

## **PERSONALIZATION IN PRINTING: HOW MARKETING APPROACHES ARE CHANGING**

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**Abstract.** *This paper explores the impact of personalization on the printing industry and the evolving approaches to marketing communication. The study examines Variable Data Printing (VDP) technology as the foundation of personalized printing, enabling the creation of unique materials tailored to each consumer. Practical examples of such solutions in advertising, packaging, and publishing are analyzed. The advantages of a personalized approach in increasing the effectiveness of advertising campaigns and fostering emotional connections with the audience are identified.*

**Keywords:** *PERSONALIZATION, PRINTING, VARIABLE DATA TECHNOLOGY, MARKETING, DIGITAL PRINTING.*

Personalization in Printing is a modern approach to creating printed materials that focuses on the individual characteristics of each recipient. It involves not just inserting a name or address into the text, but a comprehensive customization of content, design, color scheme, and even the structure of printed products based on the preferences or needs of a specific person or company. As a result, each printed copy can be unique – featuring individualized elements that convey a sense of personal attention and care.

According to a 2020 report by Smithers Pira, personalized printed materials represent the fastest-growing segment in the printing industry, showing an average annual growth rate of over 5%. This trend is largely driven by the rapid development of digital printing technologies, particularly Variable Data Printing (VDP), which allows variable data to be changed without stopping the printing process [1].

Modern digital presses such as HP Indigo, Canon VarioPrint, and Xerox iGen now make it possible to implement personalization even in large print runs. This approach is actively used in the production of postcards, invitations, advertising brochures, catalogs, certificates, packaging, and other printed products.

Increasingly, dynamic personalization is being used, which includes not only text customization but also visual elements – changing images, layouts, or graphic accents according to the audience’s characteristics.

The use of personalization significantly improves the effectiveness of customer communication. Personalized materials draw more attention because they are perceived as being created specifically for the recipient. According to the Data & Marketing Association (DMA), personalized mailings demonstrate 20-30% higher response rates compared to standard messages [2]. This enhances emotional engagement, builds trust in the brand, and increases interest in the offer. People respond positively to content that reflects their personal data or preferences, as it creates a feeling of care and individualized treatment.

Furthermore, personalization allows for better adaptation of information, making it more relevant and understandable to the specific person. This reduces the likelihood that the printed message will be ignored or perceived as irrelevant.

In marketing, personalized printed materials often show significantly higher engagement, open, reading, and response rates than standard, generic alternatives. For instance, a 2023 Statista study shows that over 80% of consumers prefer brands that offer a personalized experience [3].

Thanks to digital printing, Variable Data Printing (VDP) technology, and the implementation of smart information management systems, print products are transforming from mass-produced items into flexible, individualized formats designed specifically for each recipient [4]. VDP plays a key role in this personalization process. It allows individual elements of a printed document to change from one copy to another without halting the press. This means that within a single print run, postcards, catalogs, envelopes, or advertising brochures can be produced, each containing unique data – such as a customer's name, a personalized offer, QR codes, images, or texts tailored to a specific audience.

One well-known personalization case is the Coca-Cola «Share a Coke» campaign, where personalized labels with consumer names led to a significant increase in sales and customer engagement.

The results of implementing personalization in printing are impressive: individualized materials attract more attention, retain interest, and build emotional connections with the brand. A customer who sees their name or a customized offer in a printed piece is more likely to engage with the brand and perceive it as one that cares about their interests. This approach not only boosts trust but also positively influences conversion rates and the overall return on marketing investment.

At the same time, the implementation of personalized printing requires a responsible approach. Excessive detail or intrusion into personal space can provoke negative reactions. It is also essential to adhere to ethical standards and comply with applicable data protection laws when processing personal information.

An example of successful personalization implementation in Ukrainian printing is the work of the printing house “Wolf” [5]. They use state-of-the-art digital equipment, such as the Xerox Iridesse, which allows for unique finishing on covers or inserts, including gold or silver ink printing, white ink, digital varnishing, and foiling. This makes it possible to produce personalized magazines with custom covers.

In printing, personalization goes beyond using names or addresses; it involves a deeper level of adaptation – changing colors, layout, content, and visual style depending on the characteristics of the target group. This level of detail makes printed materials feel less like mass advertising and more like a personal message from the brand.

Modern machine learning algorithms, widely used in digital marketing, are also influencing approaches to print. They help analyze large volumes of data regarding customer behavior, interests, and purchasing habits. This enables the content of printed products to be tailored to better meet the expectations and needs of each individual. For

instance, a company can create a catalog featuring specially selected products for a specific buyer or print greetings based on purchase history and important dates.

