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ANALYSIS OF THE EUROPEAN UNION LEGISLATIVE FRAMEWORK RELEVANT TO DESIGN AND PRINTING TECHNOLOGIES IN THE PROCESS OF LEGISLATIVE HARMONIZATION IN THE REPUBLIC OF MOLDOVA

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The study presents an analysis of the legislative framework of the European Union relevant to the field of design and printing technologies, with emphasis on regulations concerning intellectual property, environmental sustainability, the circular economy, and the digitalization of the creative industries. The study examines the degree of compatibility between European norms and the existing legislative framework in the Republic of Moldova, identifying the main normative and institutional gaps. It also analyzes the opportunities and mechanisms for implementing European standards in the graphic design and printing industry sectors, in the context of economic integration and the modernization of technological infrastructure. The study was carried out within the State Programme „Research for Ensuring Sustainable Development and Increasing Competitiveness of the Republic of Moldova in the European Context", sub-program 020408.

Key words: *legislative framework, design and printing technologies, sustainability, digitalization, circular economy.*

INTRODUCTION

The field of design and printing technologies represents a strategic sector of contemporary creative industries, characterized by the symbiosis between artistic creation, digital technology, and industrial production. Rapid technological developments, the globalization of markets, and the orientation toward sustainable development have led to the emergence of a complex legislative framework at the level of the European Union.

This framework includes regulations concerning the protection of industrial design, copyright, environmental standards, digitalization, and the circular economy. The aspirations of the Republic of Moldova, reflected in the National Development Strategy *„European Moldova 2030"* [3], demonstrate a strong commitment to harmonizing national legislation with European legislation, thereby contributing to the improvement of quality of life.

The aim of the present study is to analyze the European legislative framework applicable to the field of design and printing technologies and to identify the possibilities for its implementation within the legal and economic context of the Republic of Moldova.

EUROPEAN LEGISLATIVE FRAMEWORK RELEVANT TO THE FIELD OF DESIGN AND PRINTING TECHNOLOGIES

At the level of the European Union, the field of design and the printing industry is regulated indirectly through a set of legal instruments addressing several key dimensions:

- ecodesign and the sustainable aesthetic design of products;
- protection of the design of printing products and intellectual property rights;
- sustainability and environmental protection;
- protection of consumers' life and health through the use of ecological, natural, and health-promoting raw materials;
- digitalization of the creative industries;
- optimization and efficiency of printing manufacturing processe.

Ecodesign and the sustainable aesthetic design of products (Table 1) are regulated at the European level through: the Ecodesign for Sustainable Products Regulation, the European Green Deal, and the EU Circular Economy Action Plan.

The protection of the design of printing products and intellectual property rights (Table 1) is ensured through: the Regulation on Community Designs, the Directive on Copyright in the Digital Single Market, and the European Union Trade Mark Regulation [3-4].

Sustainability and environmental protection focus on: the European Green Deal and the EU Circular Economy Action Plan. In addition, European policies regarding waste management and material recycling contribute to reducing the environmental impact generated by printing production.

The protection of consumers' life and health through the use of ecological, natural, and health-promoting raw materials (Table 1) is also an important aspect. A key role is played by the European system for the protection of industrial design, managed by the European Union Intellectual Property Office. This system enables the registration of industrial designs at the European level and ensures the protection of visual creations in the graphic, editorial, and printing fields, as well as copyright protection.

The digitalization of the creative industries is based on the Digital Agenda for Europe, which aims to develop a competitive and innovative digital economy built on modern technological infrastructures and the extensive use of information technologies.

The optimization and efficiency of printing manufacturing processes are addressed within the European Union Industrial Strategy.

Table 1.

Legal Regulatory Dimensions of Harmonization, Principles, and Impact

Regulatory Dimensions	Principles	Impact
Ecodesign and the Sustainable Aesthetic Design of Printing Products	• reducing environmental impact from the design stage; • use of recyclable or renewable materials; • reduction of energy consumption in the production process; • increasing product lifespan; • reduction of packaging and printing waste.	• selection of ecologically certified paper; • reduction of ink consumption; • optimization of dimensions and layout to minimize material loss; • design oriented toward recyclability.

