quickly and conveniently using smartphones and online applications. Financial institutions benefit from increased operational efficiency and reduced administrative costs. However, the expansion of digital financial services also creates challenges related to cybersecurity and data protection (World Bank, 2021).

Public administration has also experienced substantial changes due to digitalization. Many governments introduce e-government systems to improve transparency, reduce bureaucracy, and increase the quality of public services. Citizens

can access official documents, pay taxes, and communicate with government institutions online. Digital governance contributes to strengthening democracy and improving interaction between the state and society (Castells, 2010).

Despite numerous advantages, digitalization also creates serious challenges. One of the main problems is digital inequality. Not all countries, regions, or social groups have equal access to digital technologies and the internet. This inequality may deepen economic and social disparities between developed and developing countries. Another significant issue is cybersecurity. As businesses and governments rely more on digital systems, the risks of cyberattacks, data leaks, and online fraud continue to increase (World Bank, 2021).

Furthermore, excessive dependence on digital technologies may negatively affect employment in traditional industries. Some workers may lose their jobs because of automation and artificial intelligence. Consequently, governments and businesses should cooperate to support workforce retraining and social adaptation programs. Ethical issues related to artificial intelligence, personal data privacy, and digital surveillance also require international regulation and responsible policymaking (Schwab, 2017).

In conclusion, digitalization has become a powerful driver of economic transformation and global development. It improves productivity, stimulates innovation, and creates new opportunities for businesses and individuals. At the same time, digital transformation introduces new economic, social, and technological challenges that require effective management and international cooperation. The future success of the modern economy largely depends on the ability of societies to adapt to digital changes, invest in human capital, and ensure equal access to technological progress (Brynjolfsson & McAfee, 2014).

REFERENCES

1. Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.
2. Castells, M. (2010). *The rise of the network society* (2nd ed.). Wiley-Blackwell.

3. Schwab, K. (2017). The fourth industrial revolution. Crown Business.
4. Tapscott, D. (2015). The digital economy: Promise and peril in the age of networked intelligence. McGraw-Hill Education.
5. World Bank. (2021). World development report 2021: Data for better lives. World Bank Publications.

Elyzaveta Tymoshenko

*Kyiv National University of Technologies and Design
(Kyiv, Ukraine)*

Nataliia Liubymova

*Kyiv National University of Technologies and Design
(Kyiv, Ukraine)*

FROM SCENT TO VISUAL CODE: IDENTITY DESIGN IN CONTEMPORARY PERFUME BRANDING

In contemporary design practice, perfume branding represents a complex interdisciplinary problem due to the intangible nature of scent. Unlike material products, fragrance cannot be directly perceived through visual or tactile means, which requires designers to develop alternative communicative strategies. As a result, identity design in the perfume industry functions as a system of visual translation, where abstract olfactory qualities are encoded through color, typography, form, and composition. This process transforms sensory perception into a structured visual language, allowing the consumer to interpret and emotionally engage with the product prior to direct experience.

The relevance of this topic is determined by the increasing role of branding within creative industries and the shift towards experience-based consumption. Modern consumers do not simply purchase products but interact with symbolic systems that communicate mood, identity, and values. In this context, perfume branding becomes a particularly illustrative case, as it operates at the intersection of sensory marketing, visual communication, and cultural production. The inability to visually represent scent directly forces designers to construct associative frameworks that translate invisible characteristics into recognizable visual codes.