Audience segmentation plays a key role in this process. Clustering algorithms allow marketers to identify consumer groups based on demographics, geolocation, activity levels, or areas of interest. This ensures flexibility in creating multiple versions of design, content, or visual style that will be most effective for each segment.

In close synergy with variable data printing (VDP) technology, this enables the rapid launch of personalized products to market without the need for additional expenses on new forms or separate print processes. The effects of such approaches are evident: personalized printed materials attract more interest, hold attention, and foster emotional connections with brands.

A person who sees their name, a unique offer, or visuals tailored to their interests is far more likely to engage with that material than with a generic flyer or brochure. These elements increase trust in the company and therefore boost engagement. Additionally, businesses can optimize costs: instead of printing a large run of universal materials, they can distribute targeted information that yields a higher conversion rate.

However, personalization in printing requires a cautious and responsible approach. Excessive detail, when not justified by context, may cause discomfort for the client, while breaches of personal data confidentiality can lead to serious legal consequences.

Following the implementation of the General Data Protection Regulation (GDPR) in Europe and the California Consumer Privacy Act (CCPA) in the United States, companies must strictly adhere to ethical standards and legal requirements when processing personal data. Effective personalization must therefore be based not only on technological capabilities but also on high standards of privacy, trust, and responsibility in consumer interaction.

Today, personalization in print serves as a powerful tool for enhancing marketing communication efficiency. With the implementation of Variable Data Printing (VDP) and modern digital printing systems, it has become possible to create unique printed materials that account for the individual characteristics of each consumer. Personalized products not only foster emotional connections with audiences but also show higher engagement and conversion rates compared to standard solutions. At the same time, personalization demands compliance with ethical and legal standards concerning personal data protection.

Thus, the integration of personalized approaches into print has become a key factor in successful brand development in today's market environment.

To better understand the impact of personalization on the effectiveness of printed products, a survey was conducted among the target audience. The study involved 30 respondents of various ages and social backgrounds.

The results showed that 61.5% of participants experienced a positive emotional response – such as a pleasant surprise – when receiving personalized printed materials. Another 30.8% noted that such an approach increases their trust in the brand (fig. 1). This indicates that the vast majority of respondents view personalization in print positively.

9. Як би ви оцінили свої емоції при отриманні персоналізованої друкованої продукції?



Figure 1 – Survey chart on customer emotions when receiving personalized products

The audience's response to the potential increase in the cost of personalized products is also noteworthy (fig. 2).

4. Чи готові ви доплатити за продукцію, яка створена спеціально для вас?

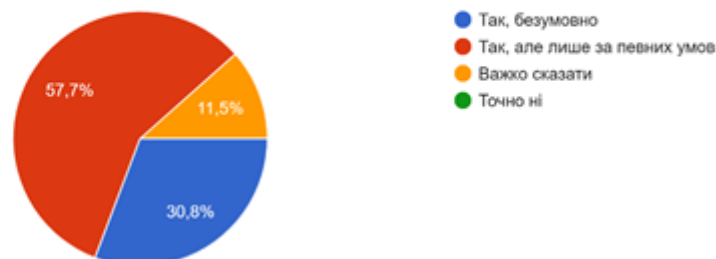


Figure 2 – Survey chart on willingness to pay extra for personalized products

In response to the question about their willingness to pay extra for products created specifically for them, 88.5% of participants answered affirmatively: 57.7% under certain conditions, and 30.8% without reservations. Only 11.5% were undecided. This indicates consumers' readiness to recognize the value of individualized solutions and provides additional opportunities for effective marketing.

Particularly illustrative is the reaction of the younger audience aged 18-30: over 80% of this group emphasized the importance of personalization in shaping their perception of a brand. At the same time, 58% of respondents expressed concerns about the excessive use of personal data in printed materials. This highlights the necessity of strict adherence to privacy requirements in accordance with GDPR and CCPA standards.

In the coming years, experts anticipate even greater growth in personalization, driven by the deepening integration of artificial intelligence in the printing industry. The key trends shaping the future of the field include [6]:

- hyper-personalization – printing unique copies will become as accessible as mass production. Artificial intelligence will adapt design, content, and format for each recipient based on data analysis;

– integration with digital channels – smart labels, packaging with augmented reality, and personalized catalogs will interact with digital platforms, further capturing consumer attention.

The obtained empirical data also confirm the high effectiveness of a personalized approach: it not only draws attention to printed materials but also builds emotional connections and trust, which in turn positively influence consumer behavior and companies' marketing performance. The development of digital printing in Ukraine enables the easy and efficient implementation of personalized printing products to enhance their competitiveness.

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