Protection of the Design of Printing Products and Intellectual Property	• stimulation of creativity and innovation; • protection of the economic interests of creators; • prevention of copying and unfair competition; • facilitation of the commercialization of creative products on the European market.	• protection of the creations of local designers; • development of the publishing and printing industry; • increased competitiveness of graphic products on the international market; • stimulation of investments in creative industries.
Sustainability and Environmental Protection	• reduction of carbon emissions in industrial processes; • efficient use of natural resources; • increased recycling of materials; • reduction of industrial waste.	• use of recycled paper or paper sourced from sustainable origins; • reduction of polluting chemical substances in inks and varnishes; • optimization of energy consumption in printing processes; • implementation of environmentally friendly production systems.
Protection of Consumers' Life and Health through Ecological, Natural, and Health-Promoting Raw Materials	• control of chemical substances used in industry; • limitation of toxic substances in inks, varnishes, and adhesives; • protection of consumer and employee health; • paper sourced from sustainably managed forests; • recycling of paper; • reduction of deforestation.	• use of inks with low volatile organic compound (VOC) content; • control of pigments and solvents; • use of ecological adhesives and varnishes.
Digitalization of the Creative Industries	• development of digital design tools; • integration of professional software in creative processes; • introduction of digital printing technologies; • automation of prepress processes; • use of computerized colour management systems; • integration of digital production workflows; • use of online platforms for product distribution; • digitalization of production workflows in the printing industry.	• modernization of the creative process and expansion of design possibilities; • expansion of markets through digital platforms; • increased technological efficiency of the printing industry; • standardization and control of colour quality; • integration of digital production workflows; • impact on the development of creative industries; • impact on professional training and education.
Optimization and Efficiency of Printing Manufacturing	• digital printing technologies with reduced resource consumption; • automation of production processes; • optimization of technological workflows.	• digital design technologies; • management of digital production workflows; • colour management systems.
Sustainability of Supply Chains	• transparent supply chains; • use of raw materials from sustainable sources; • reduction of carbon emissions in logistics processes; • optimization of product transport and distribution.	• increased transparency and responsibility in production processes; • increased economic efficiency of production processes; • • boosting international reputation and competitiveness • stimulation of technological innovation; • integration of companies into

		European economic chains; • development of responsible industrial practices; • attraction of investments in the creative industries sector.

CONCLUSIONS

The analysis highlights that the harmonization of the legislative framework of the Republic of Moldova with the regulations of the European Union represents an essential condition for the sustainable development of the design and printing technologies sector.

The implementation of European standards can contribute to the modernization of technological infrastructure, the increase of the competitiveness of the creative industries, and their integration into the European economic circuit.

In the long term, cooperation between academic institutions, the printing sector, and public authorities will play a decisive role in achieving this process of structural transformation.

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КАЗАК В., ВАСІЛІЄВ Н., АДАСКАЛІЦА Л.

АНАЛІЗ ЗАКОНОДАВЧОЇ БАЗИ ЄВРОПЕЙСЬКОГО СОЮЗУ, ЩО СТОСУЄТЬСЯ ДИЗАЙНУ ТА ПОЛІГРАФІЧНИХ ТЕХНОЛОГІЙ, У ПРОЦЕСІ ГАРМОНІЗАЦІЇ ЗАКОНОДАВСТВА В РЕСПУБЛІЦІ МОЛДОВА

Дослідження представляє аналіз законодавчої бази Європейського Союзу, що стосується сфери дизайну та поліграфічних технологій, з акцентом на нормативні акти щодо інтелектуальної власності, екологічної сталості, циркулярної економіки та цифровізації креативних індустрій. У дослідженні оцінюється ступінь сумісності європейських норм із чинною законодавчою базою Республіки Молдова, визначаються основні нормативні та інституційні прогалини. Також аналізуються можливості та механізми впровадження європейських стандартів у сфері графічного дизайну та поліграфічної промисловості в контексті економічної інтеграції та модернізації технологічної інфраструктури. Дослідження виконано в межах Державної програми «Дослідження для забезпечення сталого розвитку та підвищення конкурентоспроможності Республіки Молдова в європейському контексті», підпрограма 020408.

Ключові слова: *законодавча база, дизайн та поліграфічні технології, сталий розвиток, цифровізація, циркулярна економіка.*